Chapter 5
Natural Resource-Based Livelihoods in the Context of Climate Change: Examining the Stance of Decision Makers in India

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The Earth has enough resources to meet people's needs,
but will never have enough to satisfy people's greed.

(M.K. Gandhi)

Abstract Climate change varies across different regions and leads to changes in many meteorological elements such as rainfall, temperature, sea level, and various extreme events. These changes not only affect natural and human systems independently but also their interfaces, thus changing ecosystems and production, diversity, and the functionalities of livelihoods. People engaging in primary economic activities such as farming, fishing, or forestry comprise a large proportion of the Indian population and are the most vulnerable to changes in weather patterns as they depend directly on these eco-resources for their livelihood. Therefore, it is highly essential to address the issue of climate change to ensure the steadiness of their sources of livelihood. The words of the decision makers thus become very important; any decisions regarding future development should take into account climate change and its impact on livelihoods, and correspondingly, the words of decision makers at the national and local level should reflect cognizance of this relationship. This chapter discusses the stance of the country's decision makers regarding this relationship through the means of text-based pragmatic analysis that examines decision makers' speeches and statements for their level of concern regarding the climate change–livelihood preservation relationship. It highlights the disparity between the people's

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A.K. Dutt et al. (eds.), *Spatial Diversity and Dynamics in Resources and Urban Development*, DOI 10.1007/978-94-017-9771-9_5

reality and the knowledge base of the experts, which are certainly available to these decision makers, and what really seems to concern the decision makers. The study finds that references to livelihood preservation are at best implicit when present, but are largely conspicuous by their absence in text.

Keywords Climate change • India • Pragmatic analysis

5.1 Introduction

Climate change has become a major buzzword in development discourse because of its implications for almost all aspects of development; changing environmental conditions will impact entire ecosystems, with major implications for health and well-being and on social and economic productivity (Intergovernmental Panel on Climate Change) (IPCC 2007). Climate change especially affects the people and communities whose livelihoods depend largely upon resources acquired through their natural environment, because their activities are highly climate sensitive (e.g., agriculture, fisheries, and forestry, which are dependent upon temperature regimes, land quality, water availability, and precipitation: see Ward and Shivley 2012 for review of relevant literature).

The impact of climate change on natural resource-based livelihoods is especially sharp in the global South, where a large proportion of the population depends on them for their sustenance, and where the political economies have not yet built up the resiliency to withstand significant shifts in resource availability. Africa and Asia are already feeling the shifts and unpredictability that are associated with climate change (Mendelsohn et al. 2006; Schneider et al. 2007; Ward and Shivley 2012). Agrarian livelihoods are among the most affected because of their high dependence on climatic variables; more than half of India's billion-plus population are engaged in agriculture, a significant proportion of which is primarily rain fed (Dar 2011; Food and Agricultural Organization of the United Nations [FAO] 2012), contributing to livelihood insecurity.

The question that arises, when the availability or predictability of such natural resources are threatened, and the human dimension of the impact on livelihoods becomes of great concern, is then how are decision makers addressing the matter of livelihood preservation of the multitude that depends on such resources? In fact, what is their stance toward the relationship between climate change and livelihood security? This study takes the first step toward answering these crucial questions by using pragmatic analysis (PA) on textual evidence from media reports, speeches, and addresses. This chapter highlights the disjoint between the people's experience on the ground and the pronouncements of the decision makers, despite the access of the latter to the knowledge base of experts from relevant disciplines. As the analysis shows, issues of the livelihood security of those dependent on natural resources are at best addressed implicitly but are largely conspicuous by their absence in explicit text. The significance of such an analysis derives from its ability to measure political rhetoric against its relevance to on-ground realities.

We seek to qualify at the outset that the scope of this study does not include debates on climate change (e.g., causes, extent) and the degree of its impact on resource-based livelihoods. We assume that climate change is occurring, and is and will continue to affect natural resource-based livelihoods based on the ample evidence provided in existing literature, studies, and reports emanating from academia, governments, think tanks, and the media, as cited in the study context. The primary purpose of this study is to demonstrate the value of the little-utilized methodology of PA in resource geography and development. We particularly highlight how it can be used to examine development-related discourse within contemporary contexts of (1) the challenge of climate change occurring at the global level, and (2) preserving natural resource-based livelihoods in the global South, using India as a case in point.

Further, for the purposes of this study, the natural resources we refer to are those immediately related to climate and weather conditions (temperature, precipitation, extreme events such as droughts and floods), and the primary livelihood of concern here is agricultural, because it is both highly climate sensitive and accounts for a large proportion of the livelihoods in India. Finally, we would also like to qualify that we do not seek to deem the position taken by the decision makers as wrong or right, but only seek to analyze their explicit and implicit contents. This exercise also does not seek to interpret the decision makers' perspectives, but rather, the readers' and our own (per Duffy 2008).

5.2 Study Context: Livelihoods and Climate Change in India

To provide a comprehensive context for this study, it is important to touch upon (1) the definition of livelihoods and, relatedly, of employment and jobs; (2) climate change and its impact on natural resource-based livelihoods, (3) the situation in India regarding climate change and current/potential effects on natural resource-based livelihoods. This section provides brief notes on these aspects to facilitate the creation of a larger context for the analysis. Finally, a fourth subsection provides the discourse-specific context of development paradigms and national climate change policies adopted by Indian leaders.

