Discursive framings, normative preferences and the reception of global standards: the case of the regulation of South Indian animal food farming.

This thesis is submitted in fulfilment of the requirements for the degree of Doctor of Philosophy

Evelyn Nava-Fischer

Cardiff Law School

February 2013

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Abstract

When talking about the importance of the agri-food production environment and the application of food safety and sanitary measures in it, a list of growing unfortunate related events come to mind such as: the rise of diseases coming from farming production, the rocketing of environmental degradation and overexploitation of genetic farmed pools, the economically important agri-food scares and overall, the opacity of agri-food production and regulation. This thesis examines the divergence between legal measures and legal application of global agri-food standards as a legitimacy crisis and has a twofold aim. First it aims to illustrate the role that regulatory legitimacy plays in effective compliance by studying the construction of regulatory legitimacy as a discursive practice. Second, and as a result of this the thesis asks how South Indian animal farming systems and international safety and sanitary measures construct their environmental normative legitimacy and introduce some implications for the animal farming/public health international debate. In this social constructivist approach, the thesis applies a combination of environmental discourse and framing analysis –discursive framings- to empirically study the construction of (non) formally binding norms in agri-food environments. These ´discursive framings´ it is argued, help represent the architectures of green compliance embedded in agro-environmental narratives, uncovered through the uses of language. In this way, framings help detect a variety of forms of (non) endorsement of safety and sanitary measures by regulatory stakeholders and with it, their role in ´racing standards to the top or to the bottom´ in agri-food regulation.

An exploratory study comparing documents about safety and sanitary measures (believed to reinforce levels of safety and sanitary compliance in trade conflicts) in international dispute resolutions and interviews of key stakeholders in the field (believed to reflect safety and sanitary compliance in animal farming practice) in South India are conducted. The comparison of expected compliance between dispute formal documents and transcripts of actors under potential regulation provides insight into the discursive constitutions of legal and social safety and sanitary standards. It also informs on a number of counterproductive effects (cooptation, substitution or dilution of regulatory measures) when poor translation of normative preferences from global sanitary provisions of market access into the subnational agri-food environment begins to take place. The thesis empirically demonstrates *how* present public understandings of WTO-SPS Agreements in India have the potential to induce existent food safety and sanitary compliance into a race to the bottom increasing diseases from farmed animals in this country: given the consistent constellation of

discursive voids that have left scientific knowledge out of agro-ecological and animal health present concerns, subnationally and internationally. The conceptual framework, the primary and secondary data and the analyses account for this complexity, namely, the convergences and voids left among discursive constellations of green compliance and their roles in existing models of agri-food regulation. Finally, the thesis presents the contributions to the study of Dryzek´s environmental discourses that a constructivist research like this can make to the study of legitimacy crises and efficacious regulation in general and between international market access, public health and the ago-environment in India (the case studied here) in particular.

Acknowledgements

There is no question that the completion of this thesis would never have been possible without the generous and good mannered support of a great number of individuals.

First and foremost I owe an enormous debt of gratitude to my supervisors: Dr. Robert Lee, Dr. Alex Franklin, Dr. Gareth Enticott and Dr. Peter Feindt. I am very grateful to Alex Franklin, whose innovative mind conceived the importance of research into the relationship between farmer practices and regulation in an interdisciplinary perspective, and which later extended to include also other private and public actors. I am deeply grateful for the on-going intellectual and professional guidance of Dr. Lee, Dr. Peter Feindt and Dr. Gareth Enticott, who have been a huge influence on my work and life in general. I'd also like to acknowledge the role of Dr. Diego Vazquez for his contributions and long discussions over the meals and years –particularly in difficult times.

As with all research initiatives, the collection and generation of data for analysis is key to the endeavours. For this reason, I am hugely grateful to all those who gave their time during fieldwork. In particular, I would like to acknowledge former colleagues of the GIZ (German International Cooperation) for their support in accessing key informants in the decision processes and their continuous interest and advice in particular Christian Georg, Kai Berndt, Thomas Kurzidem in Eschborn Germany as well as in GIZ in Delhi, Ms Coulon and Mr. Ramesh who facilitated key contacts and information. Dr. Grubbe as well played a vital role in the research project –not least because of his openness and long lasting commitment in knowledge transfer of technical and regulatory issues across cultures but also his fascination with Indian Development. I am grateful to BRASS Associate, Dr. Jose PD of the Indian Institute of Management in Bangalore who was also a precious gatekeeper at the regional level and who assisted me through the contingency of state Indian Public Administration and as an intercultural translator. Invaluable help has been granted by Vijayan Saghunthala, who made my stay in Coimbatore so smooth and supplied all facilities for interviews and resources there. I'm grateful to my friends in India and Europe. Beyond these individuals, I am particularly thankful to all those who I have interviewed and in particular to those who gave supplementary time to read my version of their reality in order to maximise the internal rigour of this project. Finally, the pursuit of this research would never have been possible without the unwavering support of my parents and my beloved husband who has supported me all these years to achieve this result. I hope this manuscript will go some way to assist them in explaining to others, a little more easily, quite what I have been doing for the past years.

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Glossary of Abbreviations

Abbreviation	Meaning
ADMAS	Animal Disease Monitoring and Surveillance
Av	Agentic Visibility
BAS	Best Available Solution
BAT	Best Available Technique
BREG	Bioregionalist Discourse
CDA	Critical Discourse Analysis
Cr	Concretization
DA	Discourse Analysis
Dll	Distillation
EC	European Commission
ED	Environmental Discourse
EIC	Export Inspection Counciil
EM	Ecological Modern Discourse
EPS	Environmental Problem Solver Discourse
ER	Economic Rationalist Discourse
EU	European Union
FAO	World Food Organization
FSA	Food Standards Agency
GIZ	German International Cooperation (former GTZ)
GOI	Government of India

GRa	Green Radicalism
-Gral	Generalization
Gro	Green Romantic Discourse
GTZ	German Technical Cooperation
H=N	Ecocentric value
H>N	Anthropocentric value
Inst	Instrumentalization
IAHBV	Institute of Animal Health and Veterinary Biologicals
HACCP	Hazard Analysis Critical Control Point
Intve	Interactive
IPS	Indian Problem Solver Discourse
Ks	Scale of Knowledge Concern
LG	Life style Green Discourse
N	Nature
NGO	Non-Government Organisation
NT	Non Transactive
OIE	International Organization of Animal Health
PR	Promethean Discourse
PS	Problem Solver Discourse
S	Social or Other Stakeholder
SD	Sustainable Development
SPF	Standard Pathogen Free
SPS	Sanitary and Phitosanitary Measures

ST	Sustainability Discourse
SV	Survivalist Discourse
TIDP	Trade and Investment Development Program
UN	United Nations
VIV	Vakbeurs Intensieve Veehouderij (the trade fair for intensive animal farming)
WTO	World Trade Organisation

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1 Introduction

Over the last three decades, emerging countries integrating into the world trade have witnessed a rapid industrialization of agricultural production. This growth has been accompanied by a number of binding and non binding international rules and recommendations aiming to upgrade agricultural production in these countries into global market standards. First, upgrading of standards was concerned with binding levels of safety of the finished products and increasingly, non binding standards on the process of production have followed -such as those concerning, quality, provenance, ethical and health aspects of agri-food systems. The setting and implementation of these standards is claimed first, to be of considerable benefit for the consumer, whose health is better protected through a wider choice of food commodities available in the market place and second, through the improved compliance of health-related food standards based on sound science and evidence.

In recent decades the implementation of these standards not only has accompanied agricultural growth. They also have been the centre of gravitation of a number of contestations regarding their perceived excessive influence over farming environments and national autonomy. In particular, international forums such as the WTO are seen as restricting regulatory choices willing to ensure the resilience of the public goods agenda. Among a variety of events, the rise of economically important public health risks coming from farming activities, increasing carbon emissions of agricultural production, degradation of agricultural resources, poverty and food growing insecurity support the arguments of increasing contestations regarding the setting and overall legitimacy of global standards. From international trade legal disputes to social mobilizations and academic and civil society debates, perceived counterproductive effects in social and ecological environments have increased the tensions regarding both, the effective harmonization of State-negotiated international measures as well as the implementation of private international trade norms. This suggests that despite the economic advantages for some integrated productive sectors of nations and consumers; adherence to a ´race to the top´ of standards favouring healthy agri-food environments appears to be a deceptive taken for granted expectation. The variety of shapes and forms of agri-food systems, among trading countries and their expectations of compliance with sanitary and other agri-food standards and regulations appear to be, among others at the core of this legitimacy debate. They concern the difficulties to account for and accommodate the differing levels of agro-environmental and food legitimate concerns, as well as the public, private and civic imagined capacities able to consistently influence the performance of a more inclusive and sustainable trade among countries.

Some of the tensions in legitimacy in international trade however, are older than others. During colonial trade for instance tensions between trade, public health and food security were the most common (Harrison, 2006)[1]. Conflicts concerning market access and the agro-environment however, have become more acute in the last decades (Jaffee and Henson, 2005) and in particular for developing countries given the importance of agri-food production in their recent global integration. The academic debate touching upon the setting of international agri-food standards in particular through disputes settlements in the last decades (Busch et al., 2007:, Winickoff et al., 2005) has served to elucidate the kind of imbalances in the uses of knowledge and expertise in the defence of international scientific standards (Perez, 2007)[2]. In these however, less has been researched on the consistency of the implementation of such standards by the subnational sectors – the recipients or regulatees- which may have subsequently also added noise to the perception of reduction of regulatory agri-food choices. In other words, there is a growing recognition of the regulatory shifts of power from the institutional rule makers to those subject to rule making in formal and informal ways. Finally, they observe how this power can also return back to institutions in the global and local arenas (Lee and Marsden, 2009:, Haeyvaert, 2009).

Some of these studies account for the accompanying perspectives of discretionary compliance of norms' frameworks that these shifts encompass (Chayes and Chayes, 1998:, Grabosky, 1995:, Reichman, 1998). However empirical-theoretical work in the social construction of norms (such as the sense of compliance and overlap with formal regulations), has not been consistently researched (Fisher et al., 2009a). For all these apparent complexities, the study of regulatory implementation of such sectoral developments has been a more sporadic research problem in the literature.

[1] They account for the migration of an important number of infectious diseases, as well as the invasion of species in new ecosystems breaching the previously isolated biogreographic barriers. During the exploratory events and colonizations of the XV Century, they are seen to have played an important role in the security of food systems and depopulation of indigenous communities. See for instance Mooney and Cleland (2001) or Lovell (2005).

[2] Attempts to explain the setting of international standards by social scientists often appear as triggered by the efforts to control risks of new technologies in agri-food environments (for instance on Genetically Modified Organisms or Hormone Growth Promoters) through their disputes. See for instance Busch, Grove-White, Jasanoff, Winickoff and Wynne (2007), or Perez (2007). Other explanations also relate to the political interest of market shares of economies such as Young (2005). In academic literature, few subfields in social sciences have attempted to explain the dynamic of setting and implementing standards. Very recent theoretical perspectives are dealing with the emergence and institutionalization of standards more generally, the difficulties of making standards work, and the possible multiple outcomes of standards in the regulation of agri-food networks. However, this constitutes an attempt to continue documenting the different practices rather than to an analysis of the nature of such differences for the setting of normative styles and values that this thesis attempts through empirical discursive tools. For an account of these recent practices in sociology of standardisation see Timmermans and Epstein (2010) or Mutersbaugh (2005).

The present thesis recognizes the inherent intricacy of transferring global standards to local (agro-) environments. It is inspired by and devoted to an in-depth examination of the nature of the discordance between the international rules affecting animal farming spaces and the normative frameworks of stakeholders in the spaces where they are applied. More specifically, the extent to which the international framing of agricultural regulatory problems captures the complexity or leaves important voids that contrast with animal farming legitimate norms is one of the main concerns of this thesis. It acknowledges the process of rule or standard-making, as a disciplinary discursive practice of continuous negotiation (whether formal or non formal) accompanying a degree of regulatory shift. Two arenas of rule-making preferences in agri-food agreements and their discursive framings are examined: those of international dispute resolutions, through the Dispute Settlement Body of the WTO affecting animal food production and those of the animal farming norms as implemented subnationally, at the sectoral level through their stakeholders' accounts. It assumes that those regulatory spaces are highly contested and regulatory shifts are triggered by different fronts in society rather than by solely traditional top-down regulatory mechanisms. Rather than using multi-level governance concepts or a purely formal legal basis, this ´law in action´ study does this by investigating the discursive constitution of normative preferences of social and legal practices in a particular regulatory arena. More specifically, it aims to understand the state-of-the-art concerns of animal health and food safety and the pressures put on stakeholders implementing agri-food standards and to compare them with the concerns and pressures aimed, conceived and implied in international agri-food standards. A natural gap is expected to be found, however, this thesis attempts to provide new insights through which account for the *nature* of such normative diversity from a decentred perspective and to introduce some of the consequences when considering a potential regulatory accommodation- for instance through the recognition of complementarities, irreconcilable differences or possible misunderstandings when translating legal into social norms.