5.2.1 Livelihoods

In development literature, the underpinning of any understanding of sustainable livelihoods is the one provided by Chambers and Conway (1992). Based on this seminal work, Carney [1998; four cited in International Institute of Sustainable Development (IISD) 2003] defined livelihoods as follows:

> … compris[ing] the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base.

This definition is widely used in sustainable livelihoods literature and work and is adopted by us in the present work. However, for the present study, it is also important to differentiate between the concept of 'livelihoods' and the terms 'employment' and 'jobs.' A background note prepared by the United Nations Development Program (UNDP) as a contribution to the 35th session of the Commission for Social Development (theme: Productive Employment and Sustainable Livelihoods) explicitly demonstrates that 'employment' constitutes a subset of the more holistic concept of 'sustainable livelihood' (see Lawrence and Singh 1997). The note mentions the adoption of this differentiation in various developing countries, including India. The UNDP and Laotian joint Human Development Report (Ministry of Planning and Investment, and UNDP 2009) also provides a useful set of definitions for the two terms as follows:

> Employment: This refers to the engagement of a person in an economically meaningful activity. A person could be self-employed or be employed for a wage/salary. Words like 'job' and 'employment' are interchangeably used.
>
> Livelihoods: It is the whole process of how households earn a living. The process is not restricted to income from one or two main activities, but includes self-provisioning, resources obtained from commons, incomes from migration, repatriation of funds, etc., by members of the household. The word 'livelihoods' is commonly used for agrarian set ups.

These definitions are valuable references against which to evaluate the understanding and point of view of decision makers regarding livelihoods, as is demonstrated in the study analysis.

5.2.2 Climate Change

Climate change has attracted much attention from the international development community, experts, and decision makers alike. In the hundred years spanning 1906–2005, global surface temperatures increased by 0.74 °C ± 0.18 °C. It is estimated that the twenty-first century will see an increase in both the frequency and intensity of high temperature and intense rainfall events, heat waves, and extreme drought (IPCC 2007; World Bank 2008). Such extreme events and unpredictability in climatic conditions are expected to disproportionately hurt the most vulnerable, that is, those who depend directly on the natural environment for their livelihoods. Changes in meteorological elements such as rainfall, temperature, sea level, and the occurrence of extreme events affect natural and human systems independently, and in concert with other major factors to change ecosystems and production. These changes in turn impact diversity and functionalities of livelihoods by disrupting access to 'natural capital' (IISD 2003; Mendelsohn et al. 2006).

Meteorological observations since 1950 suggest that changes in both magnitude and frequency of some extreme weather and climate events in some global regions are already observable (Climate and Development Knowledge Network (CDKN) 2012; Schneider et al. 2007; World Bank 2008). As mentioned, Africa and Asia are not only expected to bear the brunt of climate change consequences but are already beginning to experience climatic shifts, extreme events, and the associated livelihood

insecurity that occurs when large proportions of the population are directly reliant on ecosystem resources (IISD 2003; IPCC 2007; Ward and Shivley 2012). Asia is experiencing trends of increased surface temperatures, greater precipitation variability, and greater intensity and frequency of extreme events such as typhoons, heat waves, floods, and mudflows, as well as an unsurprising trend of decreased crop yields in some countries (Cruz et al. 2007). South Asia, specifically, has seen an increase in the number of warm days and nights, and increase in tropical cyclones that affect coastal economies, both urban and rural (CDKN 2012).

5.2.3 Impact of Climate Change on Agriculture in India

Almost 600 million people comprise India's agricultural population, which accounts for 51 % of its labor force. Sixty percent of India's land area is under cultivation, of which 60 % is dependent on rain-fed agricultural practices, as is 60 % of livestock farming (Dar 2011; FAO 2012). Therefore, not only is a large proportion of the Indian population dependent upon agriculture as a source of livelihood, much of this livelihood is based on access to water, suitable land, and amenable climatic conditions, and is thus vulnerable to external shocks and threats to natural capital. In fact, the International Climate Risk Index ranked India the seventh most vulnerable country in the world to extreme climate events (see Kim 2011).

Climate change is one such threat that is proving to be immediate reality rather than an abstract concept in many regions of the country. Parts of Northeast India have experienced decreasing trends in average annual precipitation while the Northwest has seen reverse trends during summer months for the past few decades; annual mean temperatures and number of hot days per year have trended upward, which greatly affect crop yields (Cruz et al. 2007). Droughts and floods have become more frequent, tropical cyclone activity has become more intense, and the Indian monsoon has become much more unpredictable; many of these events have resulted in crop failure, loss of income, and loss of livelihood (CDKN 2012; Cruz et al. 2007; India Meteorological Department 2009).

Chattopadhyay and Hulme (1997) concluded from analyzing meteorological trend data spanning 1940 to 1990 that Central and Southern India showed warming trends over this period, and the country as a whole experienced increasing temperatures during the post-monsoon season. Conversely, both pan-evaporation (an integrated measure of various climatic elements such as temperature, precipitation, humidity, wind, and solar radiation) and potential evapotranspiration have decreased for the country as a whole, a trend likely to continue into the future (Chattopadhyay and Hulme 1997; Dhar and Mazumdar 2009). All these elements significantly impact agriculture, the economy, and millions of livelihoods.

Occurrence of off-seasonal natural disasters, such as drought and flooding, and patterns of change in seasonal precipitation and temperature regimes have been observed at subregional and local scales as well. The Indian monsoon is a climatic element most perceptibly affected by climate change. The southwest monsoon season (June–September) showed significantly decreasing precipitation trends from

1901 to 2003 in parts of Jharkhand, Chhattisgarh, and Kerala States, and Kerala was also found to experience large intraregional differences in rainfall trends during different seasons (Guhathakurta and Rajeevan 2006; Pal and Al-Tabbaa 2009). The National Action Plan on Climate Change (Ministry of Environment and Forests 2008) also provides a comprehensive report on observed and potential changes in surface temperature, rainfall, extreme events, and impact on sea levels and the Himalayan glaciers.

For the past several years, the media have also carried several reports on the human impact of climate change and its effect on rural lives and livelihoods. More than 200,000 farmer suicides have been reported since 1997; causes point to poverty, rise in cost of agrarian inputs, and fall in crop prices, but all this has been exacerbated by crop failures, mainly caused by droughts (Report sought on India farm suicides 2011). This and other repercussions are poignantly reported by Ramesh and Nelson (2009):

> A succession of droughts, compounded by flash floods in recent years, have destroyed crops and ruined the soil, leaving farmers in debt to loan sharks. The growing numbers who have committed suicide to escape the shame has attracted concern. But less attention has been paid to farmers handing wives and daughters to prostitution.
>
> Sangeeta, a farmer's wife from the Bundelkhand area, which straddles the massive states of Uttar Pradesh and Madhya Pradesh [was sold by her husband to a pimp] for a month to raise 2,500 rupees to settle a debt….
>
> The disclosure of a trade in women emerged as an Oxfam report detailed how climate change had affected Indian agriculture.

Floods are also equally destructive, as recounted in a report by Sengupta (2007):

> ….unusually heavy rains submerged [village] Puchaldini's fields, destroying crops, drowning cattle and goats and killing 10 people, part of a death toll of 160 across southern and western India over less than four days….The deluge turned this village into a living example of India's chronic vulnerability to the rains, which come too heavy in some years and not at all in others, destroying lives and livelihoods and sending ripples through the economy. (By Thursday, the monsoon death toll hovered near 500 across India, according to news agencies.)

Those who have lived their entire lives dependent on nature are familiar with its regular course and are now personally encountering the signs of climate change. As reported by Pallavi (2009):

> Dhodabai who lives in the Bhimashankar area of Maharashtra's Pune district is respected for her deep knowledge of weather phenomena and her ability to coherently present her observations. According to Dhondabai Asawle, 80-plus, 'Till about the 1970s, the rainfall pattern in the area could be predicted like clockwork. We planned our agricultural activities around the time-table of *nakshatras* (stars). And till I was in my 40s, I do not remember the timetable ever failing us.'

Coastal areas are already experiencing the consequences of sea-level rise, as Edwards (2005) reports:

> Tulsi Khara can sense something serious is happening. For more than 70 years she has lived on the Ganges delta in India, scraping a living off the land. But now, most of her precious two hectares has disappeared under rising waters.

> [Khara]: 'We have lost our livelihood,…Displacement and death are everywhere here. The land is shrinking and salty water gets into our fields. Why is nature turning so violent?'

Given the foregoing study context, it is important to examine the stance of decision makers on an issue that is already altering the lives and livelihoods of so many in the country. Our methodology, analysis, and findings are presented in the following sections.

5.2.4 Climate Change and Development: The Indian Context

It would be useful to bear in mind that the decision makers were likely operating within the climate prevalent during the study period of 1992–2009. During this time frame, 'sustainable development,' 'climate change,' and neoliberalism were already well accepted as established paradigms in development processes, as is well encapsulated by Drexhage and Murphy (2010, p. 2):

> …climate change has become the de facto proxy for implementation of the sustainable development agenda; but the framework of the climate changes negotiations are not always the appropriate forum for broader strategic discussions of sustainable development.
>
> While sustainable development is intended to encompass three pillars, over the past 20 years it has often been compartmentalized as an environmental issue. Added to this, and potentially more limiting for the sustainable development agenda, is the reigning orientation of development as purely economic growth. This has been the framework used by developed countries in attaining their unprecedented levels of wealth, and major and rapidly developing countries are following the same course.

Also important to the context is the position of Indian decision makers in international climate change negotiations and its domestic policies regarding the same. At, and immediately following, the landmark United Nations Conference on Environment and Development (UNCED) in 1992, a global North–South divide was palpable on climate change policies. Northern countries view the global south's growth potential as a likely source of emissions and seek to impose caps, while the southern countries see such impositions as a "neo-colonial attempt to interfere with their development," and "North–South suspicions [regarding an equity divide]…has aroused considerable domestic pressure, particularly in India, not to compromise on basic equity perceptions or 'give in' to any Northern demands." (Paterson and Grubb 1992, pp. 298–299).