In fact the drawbacks of the classic traditional command and control approaches to compliance have been increasingly highlighted since the 1970s not only by the inspectors and practitioners but even more so by socio-legal academics (Lange, 1999:, Hutter, 1997:, Winter and May, 2001:, Scholz, 1984). For agri-food scholars, it remains clear that such classic regulatory efforts in terms of food safety and the agro-environment have not hindered important counterproductive effects for the agro-environment among others: the rise of diseases coming from farmed animals, economically important food scares, overexploitation and overproduction of natural stocks, obesity, reduction of genetic pools and biodiversity, the growing mutual detrimental impacts on climate

change as well as the overall increasing uncertainty about the resilience of the agri-food systems for the next generations[3].

A diversity of responses to address such challenges has taken place in the regulation of commodity chains. In particular, there is a sense of urgency to reform some legal systems to demand tighter compliance with legal measures or to take action through other forms of social and voluntary preventions (certifications, education, etc). Government regulations for instance have begun to acknowledge more actively not only food market failures, but also recognizing own public failures (Campbell and Lee, 2003a) to prevent or handle the gradual destruction of food and environmental resources in agri-food crises, such as in the public treatment of Food and Mouth Disease (FMD) in the UK and other developed countries. In developing countries on the other side, it is more often than not stated that poor governance requires a higher alignment with international minimum standards. This discourse often presents developing countries as having poor technologies and human resources and the continuous need to learn to close the gap in standards (UNEP, 2009). In developed and developing countries, public failures or lack of governance infrastructure attempt to improve the formal regulatory resilience of commodity chains. The subnational know-how or its potential value-added to the international normative frameworks is however rather less systematically assessed. This thesis explores the nature of discordance between the internationally legal and the local-sectoral embedded styles of compliance in the regulation of animal resource exploitation. It acknowledges animal resource exploitation as a discursive space where whether legal or social normalisation processes are rich and recognizable. In this regard, the thesis has the task to point at the nature of such normalization processes, their variety and similarities as a research worth consideration to expand the vision of the challenges when translating regulations across different regulatory spaces and for their improved implementation.

How animal-food standards and regulations resonate with the styles of compliance in different regulatory spaces remain an unexplored subject as well as a recurrent reduced assumption

[3] Since the accentuation in the emergence of diseases coming from farmed animals such as Hanta Virus, Ebola, Food and Mouth Disease, Avian and Swine Flu have continued to add to the list of economically important diseases in agro-environmental spaces FAO (2006, 2009), not only for the real risk they represent but also for its counterproductive social amplification; see for instance Pidgeon and Kasperson (2003) or Murray and Schaller (2010). The 'diffuse impacts of fertilizer, chemical and other waste run off from industrial monocultures and factory farms on terrestrial and aquatic ecosystems and human health can endure important social inequalities, tensions and biophysical contradictions as Weis (2010) suggests. Impacts on green house emission have been equally important. As Weiss posits, the world's livestock population is leading source of greenhouse emmisions (GHGs), methane and nitrous oxide, which are much smaller by volume than carbon dioxide but more potent per unit. When this atmospheric burden is aggregated to the overdraft of water, loss of biodiversity, loss of forests, grasslands and wetlands, the growth in global livestock population emerges as one of the largest contributors to climate change (see Steinfeld, Gerber, Wassenaar, Castel, Rosales and De Haan (2006), IPPC (2007), McIntyre (2009).

in discourses of international trade, the environment and agriculture. Therefore and understanding of how such framings (whether legal or socially embedded) are used by actors and arenas to normatively be acted upon can help progress the discussion on the extent that legitimate regulation can improve agri-food systems in a developing country like India (the case study here). More generally, it can contribute to enlarge the discussions on alternative solutions to one-size-fits-all of harmonisation policies whilst also promoting a 'race to the top' of the standards of safety and healthy agro-food production.

Using a constructivist qualitative approach, the thesis develops and applies environmental discourse and framing techniques to compare the core assumptions behind norms, standards and styles of compliance (semiotic norms) of agri-food models and empirically scrutinize those in international rulings and in the agri-food systems analyzed in India. More specifically, how agro-environmental values, agency and power in rule-making practices shape and organize expected outcomes in spaces of agri-food exploitation remains implicitly taken for granted and rarely explicitly questioned or discussed for the purpose of improvement of regulatory compliance. The exposure of both, social and legal regulatory framings it will be argued-, reveal more in terms of the types of concerns and perceived abilities to comply as well as on areas to improve design of policy-regulatory issues. On one side, Discourses inherently relate to choices of ´normalization´, ´ordering´, or ´standardisation´ practices and values that when stable enough reveal processes of production of meaningful norms in all kinds of social micro processes. In this respect, a comparison of discursively embedded expectations of compliance is relevant in understanding the type of regulatory styles chosen by taking part actors. On the other side, 'frames' as used in this thesis, help identify particular filters of meaning chosen by actors to arrange their different experiences, organising their common parameters in dealing with uncertainty or providing a common grid for their different claims of ´validity'. For these reasons, it will be argued, environmental discourses and their frames – their environmental discursive framings-, lie at the heart of the understanding of convergences and divergences of agentic values, and the tensions and flows between regulatory practices at different levels.

Discourses or their frames however, cannot be actually observed, but only inferred indirectly by observing discourses and practices by actors (Vazquez and Liston-Heyes, 2008:2). In this comparative framing case discourses are particularly concerned with elements relating to the 'duties to comply' in legal regulation as well as on socio-productive ´normative´ practices intending to promote safer and more resilient animal food production systems. In order to problematise this, a number of socio-legal studies have looked at the concept of legitimate compliance with duties in environmental matters as the result of social values such as moral obligation, social influence or

fairness (Kuperan and Sutinen, 1998) or economic and social constraints towards the environment (Gunningham et al., 2004) or even communitarian over self-interest issues more generally (Braithwaite, 1995). Agri-food studies from sociology and geography on the other side, have also looked at the practices guiding cultural legitimate actions (Sonnino and Marsden, 2006:, Goodman, 1999) through the 'cultural' turn of social theory (Goodman, 2002). Few agri-food studies in social sciences however have explicitly linked the nature of those values, attitudes or conventions as a form to compare the formation of compliance and its value added in the understanding of effective rule or standard-formation and implementation. Practices of meaning have often been portrayed as of advantage to the economic regulation of production (Burns, 1983; Marsden and Wrigley, 1995; Marsden et al, 2000) or consumption (Sonnino, 2007:, Goodman and DuPuis, 2002) or to the advantage of their spatial reproductions (Murdoch, 2000; Salais and Storper, 1992) rather than to their socio-environmental regulations. As a result, the *nature* of meaningfully embedded values of compliance or the development of rules, conventions, norms or standards of conduct continue to be considered as taken for granted for economic regulation: either they are contextually locked by 'cultural turn' scholars in the black box of culturally embedded practices of economic value, or there is a lack of discernment of the diversity of environmental values and the particular ways they integrate into some meaningful normative or regulatory preferences and not others.

This thesis demonstrates that unpacking the *nature* of discursive normative preferences can bring important insights in the consistency of environmental policy-regulatory discourses. Furthermore, comparing them can be complementary to the institutional embeddedness of social and legal practices and to the study of practices at different regulatory arenas such as in the multilevel governance of the agro-environmental field. From the discursive literature interested in the normalization of conventions and the way they construct legitimacy in environmental regulation, since they can often validate how consistent beliefs and practices are, two main references are considered relevant for this task to be applied in the field of agri-food and animal production: Dryzek (2007) and Hajer (1995).

In order to hold together, environmental discourses share close basic assumptions about the quality of nature-society relationships, the role of technology, the type of regulatory intervention and likely actors to intervene, among others. Those who subscribe to close basic assumptions consistently can interpret bits of information and put them together into coherent stories or accounts (Dryzek, 2007). If framings of compliance and regulation used in more specific contexts and issues utilise basic premises just as discourses do, those framings can form a part of the same environmental storylines or meta-narrative too. An exploratory case study of one of the animal farming systems in India will inform this discussion through an exercise that seeks to identify the

styles of compliance towards food safety and healthy animal food production and to compare them with the framings of international regulations affecting those spaces. This relative comparison will also help to recognize how fit Indian agro-environmental concerns and capacities are to deal with international binding arenas.

The work of deconstruction finding the semiotic "basic elements or premises" is a speciality of discourse studies. From Foucault to Dryzek, basic elements of a discourse relate to the assumptions over relational power as well as over validities of knowledge concerns and uncertainty, specifically by positioning specific narratives of autonomy in social and natural relationships. A work of empirical recognition of such basic premises in texts is however more recent. Through the study of their socio-semantic features, Van Leeuwen tools are prominent to recognize those premises in the context captured through texts. Linking language and legitimacy, the conceptual and methodological framework of this thesis was guided by the study of such expanded assumptions of empowerment capacities towards social or environmental concerns in particular through autonomy levels (relative acceptance of hierarchy) and levels of concern (relative scales of representation).

This qualitative work examined a variety of textual materials. It was through a method of continuous granular inference and comparative exclusion of texts that relevant frame features of Van Leeuwen were actually found and compared among stakeholders. In this respect, rather than analysing a variety of contextual characteristics or acknowledging devices of contextual narratives as equally important, the discursive framing developed in this thesis selected only those features/basic premises in contexts and narratives that help to explain the process of *duty* to comply or the formation of disciplinary values enforcing "normality" in social practice. In this respect this thesis differentiates from studies of "identity" and place in that it supports the contextual sense-making and deconstruction, only to the point where human discriminatory values towards social and environmental duty can be identified. Subsequently, it uses the context to help re-construct the scene with the captured filters of disciplinary duty identified. In this respect, frames forming the values of relational autonomy and scale of social practices are prioritized over 'identity' and 'place' of social practices. In this way, different spaces of normalisation can be analysed and compared.

Constituted by the same core elements, discourses and framing architectures in a variety of re-contextualized narratives can communicate and be compared across different regulatory arenas of multi-level practice and over different rule-making preferences. These reconstructions not only allow for the localization of such discourses in their divergences relative to each other but most importantly it facilitates the potential to uncover possible convergences in normative (i.e. harmonisation) values. In this way, if social and legal regulation are framed under equal lenses of

normative parameters (i.e. levels or styles of intervention), chances to create a common ´language´ of legitimate implementation between regulators and regulatees can be also increased. Arguably, understanding and comparing the nature of national and subnational regulatory choices, possibilities of legitimate and more effective rulemaking can be expanded. Instead of imposing agentic rationalities and autonomy capacities (i.e. economic, spatial or bio-physical modelling) to imagined actors and contexts, by discerning and portraying actors´ wider core assumptions of normative values *in the field* regulatory interventions in general can be better tailored. The exploration and illustration of the confines of such green normative assumptions entering the application of food safety and sanitary measures in agri-food environments and the development of the accompanying qualitative method into framing tools across different regulatory practices constitutes the main body of this thesis.

1.1 Structure of the Thesis

Chapter Two begins with an account of the literature review involving the spatial implementation of international standards, particularly investigating the regulatory debates affecting food safety and the animal farming environment. The literature touches first upon agri-food literature as well as the claims at the international level of the setting of international standards of food safety and sanitary measures. The chapter argues that, despite the proliferation of regulatory strategies and styles of enforcement, the policy-regulatory international debates barely recognize the variety of *existing* regulatory strategies in their formal debates, making international-sectoral debates appear strongly discordant and often antagonistic. The chapter presents a synthesis of those agri-food strategies framing them according to their environmental concerns and pointing to their normative preferences, regulatory models, internal correlations and taken-for-granted assumptions. The chapter then gives an overview of the Indian agri-food regulatory aspects that make it a relevant research case in terms of international-agricultural regulation research from a constructivist perspective. It is argued that a research deconstructing normative framings clearly contributes to the illustration of similarities and differences in these regulatory spaces in order to expose the assumptions behind the apparent conflicts with international regulations, and the role that (il)legitimacy plays in complying with them.