India has since stuck to the demand that the 'equity principle' (per capita rather than total emissions as a basis of mitigation) should underlie all international climate change mitigation policies. Additionally, efforts in such a direction must be accompanied by knowledge and technology transfer and aid from industrialized countries (for example, clean development mechanisms), and must not compromise the Indian economic growth trajectory (see Badrinarayana 2011; Harrabin 2007,

section 'Crucial time' para. 9–16; Jha 2009; Sathaye et al. 2006). The following discussion sheds light on the Indian position on climate change policy:

> Public policy on climate change officially therefore continues to be guided by the need to eradicate poverty and develop economically. The Government of India maintains that "the most important adaptation measure to climate change is development itself"[1]. This approach can be seen in the National Action Plan on Climate Change (NAPCC) which seeks to promote development objectives that yield 'co-benefits' that address climate change but are not solely aimed at mitigation or reducing emissions. (ICP n.d. b, India and Climate Change: Introduction, para. 3)

In the last few years, India has imposed voluntary caps on emissions (Dessler and Parson 2010; Jha 2009), but these are still in line with the foregoing 'equity' and 'economic growth' priorities. The following methodology allows us to explore the stance of Indian decision makers on livelihoods as related to the foregoing contexts of climate change and related policies.

5.3 Methodology: Pragmatic Analysis

A type of discourse analysis, "Pragmatic Analysis refers to a set of linguistic and logical tools with which analysts develop systematic accounts of discursive political interactions. They endeavor to identify the full range of inferences that a reader or hearer would make when encountering the locutions of an author or speaker, considered in context." (Duffy 2008, 168). In other words, pragmatic analysis (PA) considers not only what is actually said, but also another layer of 'implied' or inferred meaning of the words. PA is particularly suited to examining political rhetoric, because it is often predicated on getting across both 'explicit and implicit,' and 'direct and indirect,' meanings of speech (Wilson 1990).

According to Duffy (2008), PA follows a number of precise 'operational' steps, enabling the systematic analysis of discourse, which he enumerates as follows:

1. Positing a set of background assumptions: this step requires the analyst/s to qualify the "pre-understanding" necessary for the reader to understand the discourse in its context. Duffy (2008) recommends that these specifications of 'background assumptions' be 'noncontroversial' to avoid conflicts and debatable points at the outset of the study.
2. Make initial specification of text's implicit contents: this step comprises the explicit enunciation of the inferences drawn from the text. These inferences should also be obvious enough to any reader of the text containing the discourse to be analyzed.
3. Dialogical argument analysis: involves the use of the foregoing step on each 'move and countermove' in the argument of the discourse. If the discourse does not include multiple parties (as in this study), this step is skipped.

[1] Text in quotation was cited by source and double-checked by authors to emanate from the National Action Plan on Climate Change (Ministry of Environment and Forests, 2008, p. 12).

4. Semantic network representation: incorporates steps 1 and 2 as well as the explicit contents of the text (the actual words), which together form a denotional and connotational matrix that can lend itself to analysis. This matrix is then used to for specifying an "action theorem" that proposes a particular result from the semantic network—a result with which the analyst/s wish the reader to concur.

   Proving the action theorem: the theorem must be validated by proving it follows logically from the semantic network. If this cannot be accomplished, the analyst/s regards the theorem as 'underspecified' and seeks to build up materials incorporated in steps 1 and 2.

   Sensitivity analysis: propositions made thus far within the semantic network are removed from it one by one. Any such removal that does not affect the validity of the action theorem is considered dispensable. All other propositions are retained.

   Syllogism construction: the propositions retained from step 6 are utilized to build a model that frames the analyst/s' perception of what a reader would interpret from the text. At this point, the PA is concluded, but its highly systematized nature allows for rigor through critical examination.

5.3.1 Data and Sources

For the present study, the text used for the analysis was sourced from statements made by political decision makers, either in news media (newspapers, interview transcripts, or press releases) or in addresses made at international and national/regional/local forums. To gain an understanding of Indian decision makers' stances on livelihoods and climate change, we conducted a search in the Lexis Nexus database for newspapers, interview and speech transcripts, and wire service relays from major world and national/regional publications containing the terms "climate change," "livelihoods," "India," and "Minister" (the last as proxy for national and state-level decision makers). This last term encompasses decision makers such as the Prime Minister of India, Ministers of State, Chief Ministers (de facto heads of States), and Cabinet Ministers. The timeframe chosen for the study was based on climate change policy-related milestones: the starting date was January 1, 1992, the year of the United Nations Conference on Environment and Development (UNCED), popularly known as the Rio Summit, where 172 governments participated and which ultimately led to the 1997 Kyoto Protocol. The end date was December 31, 2009, just as the Copenhagen Climate conference concluded, which was also the month preceding the start of this project. The database search yielded a total of 212 items, of which 60 were relevant, unduplicated items that were utilized for the final analysis. Only those items were used that placed climate change and livelihoods in the same discussion and context. However, because such items using both terms in the same context were scarce, references to the natural environment and its elements were also considered in the analysis as implicit references to factors affecting natural resource-based livelihoods.

5.3.2 *Hypotheses and Research Questions*

The primary research question, as mentioned in the introduction, was 'What is the stance of Indian decision makers toward the climate change and livelihood security relationship?' Apart from this, some other research questions of interest arose during the analysis, which are addressed in the concluding section of this chapter.

As typical of exercises in PA, no a priori assumptions were made or hypotheses posited regarding possible stances or findings. The study was intended simply to be an exploration into the positions of Indian decision makers regarding the important connections between climate change and livelihoods, using PA as a demonstration tool for facilitating such an analysis. 'Climate change' in this exercise includes references to occurrence of extreme events, climate change consequences, mitigation, and adaptation measures. 'Livelihoods' refers to natural resource-based activities that are directly affected by climate (e.g., agriculture, fisheries, forestry), and that fit the definition provided in the study context.

5.4 The Analysis: Reading Between the Lines

The semantic representation that lends itself to analysis must first make clear the background assumptions. This is a very important step in PA because the method is so highly context specific (Wilson 2005). Following Duffy's (2008) recommendations to keep these assumptions simple and straightforward, we specify that the analysis-specific background assumptions are as follows:

1. The Ministers, as elected officials, or in the case of Cabinet Ministers, appointees of elected officials, represent India, and speak and act in the interest of its citizens. The latter part is assumed here to be true in theory, to avoid any controversies—whether or not they actually act in the interest of India and its citizens is a debate outside the purview of this study.
2. By dint of their position, each of the Ministers whose words are presented here hold some degree of decision-making power; Ministers at various levels (state level, national level, and the Prime Minister) are either directly responsible for decision making or are at least actively engaged in decision-making processes at their respective levels of representation.
3. The Ministers have the necessary access to the knowledge base of experts, scientists, and policy makers in various relevant fields such as climate change, agriculture, and forestry. The knowledge base is made available to them through the media and interactions with experts, as well as the various reports produced by government and nongovernment entities—for example, as can be seen in the following media report (Global warming will hit India hard, report warns 2005):

   > Global warming will push temperatures in India up by 3°–4°C by the turn of the century, hitting agriculture and infrastructure, a joint India–U.K. study said yesterday.

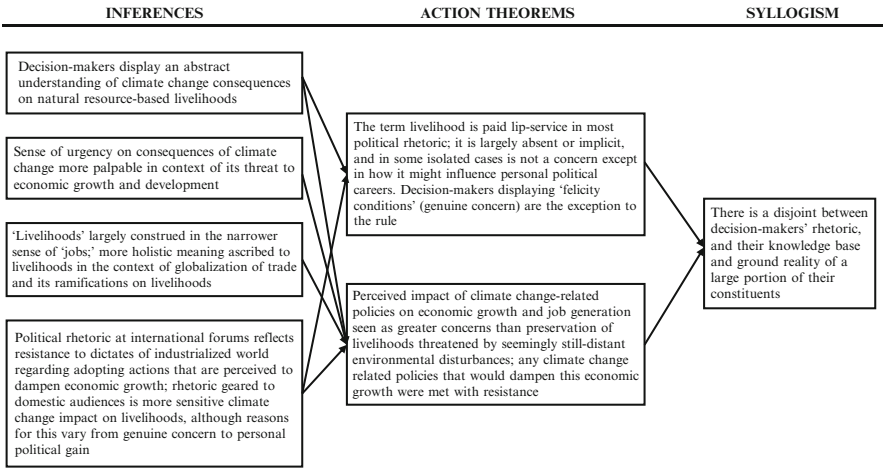

Fig. 5.1 Inferences, action theorems and final model (syllogism) emerging from pragmatic analysis of Indian decision-makers' stance on climate change impact on natural resource-based livelihoods

> Rainfall will increase substantially in many areas, resulting in problems with food supply, and affecting the livelihoods of much of the population as well as spreading diseases such as malaria, said the report released by Indian Environment Minister A. Raja and British Deputy Minister for trade and investment Ian Pearson.

The National Action Plan on Climate Change has been also available as a comprehensive resource on climate change, its consequences, and required actions since its release in June 2008.

Given these background assumptions and the context provided before, the textual data is more amenable to interpretation. In Duffy's (2008) scheme of PA, the implicit meanings inferred by the analysts should be expressly put forward as a second step of the analysis, and qualifies that these are not necessarily beyond the 'mundane.' We present some of the inferences we drew from the explicit words of decision makers on their concerns regarding climate change and livelihoods, providing some examples from the (explicit) text to support the analysis. These inferences as well as the action theorems and final syllogism that follow from the semantic network are also presented in Fig. 5.1.

First, we found that the understanding of the consequences of climate change on livelihoods is certainly present, but in an abstract sense for most decision-makers. Talk about ramifications on livelihoods is largely paid lip-service, with decision makers' rhetoric largely referring to the existence of consequences, but no detailed statements regarding concrete steps for addressing this concern. For example, the report on the meeting of heads of state at the 14th South Asian Association for Regional Cooperation (SAARC) Summit in April 2007 shows that most decision

makers are aware of the important link between climate change and livelihoods. Yet, immediate concrete action even at this Summit is limited to commissioning a panel of experts:

> The heads of the States…expressed deep concern over global climate change and the consequent rise in sea level and its impact on the lives and livelihoods in the region. They agreed to commission a team of regional experts to identify collective actions in this regard, the declaration said. (SAARC Pledge to Fight Terror 2007)

More evidence supporting this inference is found in other examples of explicit text provided in the rest of this chapter, but also in observations from other sources such as the India Climate Portal (ICP), a public resource set up to promote Indian leadership on climate change (see ICP n.d. a, Policy Brief: Towards Regional Cooperation, para. 5)

> While climate change has been part of the agenda right from the 5th SAARC Summit in 1990, even a 2007 ministerial meet in Dhaka and the [ensuing] 'SAARC Action Plan on Climate Change' yielded no concrete results. Action has been slow coming and pledges to implement the Dhaka Action Plan (2009–2012) have yet to be initiated.