Chapter Three leads into a discussion of the convergences between discursive studies and regulatory studies and examines some analytical concepts of both literatures. In particular it deals

with the relationship between *power*, *norms, authority and social control* and the potential it provides to better understand a more decentred and legitimate character of regulation as well as the borderlines between lawful, illegal, voluntary and social norms. Using discourse analysis concepts and techniques, the chapter explores the extent to which normalization concepts and disciplinary practices can be seen as regulatory practices constituting discourses. Through Foucault´s (knowledge and power genealogies) and Dryzek´s discursive work (on wider environmental discursive genealogies), the chapter illustrates how regulatory disciplines (whether social or legal) constitute green discursive narratives. It observes that when the knowledge and power features of regulations or norms are reproduced consistently as environmental discourses then environmental regulations can be recognized through the same discursive framings. The chapter argues that by identifying and discerning the variety of core assumptions and features that hold a narrative, storyline or metaphor together, the discursive consistency of normative or regulatory preferences can also be tested and therefore its legitimacy. In this way, regulatory disciplines can remain consistent and discursively effective as part of one environmental narrative, paradigm or discourse across its spatial organisation or can remain fragmented, inconsistent, diluted or potentially be captured by other discourses and rendered illegitimate. Finally the chapter extends the discussion on how this consistency relies on the fact that discourses are made of an imagined (*knowledge* concerns) vs an expected (agentic *autonomy* of actors*)* narrative, recognizable through the uses of discursive framings across space. In other words, it discusses that the construction of legitimacy depends on the extent to which the expected autonomy and the knowledge claims made hold together as they travel through the different arenas of (re)production of norms: those of the legal design and those of their expected practical compliance.

To find the practical techniques to prove the discursive consistency of norms (the construction of legitimacy) an analysis of how empowering capacities match their normative concerns through the uses of discursive framings in language is presented. In this, particular socio-semantic framing devices from Van Leeuwen are found relevant: the visibility of agency and scale of concern of knowledge. The chapter demonstrates that such devices can be discerned and located as part of Dryzek's discourses and thus compared among them. Using Van Leeuwen tools, the chapter demonstrates their application to identify framings in Dryzek's environmental discourses as well as in the empirical discursive arenas (through texts and transcripts). In this way, the chapter makes the case for acknowledging the 'plurality' of normative preferences and regulations in the agro-environmental space and the nature of legitimacy based on the consistency of the claims of values of compliance in relation to the expected capacities to comply. It therefore contributes to the refinement of the research questions of this thesis for our particular case study as follows: How can

compliance with international food safety and animal health regulations benefit from the recognition of the variety of normative preferences and values embedded in environmental discourses? To what extent can a discursive landscape help understand how fit Indian animal farming regulations are to implement international standard measures? What is the role of legitimacy and discursive framing in the representation or constitution of more 'effective' animal farming regulation? In short, this thesis formulated its research question in a reverse order to that of a classical problem-solution approach of regulatory provisions and their compliance design. Instead of searching for the regulatory gap and the construction of a model solution, it asked to what extent can compliance with international sanitary and animal health standards for market access be sustained by a diversity of discursively consistent and legitimate normative values in farming production?

Chapter Four addresses the questions of the thesis in terms of the concrete research design for the case of comparing normative preferences, semiotics and uses of language in the empirical case study. The investigation also responds to the limitations of the management of data in current socio-legal literature regarding the comparative perspective of semiotics and its role in empirical legal methods´ diversity. This chapter sets out the research strategy to pin point framings of projected conducts, values and beliefs of agri-food stakeholders through language in order to map their normative preferences and translate them into possible environmental discourses and regulatory narratives. For this, this chapter builds on the specific choice of framing devices and discourse core elements as combined techniques chosen in Chapter Three. It illustrates the utility of specific socio-linguistic framing devices observed in Dryzek's environmental paradigms. It then accords space to discuss the choices of data collection, requirements, sampling, coding, analysis and validation of evidence made in relation to the expected limitations of the research. Finally a coding structure to approach the data and identify discursive framings is presented for the Indian agri-food case study. In this, two particular discursive spaces of compliance by different stakeholders are targeted: Food Safety and Animal Health and Farming which have been also covered in Chapter Two.

Chapters Five and Six present empirical findings from the investigation that illustrate the development of a variety of normative preferences and normative mechanisms by the different discursive entities analyzed. Chapter Five illustrates a comparison of discursive frames of the sub-national sector of poultry farming through illustration of the analysis of transcripts of key stakeholders. Chapter Six does this at the international level, taking the discourse of the international disputes of the Hormones case in animal farming production. It examines the relative positioning of discourses, their consistency, convergences and divergences at the different levels of

discursive practice to illustrate and compare the variety of normative strategies. It uses some quotations from the main sample corpus to illustrate the positioning of knowledge and agency frames and their resulting discourses[4]. From this investigation a number of initial general scripts in terms of normative strategies emerge. With these, it is already possible to understand in Chapter Five, the tensions in the normative preferences mainly sub-national and situated stakeholders. Second, Chapter Six adds to this platform of discourses the international legal perspective. It becomes clear that it is only through the combined framing platform of environmental discourses that a more comprehensive understanding of the production of regulatory choices of environmental regulations (whether legal, social, voluntary or other informal regulations) can become discernable as part of the normative preferences in discourses.

Finally, Chapter Seven presents and discusses the main contributions of the thesis to the study of the regulations of agri-food models and their regulatory mechanisms in the area of food safety and the animal health environment. It also presents a more general overview of this investigation to socio-legal and environmental regulatory studies. It discusses the way in which research questions have been addressed and answered, the limitations encountered as well as the implications the investigation has for the future of research and practice in this area.

1.2 Background of the doctoral research

This introduction finishes with a personal note on how this research came to fruition to study agro-environmental regulatory matters in India. This leads into the discussion in Chapter Two and Three as part of the policy and literature voids encountered. This thesis is also very much the product of an Institutional Economist and Development scholar doing doctoral research in a Law as well as in a City and Rural Planning Departments, as evidenced in my concern for methods of framing of rules, and the notable interdisciplinary nature of the thesis. As a consequence of the diverse readership that this thesis provides, a middle ground between geography-informed Socio-Legal Studies and Discourse Studies is covered. I thus have the task of introducing Socio-Legal Studies to Discursive framing, and discursive framing to socio-legalist all applied in an increasingly mature area of agri-food studies too. It is also an attempt to explore grounded research of framing literature in a

[4] The complete illustration of coding of the entire data of the sample corpus is provided in the Appendix as well as a synthesis table of coding coordinates of interviews and formal documents can be found in table number 9.2.

more qualitative and systematic-like as a way to thrive for diversity on empirical socio-legal methods in the future.

The concern for framings of compliance versus framings of regulation and the examination of the tensions between the international setting of standards and their subnational agro-environmental implementations, which drives this piece of research, is very much a product of personal experience. The concept of the existence of a variety of framings across disciplines and policies regarding the environment of companies became familiar soon after University. As a recently post-graduated from La Sorbonne in institutional economics in 2000, I was engaged by a UN Agency in interdisciplinary research of social sciences, industrial corridors and research systems on Mexico. In contrast with the mainstream neoclassic bulk of literature on industrial chains, the more social sciences orientation of approaches to knowledge and industry regulation meant a rather unusual turn for an international agency. Very soon our working group was involved in social forums and social sciences network with the civil society (including the private sector). In the same time, in the public arena, a lack of ´social´ and ´environmental´ legitimacy started to emerge in greater explicit measure by the mushrooming of international civil society movements and their clashes in international summits from Seattle in 1998 through Quebec in 2001, against the global economic system.

Some years later, whilst assembling funding proposals for Development Agencies and researching programs' assessments, I came across regional projects of environment, agriculture and the promotion of WTO-trade standards, notably in Latin America and India. These projects, product of European and International funding were intended as means to increase growth of big and small clusters including agriculture, alleviate poverty and improve uses of natural resources. It was not until assessing stakeholders views in 2005 in Mexico and India, that once again I realized the recurrent and more worrying accumulated discrepancies between the objectives of programs and the expected outcomes of stakeholders of the projects – and yet the difficulties to understand and integrate the nature of those discrepancies.

In several cases, the distance between expectations, implicit assumptions and outcomes among donors, regulators and recipients became increasingly visible, yet too soon to be palpable as a fully digested illegitimate arena regarding the environment. In particular I noticed again that particular choices of knowledges and actions were beyond a dichotomic world, however often framed in this way. The forms of framing the problems still privileged some actors rather than others, limiting and locking-in the choices of other stakeholders such as (sometimes but not always) the recipients of policies themselves. In this thesis I expand on this impasse or cacophony of

framings at different scales in the next Chapter Two and how it appears to influence the implementation of different paradigms or worldviews and the according possibilities to validate and relate to people and environmental resources. From my experience, it became increasingly relevant to understand the formation of "order" in the disorder through a framing analysis which I conduct based on environmental discourse in chapter Three and Four and test for Indian stakeholders and international legal resolutions in Chapter Five and Six. The lack of consistent consideration of recipients as 'active' agents and able to discriminate according to their valid preferences and the lack of comparative tools to be able to relate to those characteristics including but also transcending the context was a personal intuitive-experiential hypothesis. It influenced my methodological choice in order to find a 'worldviews-scape' wide enough to give voice to the variety of local-sectorial discourses based on their contextual narratives as well as simple enough to explore it as a comparative practical tool.

This thesis is therefore instinctively skeptical about dichotomist views of regulatory design of pure localism or globalism and rather more inclined to a typological and more nuanced perspective of policy-regulatory ideas and actions that addresses agro-environmental problems, each one with different valid 'truths' and definition of 'capacities' to build resilient or sustained solutions. These building capacities are certainly to figure out through the make-up of their contexts and narratives but this thesis acknowledges both, the difference and the similarities of human capacities across contexts to believe and develop their normative experiences, the standards they create and regulate their legitimate choices. This work is thus an exploration of those potential avenues to accommodate those ´normalization´ preferences, *in the direction* of safer and more resilient agro-environmental exploitations and the role that international standards for trade play in these configurations.

2 Locating the research: Recognizing the discordances in the construction of international and site agri-food sanitary regimes

> "The debate continues. Whatever the answer, the reasons are not straightforward. Perhaps success depends on using the right type of negotiation for the particular time and context" (World Trade Organization officer).

In order to locate the distinctive lack of research on the nature of the discordance of international regulations affecting agri-food spaces in the developing world, it is necessary to contextualize its policy-regulatory and academic discourses. The international harmonization rules affecting agri-food spaces, such as the implementation of food safety and agro-environmental regulations, are highly contested in the public debates in some of these trading countries and expose the need for new insights to account for these challenges. This cannot be disassociated from the historical aspects of the discourses of agri-food regulation internationally as well as in India, the case examined in this thesis. This is especially true regarding the impact of agriculture on this country's basic foundations, such as its economic strength and national pride. It also illustrates the need to explore regulatory ways to accommodate the emerging critical concerns regarding food, farming, animal and human health within the national and international agri-food frameworks.

This work touches upon socio-legal studies and empirical legal studies that refer to the regulatory authority of international regulatory mechanisms as well as the integration of food and agro-environmental regulations and styles of compliance as covered explicitly or implicitly in the agri-food literature in social sciences. This reflects the need to integrate the discourses of agricultural and environmental regulation, the Nation-State and the global political economy of agricultural trade. It is also indicative of the evolution of law, rule-making and socio-legal studies' movements that have existed over the last century within the continental Weberian and Durkheimian traditions (Arnaud, 1981:, Luhmann, 1981).

The evolution of the role of law has been at its fastest in the last forty years, as at least two perspectives have challenged and redefined the role of law in society: firstly the law and

development movement of the 1960s from the US (Adelman and Paliwala, 1993)[5] and secondly, the rise of global capitalism since the 1980s. In particular, the role of capitalism led to more profound changes than the law and development theory movement (Davis and Treblicock, 1999) which called for what was considered to be an excessive role of law in societies and promoted the deregulation agenda. More progressive scholars of the law and regulation discipline, however, recognized the need to 'demonstrate the relevance of more appropriate analysis of law in a broader context comprising both the nation-state and the global political economy, as well as the advantages of a multi-disciplinary methodology encompassing other social scientific disciplines as well as law' (ibid:14–15).

With rapidly changing and interdependent regulatory contexts in the last two decades, a rising demand for more empirical evidence has emerged. This has been facilitated in part by the empirical legal studies (ELS) agenda, in particular coming from American Socio-legal Research. 'What types of law and regulation work, and what do not, how mechanisms of regulatory control could be improved and adapted, and generally, the degree to which the use of law and regulation can contribute to the overall well-being of society' (ibid:2), became some of their paramount questions. There is, therefore, a call to increase the amount of empirical legal scholarship being carried out, since the demand currently exceeds supply (Heise, 2002:821). This agenda of research, however, is dominated by quantitative empirical studies and has less recognition for qualitative empirical legal scholarship. This situation is explained in part, by the constant 'lack of capacity to undertake empirical research within the field of law', which is in turn due to a 'lack of social science training for legal researchers and, outside of the United States (still heavily influenced by quantitative perspectives), a distinct lack of interest in legal phenomena amongst social scientists' (ibid:2).

This research addresses therefore the empirical study of regulatory perspectives in the confines between agricultural and environmental issues, and more specifically, the interpretative, qualitative and empirical basis of the design and implementation of the regulatory compliance. For this reason, rather than multi-level governance or purely legalistic approaches, the thesis takes a qualitative and constructivist law in action approach, based on interviews with stakeholders of agri-food (social and legal) regulation, public decision-makers and dispute documents to reflect the different constructions of regulatory compliance in this area. The aim is to broaden the understanding of the semiotic nature of discordance to how it is translated from the international

[5] Which posited that 'development, for colonized countries, could be achieved by transposing into those countries the same systems and institutions as existed in the colonizing country', only to find out that these legal institutions had a 'much more limited role to play with change primarily coming from economic activities in which the law had little influence' (see Davis and Trebilcok in Outhwaite, 2007:501).

arena into the local agri-food sector[6] and to map the possibilities to influence a more consistent discursive practice that favours agro-environmental healthy systems and their trade.

This chapter introduces the main determinants responsible for the resonance or discordance of the rule-making and compliance mechanisms. It implies the need to open up to a further study of rule or standard-making assumptions in formal or non-formal conventions, as a way to transcend the binary existent narratives of the degree of discordance (global/local, food security/food insecurity, conventional/alternative) into a study of the nature of the determinants of such discordance. This, it is argued, can enhance not only the understanding how the boundaries of discordance are maintained, but also the direction of rule-making choices and room for manoeuvre, and overall, a sense of more resilient and legitimate regulatory change. In addition, rather than a purely behaviouralist task, such boundaries are analysed here as a paradigm issue composed by different consistent elements that include the agro-environmental concerns and the expected styles of regulation. These elements will help broaden the understanding of the nature of interpretations of compliance at different agri-food regulatory spaces, which will be unpacked in the next chapter as a regulatory framing issue better grasped through discursive tools.

First, the chapter illustrates the variety of academic regulatory strategies through a revision of environmental paradigms and their correlated styles of enforcement. It illustrates how for each discourse or paradigm a particular mechanism of regulation is expected in order to comply with particular environmental standards and concerns. It thus recognizes that in order to organize the diversity of normative practices and agro-environmental strategies, a study of their underlying paradigms, discourses or semiotic strategies is helpful as a literature review approach. This section highlights how the correlation between styles of compliance and environmental concerns present in agri-food models is a worthy research strategy. This not only appears fruitful given the similarity of regulatory strategies in agri-food studies, similar to the literature on environmental discourses, but also given the potential correlations with the concrete determinants of such paradigms, regardless of their levels of formality. The latter appears particularly helpful in the study of a developing country regulatory ´reception´ and response that may give equal importance to formal as non formal regulatory practices such as the ones analysed in this thesis.

[6] This dynamic recognizes as Commons did, the active and evolutionary nature of rule-making in society. The influence of recurrent or tipping point events transforms the social and institutional agreements and its rule mechanisms and redefines the terms of new ones. New agreements will be formed through the interpersonal worlds and the creation of (formal and informal) conventions, through renewed values, perceptions or intended conducts (in Bazzoli,1999). The extent that the new agreements stabilize will depend on the resonance of the dominant paradigm or convention with its recipients.

The discussion then moves to Indian Animal Farming in the context of the Green Revolution and the reforms that precede India´s integration to the global economy through World Trade Organization (WTO) membership. In particular, attention is given to the composition and structure of agriculture, as well as to the main actors and evolution of this sector and the literature concerned with the regulatory spaces, including informal rules in the Indian agri-food production market. It particularly introduces the main configurations between non formal normative practices and deregulation practices after India's trade growth. For such reasons, the study of discursive practices appears even more relevant to the study of decentred and legitimate regulatory practices in this context.

The following section moves to a discussion that illustrates the dichotomic relationships of the local-global divide in the public debate between the international setting of sanitary measures and the agri-food environment. First it observes the formal operationalisation process of setting and defence of sanitary measures through the Codex and the Dispute Settlement Body mechanisms of the WTO. It then makes an overview of the main academic and civil society interpretations that have led to a general public perception of decline of regulatory diversity in animal health and food safety measures. In particular, it points out how such views not only elaborate against the overall legitimacy of the WTO but also raise the fear of escalation towards a 'race to the bottom' of standards detrimental for the overall objectives of sustainable development and democratic participation.

The chapter is brought to a close after discussing the possible relationships between variety of agri-food models and normative preferences and the dichotomic narratives in the public debate at the level of international resolutions of trade defence. Particular attention is paid to the restating of the general research question of this thesis, namely to what extent, can compliance with international standards benefit of normative preferences such as the ones observed in the agri-food models? How fit is the Indian animal farming system to comply with international sanitary measures? How can these dynamics contribute to a better understanding of the nature of the trade-animal health divide in the public opinion? Overall in this thesis, it is argued that despite its apparent complexity, regulatory change sustained by legitimate expectations in the form of a diversity of forms of compliance appears a research strategy worth pursuing, given its potential to accommodate more effective implementations of regulatory change - in this case in animal farming in the south of India.

2.1 Contextualizing the constructivist research in a literature void

In the last forty years, the field of agri-food regulation has experienced a major change, driven by concerns of different sectors of society, especially when public health or environmental goods have been seen as threatened. In fact, only few decades ago, the image of intensive farming was equivalent to rural progress and growth, and translated as symbols of national pride and economic strength in both developed and many developing countries. With increasing ecological pollution, a greater number of zoonotic outbreaks, reduced genetic pools and intensive uses of resources, this representation has been affected and replaced in many cases by an image of reckless exploitation of animal resources and their environments (Clark, 1973:, Wiepkema and Koolhaas, 1993:, Van Reeth, 2007). Intensive farmers and other stakeholders in the supply chain using the commodification of animals, have not only been greatly affected, but are also in the dock for human health problems coming from zoonotic disease, animal immune resistance, absence of animal welfare, fears of genetically modified food and environmental pollution. This shift also has brought to light the tensions between agricultural trade and the agro-environment, which are increasingly visible in discourses at the sub-national and international levels. At the sub-national level, some States and their private and local counterparts have responded to such new concerns by redefining supply chain relationships with the State. Many of these pressures, such as those asking for the banning of hazardous uses of substances in intensive farming, for investment in cleaner technologies and more humane rearing, as well as in the promotion of greener consumerism, are redefining the configuration of the market systems (Schaefer et al., 2003). In some cases, the reconfiguration of stakeholders in the supply chain has involved State re-interventions with stringent measures, such as in the well known case of Foot and Mouth Disease (FMD) in the UK in 2001 (Wingfield et al., 2006:, Campbell and Lee, 2003b), or the direct promotion of green demand to set and coordinate a more sustainable supply of consumption and production of animal products (as in the case of the EU) (Lenschow, 2002). In addition, voluntary or private regulations are increasingly present in the market through certificates and labelling over the qualities and provenance of processes of production.

In many developed countries, there is greater demand for greener consumption, as well as production, which has consequences for economic trade domestically and internationally. Despite the progress in public policy and the progress through the certifications of quality and provenance of production, a number of important challenges continue to be pointed out in the search for more resilient agri-food systems. They refer to the need to build consumer *and* citizen awareness to make informed choices vis-à-vis the intergenerational environmental debt in the public discourse, as well as recognizing the *capture* problems of the implementation of greener willing regulations regardless

of their original conception or design. On the other side, many developing countries still find this reconfiguration a challenge given their priorities of economic growth and food security over intergenerational opportunities, which in turn reduce their choices to transform their fast-growing agricultural commodities sector as they are becoming globalized.

At the international level, international standards play at least the double role of enabling international market access and the promotion of safe trade. Interpretations of their application among different countries however, often hinder access towards markets and exacerbate propensities of races of sanitary standards to the bottom. Very often, discourses between agricultural trade and the agro-environment in the international public domain remain controversies of disguised protectionism for the agricultural industries. For civil society and academic scholars, on the other hand, the pervasive influence of international safety measures, in the way they are agreed under the WTO SPS and endorsed through their trade disputes mechanism is attributed as one of the main factors at reducing the regulatory sub-national choices of countries to make their products 'greener' and 'safer' according to their own citizens legitimate demands.

In this regard, environmentally activist organisations in particular in developed countries, find the signals of discretionary principles in risk assessments of sanitary issues threatening the legitimacy of the WTO-SPS Agreement as a forum and as the correct place to protect human and agro-environmental health from the challenges of today. For some, de-regulation of flows of animal commodities and their risks clearly jeopardize animal and public health (Kouba, 2003a) in most trading countries but in particular in the developing world. Some of these organizations criticize the trade-animal farming production, which should serve to account for the roots of the conflicts between the agro-environment and the setting of international standards. These organizations also blame international sanitary agreements for the lack of accountable institutions working for the public opinion and consumer preferences of countries in general (Reid and Steele, 2009) rather than for the service of powerful transnational and government lobbyists.

Access to international agri-food market surpasses the traditional private perspective of agri-food as a purely economic activity to become increasingly an issue of agricultural political economy embedded in spatial dynamics of agro-environmental health. Furthermore, they increasingly appear strategical over time in keeping future generations at resilient and ensured levels of food security among nations.

Literature and resources for trade disputes and their interpretations of the implementation and validation of standards such as those of safety and the environment are becoming a salient issue of agricultural political economy at national level across countries as they are increasingly a reason for sector-global tensions (Young, 2005). Given the binding character of resolutions and the

particularly controversial uses of skills in the dispute processes, trade defence and the 'quantification' of skills of risk assessment models (at the basis of breaches of agreed sanitary standards) represents a growing trend for which trade lawyers and environmentalist have recognized they need to prepare (Goldstein, 1989).

The influence of this scientific and technical worldview in a context attempting to harmonise trade, safety and the agricultural environments affecting important amounts of population in the globe, accounts for the need to study these with more detail. In particular, it appears necessary to recognize not only frames of narrow specialized knowledge but also those other legitimate agro-environmental concerns based on more general principles of resilience in agricultural trade.

One of the aims of this research is to compare legitimate discourses of agro-environmental regulations at the local sector and international level and analyse how socially constructed they are. When mainstream views are contested, they do it through competing constructions based on a particular valid worldview or paradigm of normative change. This thesis is an exploration of the diversity of such normative practices empirically contesting international standards and their possible collaborations, especially when implicitly or explicitly considering the role of the agro-environment. In order to organize the diversity of views found in the literature, recognition of their underlying semiotic strategies is helpful as a literature review approach. This helps in particular in the organization of the agri-food literature, their embedded environmental concerns and the incorporation of the regulatory role in informing agro-environmental regulatory aspects. The search for the assumptions behind the regulatory diversity is what the next sections turn towards from an academic social constructivist perspective in an agricultural political economy fashion. It discusses how the determinants of agro-environmental concern and duty to comply are interrelated as a top-down regulatory command, as economic strategic issue as well as a social paradigm shift with different consequences. Next section discusses these scholarships before a brief description of the Indian context of agro-environmental affairs in the last 30 years is introduced as well as the main debates in the construction of legitimacy of international sanitary standards affecting those spaces of agreement.

2.2 The regulation of agrifood systems as a contested issue in socio-legal and agri-food literature.

2.2.1 Determinants of Agro-Environmental Concern and Duty to Comply

Concern about the exploitation of agro-industrial activities in legal and social sciences was almost non-existent a decade ago. The appearance of some public health crises from animal farming activities like the fatal human disease of Creutzfeldt-Jakob in 1996 in the UK, and the foot and mouth Disease in 2001, certainly contributed to bringing animal farming regulations, biosecurity issues and agri-food activities more generally to the centre of discussions and media attention globally[7]. The fact that the incidents were economically important and the counterproductive effects of crisis management and regulations over animal farming activities raised important questions. These related to the need to open up the 'black box' of policy making and effective regulation in the animal supply chain processes and disease control. This exposed aspects of the formal and informal regulation of the animal food supply chain as well as bringing them to attention of social sciences, including, human geography and law and society analysis. The appearance of such crises in this sense served as the vehicle of disruption of the status-quo, by contesting the inertia of top-down technical and regulatory discourses used in the solving of them, and the failures of the deregulation of animal health industries (Taylor, 2003:, Law, 2006:, Bickerstaff and Simmons, 2004:, Campbell and Lee, 2003b) led to recognizing the limits of regulatory responses in controlling observed diseases as well as the existence of perceived 'scares' of infection. Public authorities recognized such risk management at first as a communication dilemma whereby 'policies responding to lay-people's perceptions of risk tend towards over regulation, while policies based entirely on scientific evidence are seen as an inadequate response that is not supported by the public' (BRC 11). The existence of social risk perceptions (Pidgeon and Kasperson, 2003), farming and veterinary cultures (Enticott et al., 2011:, Enticott and Franklin, 2007a) and customary procedures in rural markets (Harriss-White, 1995) has led to the recognition that semiotic (or practices of meaning) will continue to play an important role in policy-regulatory implementation along the food supply chain and to the recognition of the void in the study of such semiotic relations (Enticott and Franklin, 2009). With the exception of Harriss-White, such vital efforts have tended to concentrate on the extensive narratives of meaningful practices of the institutional and field contexts and there exists an important gap in the definition of interpretative aspects related to the duties to comply in the different commodity chain contexts.

[7] In particular the rise of the term of Biosecurity (BRC, 2008:15) helped to portray the idea of hazard beyond the finished product but including the processes of production.