Second, matters related to climate change are not seen as much as an immediate threat to environment and its resources (thus to natural resource-dependent livelihoods) as they are to economic growth and to development. Preserving and promoting India's rapid economic growth recurred repeatedly in the rhetoric in the context of climate change, in keeping with the Indian position presented in the study context, while livelihoods often took a secondary place, even when explicitly mentioned.

For instance, at the launch of the National Action Plan on Climate Change (NAPCC) on June 30, 2008, Prime Minister Manmohan Singh specifically mentioned the direct connection between climate change and its consequences on livelihoods, but only in one reference, whereas the emphasis on economic growth was more noticeable. He said:

> Without a careful long-term strategy, climate change may undermine our development efforts, with adverse consequences across the board on our people's livelihood, the environment in which they live and work, and their personal health and welfare…. The time has come for … ecologically sustainable development [but] our people have a right to economic and social development and to discard the ignominy of widespread poverty. For this we need rapid economic growth". (India PM unveils plan to fight climate change 2008)

While the Prime Minister follows up with "But I also believe that ecologically sustainable development need not be in contradiction to achieving our growth objectives," (ibid.) it is clear from constant references by him and other decision makers that growth objectives are a greater priority. In fact, just the year before, the Group of Eight (G8) Summit in Germany, where climate change, sustainability, the environment, and carbon emissions were some of the items on the agenda, India, along with some other nations, refused to support compulsory caps on greenhouse gas (GHG) emissions as a climate change mitigation measure. The emphasis on economic growth as a nonnegotiable factor was clear in the Prime Minister declaration

before leaving for this Summit: "It is a fact that more and not less development is the best way for developing countries to address themselves to the issues of preserving the environment." (Wax 2007).

A few months after the launch of the National Action Plan on Climate Change, the Prime Minister addressed the nation on the anniversary of Indian Independence and said:

> Our ancient Himalayas are under environmental threat. If the Himalayan glaciers recede, the flow of water in our sacred rivers will go down. Climate change can disrupt our economy in several ways. Some of our coastal areas could be submerged. Our monsoon pattern may change. We need long-term solutions to such threats. Our Government has come forward with a NAPCC. This plan shows how each of us must adapt our ways of working and living and how we must treat our natural resources, so that our carbon emissions remain within reasonable limits and our environment is protected. (India PM unveils plan to fight climate change 2008)

Again, the first emphasis here is on the impact of climate change on the economy; the reference to livelihoods is indirect and refers to climatic changes that will disrupt them, and to adaptation. Although mitigation through limiting GHG is mentioned, other rhetoric stresses that such "reasonable limits" will simply be anything not exceeding emissions by the developed countries: "I have already declared, as India's Prime Minister, that despite our developmental imperatives our per capita GHG emissions will not exceed the per capita GHG emissions of the developed industrialized countries" (India PM unveils plan to fight climate change 2008).

Perhaps the best example of this emphasis on economic growth is in the words of then Foreign Minister S.M. Krishna in his address to the UN General Assembly in 2009. While his address touched on various issues, on the topic of climate change, he stated: "Poverty alleviation and livelihood security are central imperatives for India. For this accelerated economic growth and energy security are critical drivers" (Krishna says India wants to resolve all issues peacefully with Pak 2009).

A third inference that we drew relates to both the foregoing inferences and concerns the decision makers' understanding of the term 'livelihood.' We found that apart from a few instances as those just given, whenever there was mention of climate change and related issues such as mitigation, the rhetoric not only tilted toward growth as a livelihood generator, but also that it reflected a more limited conceptualization of livelihoods as 'jobs.' For example, in a 2007 interview with Mike Williams of BBC News, Finance Minister P. Chidambaram was asked how India's rapid growth goals and related increases in energy consumption could be justified given consequent impact on environment and climate change issues. His reply:

> Growth is the best antidote to poverty. Growth gives incomes to people who are employed, throws up jobs for those who are not employed. Therefore growth is imperative…. (Chidambaram 2007)

In fact, the more holistic conceptualization that has greater application to resource-based agrarian livelihoods was more likely to appear in rhetoric touching upon economic issues. This is apparent later on in the same interview,

where Chidambaram mentions livelihoods, but in the context of trade issues rather than climate change:

> [GDP share of] agriculture will move down maybe 3 or 4 percent [in the next few decades]. But please remember the bulk of the working population is dependent on agriculture which is why it's important to pay attention to agriculture…. Agriculture in India today is a livelihood issue, which is why when we go to the WTO [World Trade Organization] we do not look upon agriculture as simply a trading issue, it is a livelihood issue; we have to protect the livelihood of millions of people.

Interestingly, the same 'talking point' of livelihoods as related to trade issues was echoed by Prime Minister Manmohan Singh at the 12th Business Roundtable Meeting organized by The Economist:

> Industrialized nations should unilaterally bring down their emission levels and not use the issue as a bargaining tool in multi-lateral trade talks,… I hope [climate change] is not introduced as an additional conditionality in trade negotiations as it will only complicate the negotiations…. it must be recognized that for us agriculture is not just a business, but a way of life and a major source of livelihood (Keep climate out of WTO: PM 2007).