Regulatory studies on the other hand, have struggled to find the tools and concepts to meet the new societal agricultural or environmental requirements, and regulatory literature had for a long time shown no consistent interest in this field. It is only in the past the two decades that this has stimulated a steady increase in the number of articles in socio-legal literature dealing with the relationship that corporations or agricultural productive units have with their physical environments (Gunningham, 1995:, , 2009:, Hilson et al., 2007:, Stallworthy, 1998:, May and Winter, 2000). In these empirical studies, whilst Gunningham has highlighted the importance that regulatory practices, regardless of their form of implementation work in the ´shadow of hierarchy´, Hilson has developed a research agenda more interested in the role of awareness in information regulatory regimes. Hutter (1997) and Foley (2004) on the other hand, have applied a typology of styles of enforcement, based on the regulatory work developed by Braithwaite (1990)[8]; and May and Winter (2001) recognize the importance of understanding the interrelations between formal and informal regulatory practices for the achievement of agro-environmental compliance. From these important empirical agendas in environmental regulation, the latter work recognizes more explicitly the possibility of a variety of interpretations as well as their embeddedness in formal and informal practices. In these, recognition that social and legal practices need to include awareness as well as capacity to comply is important[9]. For the purpose of a comprehensive account of the interpretative elements of procedural duties to comply, this research draws on the latter findings and recommendations of styles of enforcement.

Agri-food studies coming from social and human geography sciences, have more intensively been approaching how agri-food systems and their socio-physical environments relate in the last decade. These articles focus on different dimensions, including how these are influenced by

[8] Braithwaite, an Australian scholar has been one of the first authors to contribute to the socio-legal agenda of environmental regulation in general. Despite the fact that his late work appears to be more theoretical than empirical, his early work on styles of enforcement has been influential in the development of enforcement strategies and models. For instance, in the extractive industries' regulation strategies of punishment or persuasion in Australia in Braithwaite (1985) and in regulatory styles in Australian regulatory agencies in Braithwaite, Walker and Grabosky (1987) reflect this trend. In the latter, seven types of agencies were identified: Conciliators, Benign Big Guns, Diagnostic Inspectorates, Detached Token Enforcers, Detached Modest Enforcers, Token Enforcers and Modest Enforcers. Through his work, he has contributed to distinguishing from the traditional single continuum of 'sanctioning/deterrence' the variety of 'compliance' dimensions that combine according to their enforcement and persuasion styles and their attachments to universalistic rulebook regulation versus particularistic regulatory designs.

[9] In particular, the work of May and Winter Winter and May (2001) appears as the most comprehensive in terms of type of awareness of rules and capacity to comply which are thought to foster compliance with agro-environmental regulations. Different elements of awareness and capacity were tested (such as social motivation, calculated and normative rationalities and enforcement styles), finding that the combination of these elements is what is able to determine the variety of formalism or informalism, the accommodative regulatory process through flexible enforcements. In this sense, they have contributed to the understanding of factors shaping compliance with social and environmental regulations.

embedded relationships, creating economic value-added which include not only the classic public safety regulations of the commodity chains, but also issues of quality, provenance, competition, international pressures, workers' rights and resilience among others. Since the interest of this research is not the efficiency gains through economic embeddedness but the regulatory embeddedness for the purpose of effectiveness, accent is put on the styles of enforcement emanating from those agri-food models of practices.

The literature can be roughly classified into three different groups depending on the extent of the agro-environmental concern they support when framing the agri-food relationship: 1) as a formal 'regulatory issue'; 2) as a 'private or voluntary strategic arrangement'; or 3) as a 'paradigm shift'. This distinction is important since the assumptions the articles rely on have a major influence on the qualities of the regulatory mechanisms and models in the State-non State space of regulatory transformation. In what follows, the literature review will thus first look at how the agri-food literature has studied the determinants of agro-environmental concerns and how their social or legal regulation has emanated at the level of the agri-food models of practice proposed by such literature. The efforts of researchers to distinguish existing environmental paradigms in the practices leading to forms of conventions or more generally to regulatory strategies of the models are outlined.

2.2.2 The Agro-Environment as the Object of Formal Regulation and Compliance.

The academic literature in this field recounts the market failures or excesses of agri-food systems and the ability of companies to deliver safe finished products through non-polluting or toxic processes of production. This type of compliance model emerges more traditionally from the field of environmental, agricultural economics and public choice neo-classical literature and its authors have tended to promote the Problem Solving and Environmental Problem Solving discourse by compliance through command and policy intervention. Research generally focuses on efficiency gains by comparing the regulatory schemes of different economic models (Cropper and Oates, 1992:, Simpson and Bradford, 1996:, Lyon and Maxwell, 1999:, Cohen, 1999), or in some cases greener or cleaner technology transfers, and more recently, waste regulation (Ward et al., 1995:, Fernie and Hart, 2001). In environmental economics, the literature has tended towards green taxes (Oates, 1995), environmental quotas and tradable permits (Tietenberg and Lewis, 1992:, Goulder et al., 1998). Those studies which pursue an Environmental Problem Solver Discourse have promoted

regulatory measures that include meat and sanitary inspection, due to increasing human diseases coming from farmed animals, food and feed safety, environmental regulation and in some cases regulatory banning of animal movements and quarantines (Riviere-Cinnamond, 2006:220) or spatial belts and zonings (Blay-Palmer, 2010:123).

Evidence regarding the improvements in effectiveness in comparison to their claims is divided. In particular criticisms come from the fact that capture or implementation logic does not come from a cost-effective distribution (Aune et al., 2010) but from the fact that not all political economic problems are economic (Sagoff, 2008:24-45). Implementation problems are thus rarely recognized other than from a classical contract approach of principal-agent (Propper, 1995:, Allen, 2002). For instance, the process of regulatory capture that happened in relation to the BSE outbreak in the UK appeared in the interface between agriculture and public health. Propper's capture process observed the 'close association existing between the regulating agency and the regulatee. Hence, 'the regulatee is prompted to 'capture' or control the regulator, thus guiding the regulatory process towards their interest' (1995:82). For Riviere-Cinnamon the chain effect that originated during the BSE outbreak could explain why the Ministry of Agriculture (DEFRA) was 'captured' by interest groups in the industrial sector, hindering the government's responsiveness, as well as similar 'captured' cases in recent years during the Avian Influenza outbreaks in Asia (2006:225). Despite recognizing the highly politicized environment, perspectives of the public choice of actors are considered theoretically as pre-given. They tend to concentrate on the definitions, taxonomies and classification of public goods rather than on the agentic capacities of actors to implement such models. For economists like Riviere-Cinammon 'the way in which goods are classified will determine an alternative rationale for governments to take decisions on adequate ways of financing and/or provision of services' (2006:226). When empirical work has been made to corroborate the effectiveness of such classifications or the most appropriate forms of implementation, for instance through constructs such as willingness to pay (WTP), these tend to render passive the agentic preferences of actors (Sagoff, 2008:86). According to him, by assuming passive preferences testing possibilities to express alternative agencies (such as willingness to well being, equity, liberty, responsibility, morality, accountability, or even just 'to become involved', etc.) of recipients have been narrowed down to purely match tangible classifications for efficiency (ibid:67-86)[10]. Researchers looking for alternative agencies such as Allen (2002) through her empirical socio-legal

[10] For Sagoff, a neoclassical Willingness to Pay (WTP) tool (originally based on the Kaldor and Hicks equilibrium) to figure out implementation of public policies is worse off than a classical "invisible hand" from Adam Smith. The latter at least gives more active, spontaneous competitive qualities to the imagined agents. WTP on the other hand tends to imagine agents as passive, with limited choices of informed action. Ultimately both hinder a socially cognizable conception of the 'right and the good' (1988: 67-86).

approach to public health contract services, agree that they respond well to hierarchical relations rather than horizontal market-like transactions to obtain both effective and efficient outcomes. These forms of regulatory governance appear to lower transactions costs, through public authorities' implementation.

In other words the assumption that hierarchy plays a role in improving efficiency is more often than not only assumed, rather than explicitly analyzed. In the case of public authorities with natural hierarchical roles, recognizing the agentic variety could facilitate a better understanding of agri-food and animal farming regulatory options in their implementations.

2.2.3 The Agro-Environment as a Strategic Issue

Studies addressing the agro-environment as a strategic issue consider that the agri-business relationship with the natural environment should be handled as a source of profitability of emerging business opportunities, rather than a threat (Morley et al., 2000:, Forsman and Paananen, 2004). In this sense, this take tend to come close to management and innovation to business (Dutton and Jackson, 1987). However, studies in agri-food strategies tend to recognize a rather more open and free vision of market opportunities which can superimpose an integrated and mono-cultural tendency on spatial specializations. These markets, which have a high presence in agriculture, are of considerable dynamism and growth and continue to reshape regional agri-food geographies. They are composed of large-scale contracting firms with input suppliers, farmers, and sometimes with feed firms integrating forwards into contracting and production. One such emblematic instance is pork production in Iowa (Morgan et al., 2006) and another is broiler production in the south of the US. Models of production taking the form of Prometheans such as contract farming are characterized by ´lower margins which mean that profitability rests on "turning volume", by expanding capacity and increasing productivity, which itself requires the successful venting of surplus production´ (Boyd and Watts, 1997:215). In other words, despite the innovations in breeding control, disease management, nutrition, housing and processing, overproduction is still rooted in operating very low margins. Similar findings emerge in bio-technological joint ventures, such as the well-known Monsanto case. These forms of innovation are also based on vertical integration and collaborative arrangements (Pisano, 1991) or in public-privately arranged science parks in the biotechnology industry to create efficiency gains in particular in US agri-food sectors and in

developing countries (DaSilva et al., 2002). These models often rely on private property rights as the means for continuous innovation. Such logic emanates from 'Fordist' consumption-led productivism (Goodman and Watts, 1994:, Wilson, 2001) with more concern for quantity than quality. They tend to align with the Promethean discourse that sees nature not as scarce and vulnerable but as generous and unlimited. According to this, they devalorize production by creating overproduction, and devalorize generous nature by continuing to ´manage´ its vagaries through the continual application of short-sighted technological 'fixes' (Morgan et al., 2006:61).

A second niche of innovation has looked for alternatives sources of value in the agri-food supply chain, identified as the quality turn that includes organics, provenance value, and other producer accreditations. These regulatory forms appear close to the discourse of Ecological Modernisation relying on third-part certification and it is close to the 'win-win' paradigm advanced by Porter and Van der Linde (1995). For them, what makes firms fall into the win-win paradigm of environmental competitiveness and environmental compliance depends on the firm's ability to detect weak signals of change in the business environment and react accordingly. This idea suggests that regulation will only increase capabilities and competitiveness in those already more flexible and innovative firms with a willingness to become involved (Peters and Turner, 2004) rather than with firms of lower proactive organizational capabilities, leading to first mover advantages. In terms of effectiveness for food safety, disease control or the regulation of other processes of production, certification and standards of production have been the particular trait of agri-food models under this paradigm, helping create farmer producer and business responsiveness. Certifications thus increase consumer choice through quality, provenance, fair trade, organic, etc., adding value to the chain of agri-food production, through such third-part accreditation bodies.

According to Pouliot (2008), consumer choice through labelling presents the inconvenience that they do not necessarily reflect on implicit measures (food safety, sanitary or disease control, etc) undertaken in meat production and it assumes that consumers understand these attributes. This model is also present elsewhere in environmental law, such as in the regulation of GMOs, where labelling and consumer and producer choice are also emphasized (Hilson, 2005:, Carson and Lee, 2005). Public concern around risk is seen as adequately dealt with by providing public information and leaving people ´free´ to choose to avoid it, as they see fit, rather than regulating the risk away. Thus food safety is often a credence attribute. This means that consumers cannot usually discern before purchase, or even after consumption, whether a 'food was produced with the best or worst safety procedures, or whether a food poses a health risk' (Hilson, 2005), and in general if the process of production is ill-informed (Kysar, 2004) or if consumer grant a different meaning to it.

Overall, claims that consumer choice, based on information regarding risk, public health, safety, even quality and provenance require a strong pre-existent awareness, is more taken for granted than problematized in this paradigm (Pouliot and Sumner, 2008). Equally important and less researched is the claim that implementation of such third-part certificates is automatically more democratic. Capture by social norms or local elite dynamics can have important impacts (i.e. customary distribution of certificates, local lobbyism, local elitism, etc) and are rarely recognized in the setting of standards or certifications literature. Such agencies however play a vital role in the effectiveness of standards towards safer and more resilient agri-food systems and they appear differently in a paradigm shift environment.

2.2.4 The Agro-Environment as a Paradigm Shift

Researchers interested in this topic initially come from political sociology and so they include more radical variations of 'greener' paradigms also coming from sociology, ecology and anthropology. They call for insistent strategies for a more radical change or for more persuasive strategies (Hutter, 1997) such as public awareness, public participation, or radical lifestyle change. They have in common that they focus on the inability of traditional paradigms –such as the neo-classical economic paradigm- to deal with environmental phenomena and have suggested the introduction of new approaches of paradigms to either reinforce pressure on the State to introduce them or to persuade or trust the emergence of bottom-up food strategies.

The process of 'greening the realm' and caring for the resilience of agri-food systems in a deeper way in planning literature has been there since the 1970s, as a 'food sustainability' concept. It was then applied to agriculture 'as the production system designation that generally ran counter to the technologies of the Green revolution' (Ecotrust 2005:10). Sustainable food productions is related to 'the minimum use of non-renewable inputs (with the exception of labour) in nature's goods and services in agricultural production' (Donald, 2008:118). However, in recent years focus has shifted to sustainable food systems, expanding beyond the farm to include the rest of the food chain and viewing these issues holistically. Other resources can be linked to land resources and climate, and the growing environment to sustain the sector (Goodman and Redclift, 1991:, Bryant and Goodman, 2004).

These principles are similar to the inspired vision of sustainability developed through the Brundlant Report, the 'sustaincentric paradigm'. This paradigm sees Nature as a scarce and valuable resource and the human species as its 'stewardess': Nature is human life's support system, and therefore needs to be sustainable in the long term (Dryzek, 1997). By developing sustainable strategies and over those most damaging to the environment, environmental protection and economic development can be made compatible. These systems do not depend mainly on business dynamics since the magnitude of the change required to impose an ecocentric paradigm can be largely incompatible with the business sector (Vazquez and Liston-Heyes, 2008). For this paradigm, sustainable change is the result of cultural attitudes and norms, and thus it cannot be solely imposed from the public sector on the self-regulatory and atomistic market. ´Alternative agri-food geographies´ tend to be embedded in networks with the same concerns (Renting et al., 2003:394). These networks articulate new conventions representing new forms of political associations regulating relationships between producers, consumers and associations (Whatmore and Thorne, 1997). Agri-food networks can also be promoted through education and participation. The case of community-shared agriculture (Cone and Myhre, 2000) for instance well represents a form of commitment to the farming practice through persuaded membership participation and 'trust' (Donald, 2008:121). These alternative networks include many of the models explored in the food systems' planning literature such as community gardens, community-supported agriculture, farmers markets and other sustainability holistic networks. In this way, they allow producers and consumers market-based and community-based avenues to circumvent the 'placeless foodscapes' (Morgan et al., 2006) of national cheap food policies and distant retailers. If these practices become institutionalized into municipal Official Plans or endorsed by federal governments, they can become more enforcing than persuasive with the risk of losing the natural social bond or trust.

More radical eco-centric views and insistent strategies of compliance (Hutter, 1997) are also observed in the literature. Pepper (1993), for instance pioneered the relationship between communism and deep ecology that has inspired a more politically driven agenda of collective actions present in a Survivalist discourse. In the case of agri-food models, those have been observed more as the collective participation of fractions of society defending themselves or demanding more radical change through political intervention or using the traditional political collective arenas or mechanisms. In these, despite the fact that the organization remains the level of the community, race, culture, gender or collective property rights can become central issues (DeLind and Ferguson, 1999). This Survivalist tone denotes the need for radical redistribution of rights, usually to minorities' long deprived, including the agency of ecological practices. The emblematic case of this paradigm

has been the 'tragedy of the commons' where the disregard for the balance of ecological commons is underlined and the urgency of more interventionist styles of the State is prominent.

Overall the academic papers leave open important questions about the *relationship* between the variety of agri-food models and semiotic compliance strategies that are taken-for-granted in the configuration of the scale of concern of the agri-food model. In all the cases, the formal and non-formal (social, voluntary and informal) normalizations of those spaces appear embedded through the different but relevant dimensions they call upon.

The table below (Table 2.1) summarizes the main points observed in the agri-food sector on the basis of their agro-environmental concern discussed in the previous sections. Every section observed that for different degrees of agro-environmental concern, formal regulations exist as well as non-formal assumptions about compliance. In other words, it appears that the degree of their anthropocentric or ecocentric values plays a role in the instruments and preferences of compliance. How these correlations actually work together within and among them and what is the degree of formality, voluntary or social norms influencing the form and shape of compliance is something that cannot be deduced from this table at this point. Nevertheless, if the interest of this thesis is to understand how regulatory designs can possibly be accommodated in effective ways and in this way enrich the discussions of international harmonisation of agri-food regulations, the study of such correlations appears helpful.

Table 2.1: Literature Review of Agri-food models, Regulations and Semiotic Compliance

Agro-Env Concern	Agro-Food Model	Agro-Environmental regulations	Styles of Enforcement/ Compliance Assumptions
Anthropocentric-Commanded (political-economy)	a. Hygienic Food Models	a. Command and control regimes Food Safety regulation Adoption of less polluting Standards (toxicity, etc), Technologies and Disease Controls Enforced self-regulation based on Risk Assessments (HACCP)	Command and Control Tends to ignore role of operating customary or social norms in achieving regulation
	b. Low Carbon food systems as policy programs Community/Urban Gardens as Policy Programs	b. Trade and Caps regimes Tax and incentives regimes (Carrots and Sticks)	Insistent Strategy (Sticks) and Persuasive Strategy (Carrots) Takes for granted how operating customary or social norms cooperate with incentives.
	c. Healthy and Moral Models	c. Creative Procurement (health or resilience access)` Partial Industry regulation (market access)	Insistent Strategy Assumes levels of sufficient enforcement capacities of the State over Industry.
Anthropocentric –Strategic (cultural-economic)	d. Food Manufacturing (Fordism) Contract Farming Vertical Retailer-led Bio-technological Joint-Ventures	d. Price system, contracts and market-regulation Private Property Rights	Persuasive Strategy Assumes self-regulation capacities as the principle. Takes for granted how operating customary or social norms cooperate with market and private property.
	e. Corporate Retailing Lean Supply Chain (Toyotism) Consumerized Corporate Retailer Localized Quality	e. Information and disclosure regimes, Standards 3rd Part Certification Producer Accreditations Eco-labelling, Fair-Trade, Quality and Provenance (Certificates of Origins, etc)	Persuasive Strategy Takes for granted customary norms can be strategized (marketed or for public relations purposes). Assumes healthy levels of associative capacities.
Eco-centric Paradigm Shift (social-ecological)	f. Eco-feminist or socialist agriculture	f. Collective Property Rights regimes Relocations Social licences	Insistent Strategy Takes for granted social urge of radical change as widely shared.
	g. Community- shared Agriculture Farmers' Market Holistic Networks	g. Public Education and Participation Participation and Trust	Persuasive Strategy Assumes balanced levels of associative regulation. Takes for granted central role of social conventions and status in networks.
	h. Food Security and Human Rights Community/Urban Gardens Low-carbon personal lifestyles	h. Public Opinion, Media, Shaming and Shunning Ecological Lifestyle	Insistent or persuasive strategy Assumes pressures capacities of Media over State or Industry are sufficient. Takes for granted central role of social conventions and status. Takes for granted individual initiatives and associative capacities.

One can observe that the implied or taken-for-granted meaning of compliance or enforcement in the last column will not necessarily distinguish between formal legal or non formal-legal regulations but includes all forms of rule making and implementation pervaded by styles of implied compliance, whether hierarchical or not. In this sense, such a deconstruction will be helpful in the development of the case study aiming to distinguish not only formal norms but also aspects of customary, social, voluntary or other informal norms which do not exclude or favour developing countries´ social practices. For such purposes, the comparison of narratives of 'agro-environmental concern' and social conventions supplied has the potential to bring forward the analysis of social practices of normalization and control and taken-for-granted assumptions of the different agri-food

models. These elements will be examined in detail in the next chapter to further inspect the relationship between a policy-regulatory mix and its appropriate expectations to comply (semiotic compliance). In the meanwhile, the next section introduces those similar aspects in the relevant existent literature encountered for the case study.

2.3 Agricultural and Environmental Affairs in India (1970-2005)

With a population of 1.2 billion, India is expected to overtake China as the world´s most populous country by 2030. After Japan and China, India is the largest economy in Asia and one of the world´ s fastest growing. Despite its growth approaching two digits, India still ranks among the poorest countries in terms of income per capita (World-Bank, 2011). More specifically with a growing urban middle class to be fed, the country continues to drive Indian society into the global landscape of the emerging economies of the next century implying pressure over agro-environmental resources. Some of the critical issues associated with the agro-environment relate to the water pollution through discharges of both domestic and industrial activities, upsetting crops, land and livestock interactions and causing soil degradation (Chawla et al., 2004).

Since British Independence in 1947, India has implemented five year public policy plans in order to balance development and as in many other developing countries this has led to the concentration of urban populations and the degradation of resources. The so called Green Revolution from the end of the 1960s sought to address the prime problem of security of the food supply and self-sufficiency. Through an institutional Problem Solver Discourse, the Indian institutions adopted a populist and indiscriminate use of a natural resources paradigm for livestock and crop production that included pesticides, chemical fertilizers, subsidized electricity and no regulation of agricultural related effluents. For some observers such uses crossed the 'ceiling levels, deteriorating soil texture and increasing soil toxicity and salinity' (Chawla et al., 2004:57). India subsidies also encouraged the use of extensive (rather than targeted) irrigation techniques and extraction over conservation and constrained water allocation across crops and livestock (World-Bank, 2005). Although agro-industrial pollution of soil and water was at the heart of environmental problems, the regulation of these activities to reduce their environmental impact was not accepted given the inertia of the pre-independence discourse of self-sufficiency accompanied by the urgent need for growth to alleviate poverty through economic growth (Wharton Jr, 1968). As can be seen in Table 2.2 the agricultural sector continued to play a major role in the growth development of the country.

Table 2.2: India's Growth Performance (percentage per year)

	Total GDP	Sectoral Growth of GDP		
	Growth	*Agriculture*	*Industry*	*Services*
1970-72 to 1980-81 (average)	3.2	2.0	4.0	7.2
1981-82 to 1990-91 (average)	5.7	3.8	7.0	6.7
1991-1992	1.3	-1.1	-1.0	4.8
1992-1993	5.1	5.4	4.3	5.4
1993-1994	5.9	3.9	5.6	7.7
1994-1995	7.3	5.3	10.3	7.1
1995-1996	7.3	-0.3	12.3	10.5
1996-1997	7.8	8.8	7.7	7.2
1997	4.8	-1.5	3.8	9.8
1998	6.5	5.9	3.8	8.3
1999	6.1	1.4	5.2	9.5
2000	4.0	0.1	6.6	4.8
2001	5.4	5.7	3.3	6.5
1992-93 to 1996-1997 (average)	6.7	4.6	8.0	7.6
1997-1998 to 2001-02 (average)	5.4	2.3	4.5	7.8

Source: Economic Survey 2001-2002 Ministry of Finance, Government of India, 2002

Indian institutions were mainly oriented towards the country's economic activity and growth and their dominant institutional paradigm was 'Promethean' at the level of environmental resources. This means that whilst the state was 'Interventionist' in the regulation of agricultural commodities markets, the environmental interest and other consequences for human health were not important, environmental regulation was scarce and enforcement practically absent (Sapru, 1998). Until the 1990s, agriculture was here heavily managed through licences for the marketing of quantities of products and certifications of minimum quality standards (Harris-White, 2004) and institutionalized (high-yielding) agricultural research and technology transfer through the states (Chand, 2009).

Despite the spectacular achievement reached in increasing yields of some key commodities such as wheat, rice, maize and barley, about three-quarters of food grain production in India remained relatively unaffected in terms of productivity by the applications of the "miracle" of seeds (Bhatia, 1970) and continues to show the same important contradictions (Rajan and Marwah, 1998). Where technologies, infrastructure and new marketing licences were developed to substitute subsistence, farming income rose. However through the excessive uses of pesticides, fertilizers, credits and water, the extent of environmental problems accumulated threatening the health and resilience of agricultural activities and rural markets, (Parayil, 1992:737). Conflicting and contradictory assessments were often given by farmers about the origins of the resource degradation (Gupta, 1998). In the mid-80s, however, farmers and communities became more aware

of pollution and its consequences for human health[11]. In particular the Bhopal Pesticide catastrophe helped place more responsibility on the Indian government in environmental affairs. Community movements and media coverage were followed by complaints and judicial actions aimed at larger agricultural business with the highest visibility of chemical polluters. These preceded the enactment of some environmental regulation[12]. Such legislative efforts were largely 'Command and Control' policies framed in the 'Environmental Problem Solving' paradigm aimed to prevent major incidents and consequences to persons and environments, and served as the basis for rich principles of industrial risk management (Bowonder and Linstone, 1987:, Kahn, 2007). Regulation, however, was fragmentary and enforcement often failed due to overlapping and conflicting agencies (at the state and national level)[13] and poor willingness for implementation (Mac Sheoin, 2009) resulting from a priority of economic growth over the environment[14].