Thus, the concern with maintaining economic growth in the face of climate change issues is paramount, but concern for livelihoods does not seem to garner similar attention unless it is in an economic context as opposed to climate change. Very importantly, also evident in much of the rhetoric is strong resistance toward adopting mitigation measures that might threaten the pace of economic growth, and decision makers frequently appear loath to be seen as 'toeing the line' set by the industrialized nations or the traditional 'powers that be' (also see Paterson and Grubb 1992). In fact, a decade ago, MSN Mid-Day (India hits out at developed nations 2002) reported the following remarks from then Prime Minister Atal Bihari Vajpayee at the International Climate talks at New Delhi, India:

> Asking the advanced nations to pump more funds to enhance capacity building in developing countries, Vajpayee said developing countries do not have adequate resources even to meet their basic human needs. "Climate change mitigation will bring additional strain to the already fragile economies of the developing countries [and will affect our efforts to achieve higher GDP growth rates to eradicate poverty speedily][2]", he said….Describing [sustainable] agriculture, food and nutritional wellbeing and weather-related economic loss as among the key areas of adaptation, he said "there is a need for strengthening the capacity of developing countries in coping with extreme weather events, which are increasing in frequency and severity due to climate change."

Another example of this resistance is contained in the BBC Interview with P. Chidambaram already cited (Chidambaram, 2007); after justifying the reason for rapid growth targets for India, the former Finance Minister said:

> When the rest of the world, the developed world, was growing nobody asked them why are you consuming so much energy, nobody asks them today why didn't you slow down and why didn't you consume less energy. The point is we have a right to grow, just as much as the US and Europe had a right to grow in the 19–20th Century.

[2] Text in brackets is provided to create better context, and is taken from original statements by former Indian Prime Minister Atal Bihari Vajpayee at the High Level Segment of the Eighth Session of Conference of the Parties to UN Framework Convention on Climate Change, New Delhi, 30 October, 2002.

Overall, our inferences point to the largely absent or cursory connections between climate change and livelihood concerns in decision makers' rhetoric and the greater significance of economic growth and jobs, along with resistance to dictates from developed nations that were perceived in any way to curtail the Indian economic growth trajectory. However, there were some exceptions to these general trends where the words of decision makers show genuine concern and understanding (or felicity conditions: see Duffy 2008, p. 174) of livelihood issues as related to climate change. For example, Supriya Sule, a Member of Parliament, Lok Sabha wrote in an editorial for *The Hindu* (Sule 2010):

> While we, the common people, might think that climate change is something that only the people living in the coastal regions and politicians have to worry about, the truth is quite the opposite. Everything that we depend on for our day today sustenance is directly affected by how the climate evolves over time. Be it the wheat and rice crops that get ruined due to untimely rains, thereby pushing up the prices, or the healthcare situation on the country that gets worse due to the increasing case of vector-borne diseases….While global temperatures continue to rise, glaciers melt and ultimately people's livelihoods and lives are lost.

Another case in point is seen in the following report (Sengupta 2007):

> Jairam Ramesh, the [then] Indian State Minister for Commerce, offered a sobering assessment. He cited a startling new study by a government economist, Arvind Virmani, who concluded that as much as 45 percent of the variation in India's gross domestic product over the last 50 years can be explained by the fluctuations in rainfall.
>
> To Ramesh, this was a warning call to a nation gripped by its own economic success. 'Many Indians seem to be living in a cocoon of self-delusion,' he said. 'Nine percent growth and world power are all for real. But if the monsoon fails, the Indian economy may show some resilience, but Indians suffer.'

However, sometimes the political motivations of local leaders are all too explicit and it is easy to infer that in some cases, political interest is a greater if not the sole concern than the livelihoods of the agrarian masses. For example, the same report (Sengupta 2007) continues about the impact of the monsoon:

> It is not for nothing that Indian politicians watch the monsoon with a keen eye.
>
> 'I track it every day,' said Manvinder Singh, a member of Parliament with the opposition Bharatiya Janata Party. His desert belt district in the western state of Rajasthan was submerged in three days of fluke rains last July, killing 109 people and leaving thousands marooned.
>
> This year, the forecast was good, and Singh had hope. 'The most important thing about a good monsoon is that the mood is good,' he said. 'And anything which creates a good mood is always good for politics.'

Thus, our analysis brings us to an additional aspect related to the first inference; in some cases, rhetoric not only reflected cursory concern regarding climatic affects on livelihoods but also preserving and promoting of personal political interests.

5.4.1 The Action Theorems and Syllogism

According to Duffy (2008), the semantic network should facilitate the development of 'action theorems' (set of propositions flowing logically from the inference that should appeal to reader/s interpretations). The action theorem should then be

crystallized into the final step of constructing a syllogism (analysts' model of the reader's interpretation of text).

From the semantic network representation, we posit two action theorems. The first action theorem is that with few exceptions, the impact of climate change on natural resource based livelihoods is largely paid lip-service, and in some isolated cases is not a concern except in how it might influence personal political careers. The second action theorem is that perceived impact of climate change-related policies on economic growth and job generation were seen as greater concerns than preservation of livelihoods threatened by some seemingly still-distant environmental disturbances; any climate change-related policies that would dampen this economic growth were met with resistance. This action theorem also finds support from outside the semantic network representation, as demonstrated in the fourth subsection of the study context.