In the 1980s, the visibility of environmental problems did not trigger sustained collective or judicial actions aimed at other larger agro-industries or local agricultural practices in small farming. Problems of capture of the formal mechanisms of agricultural markets on the other hand started to

[11] Cultural and religious traditions that have influenced values in respecting wildlife and in understanding their importance to the people can be traced since Ancient India. In some cases, they have endowed creatures with different levels of agency in public life such as in the Hindu Era (i.e. during the Mauryan Period with Mohenjadaro and Harappa civilizations, although less in the Mughal Era) representing key examples of environmental life-style harmony as Mugunthan (2011) observes. More contemporary first steps and formal efforts to protect biodiversity and the environment especially in relation to forest conservation and air pollution can be found in the British India period in legislative forms that facilitated the extraction of resources rather than conservation but which later served as ulterior motives in the growth of environmental jurisprudence (i.e. the Shore Nuisance -Bombay and Kolaba- Act of 1853 and the Oriental Gas Company Act of 1857, and the Bengal Smoke Nuisance Act of 1905 and 1912 are examples of them) (ibid).

[12] Such as the Factories Act in 1987, the passage of the Environment (Protection) Act 1986, the Public Liability Insurance Act 1991, the Hazardous Waste Rules 1989 and the Manufacture, Storage and Import of Hazardous Chemicals Rules 1989. More details in the policy regulatory response to Bhopal and press influence in Mac Sheoin (2009).

[13] Which contrast with the fact that India since the Fourth Five Year Plan (1969-1974) is one of the few countries in the world whose formal constitution includes a commitment to environmental protection and improvement. Article 48A of the Constitution specifically refers to environmental protection as an obligation of the state. This provision covers the entire spectrum of environmental degradation against which the state may deliberatively impose restrictions on the use of resources that would adversely affect the environment. Article 253 of the constitution empowers parliament to make laws to give effect to international agreements and conventions and to harmonise national legislation with international agreements and conventions. However at present, constitutional provisions are liable to generate problems of jurisdiction between the central and state governments. While the federal jurisdiction and its role over the management of natural resources and the environment is considerably narrower and more restrictive than that of the state governments, the federal government can use its power to declare a 'national emergency' to impel state governments to undertake pollution control measures or use its financial power for instituting suitable actions; the so called "directed federalism" in India which appears to give functional supremacy to the federal government in achieving desired environmental objectives through fiscal incentives Dwivedi (1998).

[14] It is clear that under this discursive framework, Bhopal provided a major impetus in the growth of process safety literature as the design of models with 'inherent safety' controls. As Kletz (1991) observes, these engineering designs added safety devices to control rather than to eliminate the hazards from the start of a project weakening in this way the concept of risk.

become more visible. As Harris-White's extensive work notes, the food bureaucracy at the state and local levels' apparatus was not characterised so much by price competition as by jostling for access to the food bureaucracy, with whom accommodative relations of black marketing were recurrent. The regulations of agricultural markets were addressing mainly the promotion of consumers´ confidence in agricultural products such as with the Agricultural Produce Grading and Marketing Act (AGMARK) defining standards of quality. However these did not hinder the concentration of supplies at a few points (big mills) in order to minimise transaction costs, or the excessive surplus in some regions and undersupply in others which incentivised a great number of informally regulated intermediaries and shares of their profits. Concentration of supplies created oligopolies (Harris-white, 1996) that were maintained and protected by the rationing of licences and by patronage and accommodation between individual millers, food departments and corporations in particular regions discriminating against others (Chand, 2003).

After fiscal difficulties to maintain this model, and growing social discomfort, Indian Institutions have embarked on more structural reforms since 1991 aiming to liberalise the economy and to create and attract foreign investment. In this reform, the earlier concerns about the poor and the traditional policy of keeping food prices low as a critically important anti-poverty measure has been transformed by the discursive strategy of the need for achieving higher incentive and profitability to the 'rural' producers. In this period the livestock sector has been more dormant than in the previous phase. By integrating more explicitly the private sector in this growth strategy, the government developed an Environmental Problem strategy. Since 1993 through the Environmental Action Programme, gaps in the policy and administrative institutional frameworks have more openly recognized problems of implementation (Dwivedi, 1998:150-154). Such attempts of the Government sought to promote the development of a vast infrastructure for dairy production, procurement and marketing in the distribution of milk (Doornbos et al., 1990). Furthermore, the population in India started to abandon patterns of pure vegetarianism and the improvement of purchase capacity increasing livestock production. For this reason and with few exceptions[15], the livestock revolution is considered in this regard to be demand rather than offer led as in the green supply revolution. In this, similar pillars sustain the dominant "Problem Solver" paradigm of the livestock revolution: artificial insemination or cross-breeding of high yielding varieties and little concern for animal health or welfare.

[15] For Chawla, Kurup and Sharma (2004) for instance, patterns in growth in livestock per capita have not essentially changed in the last fifty years, rather only its composition. It is then only some types of breeds that have increased. As they argue, this could be explained through a better integration into local markets.

Important changes in the trade policy regime in India have occurred since 1991 with the membership of India of the WTO, which together with important national reforms have led to an important growth rate of the economy (see Figure 2.1). The objective of these reforms has been to enhance export performance by improving export incentives and eliminating discretionary controls. Although these were designed to affect mainly the non-agricultural controls, the economic reforms permeated the development of agricultural production.

Figure 2.1: Annual GDP Growth Rate (2000-2010)

Despite the formal State and non-State regulation progress on these markets, informal private markets still appeared heavily governed by social structures of caste, gender and by local elites at the end of the 1990s. They set the informal rules and norms, the terms of access, prices for bribes and distribution of returns (Harriss-White, 2003a:74-92). Additional legitimacy problems are linked to the influence of religious and social conditions in the distribution of licences, as well as general contingency which continuously played an important role in the informal regulation of agricultural markets (Harris-White and Sinha, 2007). They contrast with the high degree of specification of formal regulations in agricultural markets. Harris-White's important case studies in the South of India reveal other problems of implementation of agricultural markets: evasion of licences by traders, uncompensated delays and arbitrary deductions, resistance to centralization of transactions, and the one-to-one informal transactions as the most common form of contract in rural India (Harriss-White, 1995:588). For her, it is clear that the informal rules on the uses of licences and quality certifications that occurred after the economic reforms in 1991 have added a

level of complexity to the outcomes of the deregulation of agricultural policy at the local level. This suggests a great divergence between formal and non-formal regulations in the practical access to agricultural markets.

In other words, important apparent contradictions continue to define the relation between legal regulation in the agricultural markets and their implementation. As the research agenda of Harris-White and Chand suggest, the fact that inappropriate legal regulations cannot be imposed upon social norms and structures easily does not mean that there should be no law at all to regulate a sector. Given the highly embedded nature of market exchange and its increasing role since the liberalizing reforms, there is no guarantee that with deregulation of the agricultural markets, structures of economic power will meekly dissolve themselves. Another important contradiction is the fact that as the market provides the means to allocate resources, increase efficiency and reduce uncertainty of transactions, informal regulation does not *a priori* need to reduce the efficiency and certainty of transactions. It is clear, however, that they are counterproductive for the distributional effects they cause and for the problems of 'capture' by rural elites, which continues to raise important questions in this regard. It appears as Schaffer wrote that 'there is no lack of political will, but a scatter and conflict of wills, inconvenient for some, not for others'. This means that regulations need to be 'implementable' rather than the actual, highly specified, and ignored status they have today.

In this sector, there are more or less visible symptoms of the capture of income and illegitimacy as well as on the lack of resilience increasing the vulnerability of this mode of agricultural production. However it is more difficult to conclude the specific causes of why or how, despite the specific advantages of agricultural regulation on paper, they do not achieve the according implementation in the Indian rural society. As observed, social structures are embedded in caste, gender or education which proves to play a role in the way regulations are implemented and made (il)legitimate. There exist however little research on the prominence of one over another and more specifically on the influence of the (agro) environment itself in these configurations and binding capacities. The brief history of India agro-environmental and market concerns charted here summarizes the aspects that make India a suitable case in which to study the interplay of social and legal agro-environmental standards of production: a certain level of agro-environmental legislation, of institutional willingness, of agro-environmental awareness, an assigned role to technology, a lack of legitimate implementation and a probable interplay between formal and non formal mechanisms of control of agri-food production. All these elements of contestation suggest the need for a more comprehensive road of the normalisation processes if one wants to understand first, the role they

play in the fitness of the Indian food production to follow international measures of sanitary standards or second, in the provision of alternative or complementary styles of compliance conducive to food safety and farming resilience in their own way and with which consequences for the international trade and agro-environment discussions.

The next section illustrates some of the most recurrent arguments of the trade-agro environmental divide in the public opinion sphere argued mainly, but not only, from a civil society and critical academic perspective. It expands on the functioning and role of the WTO sanitary related Agreements and presents the arguments that question the extent to which the WTO constructs sufficient legitimate space to handle the contemporary challenges to protect the human and agro-environmental health. It discusses how the combination of public and private regulatory frameworks can complicate and challenge the discernment of legitimate practices with important consequences for agricultural trade and the resilience of its environment.

2.4 International trade regulation of animal commodity chains

The international trade of agricultural commodities cannot be separated from the legacy of agricultural and farming activities and origins of their regulatory frameworks. Since colonial trade, activities and transactions in the animal farming systems have been the symbol of the stable bonanza of some orders of agricultural subsistence and the proud of regions and nations. They however, also created conflict through the public health problems caused, in particular through colonial trade, and pilgrimage by the rapid spread of disease or the harm of invasive plant and animal species (Harrison, 1992). Many colonial conflicts of public health and trade were solved only through the intervention and coordination of States at the national levels. Quarantine laws, vaccinations, stamping out, etc were practices implemented as part of the early policies of control of disease and movement of animals and live commodities (World Bank, 2005) and which later led to the establishment of Sanitary and Phytosanitary measures to breed and transport food and live commodities for world trade. Agreements to face those challenges inspired the post-Second World War emergence of the contemporary institutions of global health and trade (Harrison, 2006).

In the 1990s, the Uruguay Round of multilateral trade negotiations -that led to the WTO in 1995- introduced some major changes to the way multilateral trading system used to operate so far. Stringent food safety and plant and animal health rules, formally became instruments subordinated

to trade which from that point onwards became the central aspect of their framed international relations. This increased in a significant way the extent to which multilateral rules applied to national measures to facilitate trade. The resulting WTO-SPS Agreement now regulates the application of provisions of Article XX (b) of GATT 1994 which establishes a multilateral framework of rules and disciplines to guide the development, adoption and enforcement of SPS measures in order to minimize their negative effects on trade. The exception under Article XX(b) of the GATT allows a WTO Member to safeguard a country's ability to adopt measures 'necessary to protect human, plant, or animal life or health'.

This means that the Agreement allows members to lay down more stringent standards of public health than those of Codex only if they can be scientifically justified. For this, standards need to demonstrate a consistent approach to the level of protection that the government deems appropriate (such as environmental protection laws), be proportionate and not be more trade restrictive than necessary (Marceau and Trachtman, 2002). Over the last two decades however, a very rapid industrialization of agricultural production has been witnessed by emerging countries, accompanied by an increased specialization among them (UNEP, 2009). International trade now counts for about 10 percent of world consumption and emerging economies are challenging the trade positions of the more well established US and European markets on animal commodities (Upton, 2005). Parallel to the WTO-membership, markets between high-value and low-value of world animal products continue to exist depending on the bilateral trade preferences of specialized products. In such common exchanges, developing or emerging countries such as Russia, India and China for example, tend to import relatively low-value products from all their sources (ibid: 156). When differences in markets also reflect divergent sanitary measures it is problematic since it disregards the potential hazards to human health. These risks include consumer health issues such as pathogens (i.e. bacteria, fungi, parasites, and viruses); zoonoses; environmental toxins such as persistent organic pollutants (i.e. dioxin) and metals (i.e. mercury and lead); and animal husbandry practices such as adding low levels of antibiotics to animal feed and the use of veterinary drugs[16] . Despite such risks and the reduction of impediments to trade animal products and their derivates in international markets, many countries still find it difficult to incur in the cost of compliance to upgrade to WTO Sanitary Agreements.,

In the present formal framework, the WTO continues serving as an international forum for coordination, cooperation and conciliation for promoting commodities' trade and resolving problems between members. Under Article XII of the Agreement, the setting of standards for

[16] See food born diseases reports and international formulations at http://www.who.int/foodsafety/foodborne_disease/en/, accessed September 2011-

international market access of the WTO for instance is first fixed by the Committee on Sanitary and Phytosanitary Measures (SPS Committee)[17]. This was established to ensure a good implementation of the Agreement by, among others, monitoring the international harmonization process, bridging with other international organizations, and conducting a periodical review of the Agreement. It also serves as a form for information exchange, negotiations and consultations between WTO Members (Sonneveld, 2005). Article V.I. of the SPS Agreement stipulates 'Members shall ensure that their sanitary (...) measures are based on an assessment, as appropriate to the circumstances of the risk to human, life or health, taking into account risk assessment techniques developed by the relevant international organizations'. The setting international body of food standards is the Codex Alimentarius which is mainly based on risk assessment techniques and scientific evidence. As a prerequisite for Codex work in member countries, a National Codex Committee need to be established to channel the information and coordination of activities with the food industry, consumers, traders, academia and all parts concerned to the Codex secretariat in Rome

Another function of the SPS Committee is its role in settling specific trade disputes. When a potential trade problem arises, it is often between the trade partners, or by their permanent missions in Geneva, that a problem is dealt. Failure to solve the problem during preliminary talks, these are dealt with representatives of other countries at a session of the SPS Committee under the agenda of 'Specific Trade Concerns'. The dispute resolution process begins 'when one member files a complaint against another member, alleging violation of one or more WTO agreements' (Vesilind, 2010:237-238). Failure to solve the problem during these sessions, the issue is brought to conciliation and mediation with the WTO Director-General acting in his ex officio capacity during sixty-day mandatory consultation before a formal panel process begins.