The syllogism that follows is that there is a disjoint between decision makers' rhetoric on the one hand, and their knowledge base and ground reality of a large portion of their constituents on the other hand. The rhetoric is largely concerned with impact on economic growth and development, and in line with the national position on climate change, whereas their knowledge base and actual ground reality are largely related to impact on access to natural capital. The stance of decision makers belies their greater concern for preserving economic growth and job generation (with a seeming conflation of livelihoods and jobs), while concern for the security of natural resource-based livelihoods is implicit at best and largely conspicuous by its absence in text.

5.5 Future Research Directions and Concluding Remarks

Although the primary research question of this study has been explored and answered, two secondary questions arose during the analysis, which we attempt to answer here. The first was: How long after the 1992 Rio Summit did climate change and livelihoods become a topic that appeared in decision makers' rhetoric? From our search of relevant data items, it appears that it took a full decade for this issue to become a significant part of Indian decision makers' speeches and addresses at various forums. The second question was: Does the point of view of decision makers change according to the nature of the forum? For example, are positions taken at international forums different from that at local forums? This question arose because we noted that rhetoric prioritizing, economic growth, and resisting policies from the developed world that might potentially curb this growth were largely apparent at international forums, but that the decision makers' stance became more sensitive to climate change–livelihood connections when the forum changed from the international to the local level. In effect, decision makers seemed mindful of their audience and the audience's reception of their words: economic growth concerns were played on at international forums where such rhetoric and resistance to the global north is perceived favorably by the Indian public (see, for example, Paterson and Grubb 1992;

Boykoff 2010; Jha 2009), but are not as apparent in local-level rhetoric as is concern with the environment that makes livelihoods possible.

Future research in this vein would be valuable, including finding and researching larger semantic networks[3] to answer more effectively all the foregoing questions, as well as for additional exercises such as matching rhetoric against on-ground efforts and extending the scope of the study to include an argument analysis of climate change negotiations to examine decision makers' priorities. The latter proposed research direction would be particularly valuable given that many new schemes and programs have been talked about by various decision makers to handle the issue of livelihood security in the face of climate change. For example, "empowering local panchayati raj institutions [five-member councils] and making them aware about the impact of the changes in the livelihood issues" (Sharma 2009) and "training the rural poor to be climate managers and … appointing a climate change coordinator for every village panchayat (council) in the country." (Pope 2008). Because effective implementation of such programs remains undetermined, it is here that PA can be used to gauge rhetoric versus action.

Another useful exercise would be to analyze the words of experts to examine their implicit allegiances and priorities. For example, Noble laureate and Intergovernmental Panel on Climate Change (IPCC) Chairman R.K. Pachauri warned of consequences of ignoring climate change and advocates awareness and appropriate, sustainable agricultural practices (Climate change may reduce India's crop production—Nobel laureate 2007):

> 'Basically, yields of some crops like wheat, rice and pulses will go down. We have got evidence on decline in the productivity of wheat in the country. It is high time farmers should know why their yields are not growing,' he noted. …Pachauri said farmers have to realize that they cannot take natural resources for granted. They should be aware of water scarcity, which is likely to grow in future. …'Also, farmers perhaps need to change their cropping pattern and agricultural practices to adapt to climate change.'

However, Dr Akhilesh Gupta, Advisor Scientist and Coordinator of National Climate Change Program of the Government of India, paints a less dire picture:

> [He] described the hype overmelting of glaciers as pressure tactics being used against India by developed countries to reduce carbon emissions.
>
> 'Many studies have shown that glaciers in Jammu and Kashmir had not receded at all and were static as compared to the previous available data. We cannot ignore the threat, but we should not panic and abandon development either. We still have time to adopt more sustainable models,' he said. (Verma 2009)

The present research is thus significant in that it has also brought up more questions that should be explored, such as those presented here. As for its significance as it currently stands, the syllogism or final model emanating from our analysis reveals the disjoint between the decision makers' emphasis on economic growth and the

[3] It is, however, important to remember that the context-specific nature of Pragmatic Analysis means that it is not amenable to automated analytical procedures; thus, Duffy (2008) cautions against overly large corpora for analysis.

realities of the rural masses—in conclusion, we leave readers with the following example that ably demonstrates this phenomenon:

> Two very different recent scenes from India: At a power breakfast between many of the country's corporate leaders and top economic officials, the former Finance Minister Pranab Mukherjee declared that India had 'weathered the storm' of the global economic crisis and was witnessing 'green shoots' in industry and services that signaled a return to more rapid growth by next year.
>
> Hundreds of kilometers away in this farming village in the southern Indian state of Andhra Pradesh, weeds were the only green shoots sprouting in the black soil that belongs to the widow Chandli Bai. Her field went 12 weeks without rain during India's annual monsoon season before showers finally arrived on August 23, splattering down too late onto the dry dirt. Her summer crop of lentils was stillborn in the ground.
>
> 'We eat once a day,' said Mrs. Bai, 65, explaining how she and her family had survived the lack of rain. (Yardley 2009)

The contrast between the power breakfast and the one-meal-a-day existence is jarring, but real. Pragmatic analysis provides the ability to policy makers and regional planners, among others, to examine whether decision makers' statements reflect the thought processes and actions that are required within a particular context, in this case, ensuring the livelihoods of those dependent on natural capital assets, when these very resources are jeopardized by climate change.

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[4]When a website or other source not indicated, all references are data items retrieved from the Lexis Nexus as indicated in the Methodology section.

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