WTO enjoys strengthened dispute settlement procedures in comparison to the previous GATT, given among others that reports of a Panel or an Appellate Body are adopted by the General Council acting as the Dispute Settlement Body (DSB). The Appellate Board hears the legal arguments, reviews the panel's decision and renders its own report. If the defending party in the dispute is found to have violated WTO trade agreements it is expected to accept and implement the decision or to authorize sanctions against the offending nation. This becomes an amount calculated to compensate the complaining member for the defending member's trade violations[18].

[17] The provisional agenda, working documents and summaries of the sessions of the SPS Committee can be obtained from the WTO official website besides official diplomatic channels between the WTO Secretariat and the members.http>//www.wto.org and at FAO http://www.foodlaw.rdg.ac.uk/fao-news.htm

[18] Understanding the WTO: Settiling Disputes, a Unique Contribution, WTO, Panel and Appellate Body reports publicly available at http://www.wto.org/english/thewto_e/whatis_e/tif_e/disp1_e.htm, accessed Sep, 2011.

Regarding private management measures, food regulations in industrialized countries have also helped develop changes in markets and consumer awareness (Wandel, 1997:, Carson and Lee, 2005) that relate to the finished product as well as to the process of production (Teisl and Roe, 1998). The most significant trends include the use of scientific risk analysis as it has been pointed out before and the adoption of the Hazard Analysis and Critical Control Point (HACCP[19]). This latter has been used as a basis for new regulations based on microbial pathogens in food.

In terms of animal disease, the international governance system has also activated only a few years ago (and after the emergence of High Pathogenic Avian Influenza) through its World Animal Health Organisation (the OIE) a series of recommendations such as the early warning system of the detection of a disease, as well as veterinary guidelines for its prevention (Thiermann, 1997). The OIE relies however on the capacities of response of countries whose information systems function on a voluntary basis. Under the 'disease-free' Status of animal commodities, the OIE benchmarks animal farming trade according to classifications of emerging or reemerging diseases with or without vaccination[20]. Furthermore, the Code suggests guidelines for animal disease management, surveillance, traceability, vaccination, quarantine, legislation, education and guidelines for credible veterinary services in order to soon achieve a disease-free status in agricultural producers. Only recently the assistance of veterinary services has mobilised a more proactive role of the OIE in increasing the skills of the trading countries. Given that the damage of animal disease is more often than not visibly disruptive throughout the commodity and trading chain, and due to its non-legally binding character, a commitment to the Terrestrial Code of the OIE is less controversial. Despite such efforts, the implementation of OIE Terrestrial Code does not warranty disease-free trade.

Regarding the value added, in many developed countries, there is greater demand for greener consumption, as well as production, which has consequences for economic trade domestically and internationally. From a perspective of its the regulation of its operations, these have been promoted through the concept of value global chains which are regulated mainly through voluntary and private instruments such as certificates and labelling. These are based on the principle of consumer choice and labelling information, mainly over the ethical and environmental qualities and provenance of the processes of production in the animal commodity chain (Kysar, 2004), also known as Process of Production related Measures (PPM). Typically, trade-related PPMs aim at

[19] This practice of hygienic codes is predetermined with Critical Control Points to prevent any kind of bacterial or viral contamination. It was born in the 1970s in the military and aeronautic US industry and it was fast extended to enterprises regardless of their size, see Sonneveld (2005).

[20] The complete terrestrial code at http://www.oie.int/en/international-standard-setting/terrestrial-code/access-online/

protecting something located (at least in part) outside the territorial boundaries of the country enacting the measure, be natural resource, humans, animals, plants, ecosystems or the environmental quality in the producing state or in ecosystems beyond any state's jurisdiction (Bernasconi-Osterwalder, 2005:237-239, Charnovitz, 2002). Extra-territorial issues however have been highly controversial in the definition of risk assessment vs risk management rendering difficult to recognize legitimate protectionism from illegitimate among countries and sending the 'right' messages to the agricultural industry in terms of their exporting capacity.

2.4.1 The Dispute Settlement Body (DSB) and the rise of the trade-animal farming health divide.

The harmonization of standards poses important challenges in terms of distance between the standard agreements arena in Geneva, Paris or Rome and its implementation (Zwanenberg et al., 2008) in a variety of subregional ecosystem of animal farming practices. As it has been mentioned in this thesis, the use and misuse of sanitary and animal health barriers are costly for the agricultural sector and influence importantly the construction of overall long term standards and resilience of farming production in trading countries. At the level of the application of SPS measures, debates have not been able to transcend the controversies of disguised protectionism (whether against animal disease, environmental or food safety risk). This section suggest that a particular binary narrative governs the relationship between the international regulatory framework of the SPS based on the Codex and the OIE standard settings and their applications at the subnational agri-food production in particular when involving agriculturally-led developing countries. Some of the most recurrent narratives are revised in the next sections to recreate the (i)llegitimate reasons for and against sanitary barriers, with some of them of general application to the animal farming production systems specifically, where others are applicable to many sectors.

The main arguments reviewed here are the cost of compliance of sanitary measures, emerging role of epidemics from farming activities, general lack of recognition of different trade facilitation skills, and the perceived reduction of regulatory choice through normative closure. This section concludes that it is Dispute Settlement Body mechanism that exacerbates the most the controversy of the trade-agro-environmental health divide in the public opinion arena.

Cost of compliance to avoid market rejections

As it has been stated in the last section, in order to facilitate membership entrance and competitiveness international regulations have developed a series of upgrading national frameworks (OECD/WTO, 2007) through which new members should seek to facilitate trade to their economic sectors willing to participate. However for developing countries, the setting and compliance with standards, such as risk assessments and customs inspections at trade borders, as well as other non border aspects such as intellectual property rights often remain contested. Positions of developing countries tend to argue in different Trade Rounds and negotiation forums that increasing the safety of the products towards minimum levels of public health according to the Codex Standard appears difficult given the prohibitive costs of compliance[21]. These involve investing in new infrastructure (such as accreditation of laboratories, equipment and inspectorate capacity); training of knowledge base; coordination with public health, agriculture, trade, veterinary institutions, etc; drafting of national laws; dissemination, and awareness throughout society; training negotiation and technical skills for regular participation in Codex meetings (and IPPC and OIE accordingly) among others (Sonneveld, 2005).

Most of these instruments are provided by the members themselves, as part of packages of Binational Trade Agreements or through the mechanism of Trade Assistance of the WTO. Less developed countries for instance not only may have a particular status of preferential treatment giving them more time to comply but they also enjoy from a variety of trade facilitation schemes before full trade operationalization takes place. Trade Assistance agreements are welcome and promoted in trade negotiations, however, these depend entirely on the negotiation capacities and strategic trade interests of the parties involved.

When costs of compliance are partially met through Trade related Assistance (TRAs), they tend to be less contested as a main source of WTO legitimacy problem. When costs of compliance are met, there is also an increased participation in the process of setting and endorsement of standards in Codex or OIE meetings. TRAs account for the less contested views in the trade-animal farming divide but depend more on the national and sub-national capacities to actually problematize and recognize the recurrent technical, financial and political problems of improving animal farming systems in socially or environmentally inclusive ways. In the academic debate dominated by academia and civil society organizations, TRAs benefit those more or less already well-functioning domestic agricultural systems in their incorporation to the global market or where there is more

[21] See for instance the insights of the OECD summing up this difficulties in Trade Rounds of Trade Facilitation in http://www.oecd.org/trade/internationaltradefreefairandopen.htm

consensus in the lack of 'absorption' capacities in upgrading 'poor governance structures' towards new markets expected to lead into safer and more efficient trade.

An increasing number of old and emerging epidemics to attain disease-free OIE Status

Another aspect that has increased controversy in the public and academic debate has been the high rate of infections of human disease seen as a spatial externality of internationally traded farmed commodities. Only in the last decade, a number of recurrent epidemics coming from animal farming and its products, the serious spread of BSE, Foot and Mouth Disease, avian and swine influenza, but also re-emergence of food borne disease such as Salmonella, Campylobacteria, etc. hit international trade. On this basis, science-based international standards and guidelines have been questioned as how well as institutions would they provide the space to adapt for these new challenges (Bernasconi-Osterwalder, 2005).

Increasingly, criticisms have been directed towards the WTO for its role in the deregulation of the consumer health agenda not only for the public health problems that it allegedly causes but in many other different fronts. They include: the abandon of the public veterinary practice of promotion of reporting of diseases of the OIE over the emphasis on privatization of veterinary services (Kouba, 2003b); the inadequacy of the WTO framework to prevent wasteful subsidies encouraging intensive farming, overfishing and deforestation in the production process (Charnovitz, 1999)[22]. In particular intensive farming practices leading to stress-related disease and growth stress-related behaviour in animal populations have been found positively correlated to international trade in some developing countries (Nierenberg, 2003:, Vanclay, 2003:, Ilea, 2009:, Asfaw, 2003). In addition, in case of a severe outbreak for which a vaccination is available to achieve a disease-free status according to OIE guidelines, in reality however, given the costs of control of the diseases, culling has been the most practiced method by animal food producers (Sanders, 2006:, Nicita, 2008:, Hagerman et al., 2012). The OIE in response has recently launched the piloting of the 'compartmentalization' or free trade zoning standards (Thiermann, 2005) and 'commodity trade zones' as ideas that attempts not to stop such trade flows in conditions of high uncertainty (Zepeda and Salman, 2006). Despite of recent success, in particular in some already exporting sectors, i.e.

[22] Although the emerging number of diseases is not fundamentaly attributable to international trade, it has been related to contribute to a number of factors indirectly increasing its likelihood or amplification such as: poor prevention, transparency and detection, as well as complementing the logic of ecological loss. Insufficient understanding of the interpenetration of 'stressed' livestock environments and the lack of biodiversity related to massive wild life exploitation and human settlements Bell, Roberton and Hunter (2004) contribute to the later belief.

poultry in Thailand (Kasemsuwan et al., 2008) , this argument presents the inconvenient of benefit those already exporting and exacerbate the costs of prevention of disease and the trading cost for smaller farmers or new commercial players. As the Thailand case shows, the gap between the large and the small farmer widens over time (NaRanong, 2007). In this scenario, animal disease prevention of highly infectious diseases would be established as a private right unless it can be part of TRA agendas for developing or least developed countries under political or philanthropic strategies. In both cases, the assumptions is one of poor governance, the absence of pertinent sanitary measures and an urgent need to reform disease surveillance and management systems from 'above'. For all these reasons, the role of the SPS framework remains contested as providing sufficient policy content scope to protect against emerging highly infectious diseases and overall farming health in animal production.

Rise in trade defence and a sense of limitation of agro-environmental regulatory choices

More than market access through international standards regulations, WTO legitimacy problems have increased through mobilizations from civil society groups and academia generating an important amount of literature and reports. They in particular are critical in the disproportionate influence of WTO trade laws on economic, social and environmental aspects of societies. Despite that some voluntary, non-State regulatory choices around processes of production, (such as higher standards certifications, quality labelling) have been developed, parallel to WTO binding mechanisms (Bernstein and Hannah, 2008), growing discontentment continues in relation to the disproportionate perceived influence of trade over other societal aspects in the production processes.

In particular, it is with respect to national environmental and public health rules, that the dispute settlement process comes into play and where there is potential for WTO rules to limit national regulatory choice in these areas (Emily and Steele, 2009). They are experienced as a 'race to the bottom' standards rather than 'to the top' given the signals of lack of regulatory choices left from dispute settlements (Braithwaite and Drahos, 2000:417).

The beef hormones dispute, for instance is an emblematic example. It continues to anger US beef producers, while raising ire of the European public, who find it incredible that at a time when they were spending billions of dollars fighting the man-made BSE epidemic, the WTO could insist there is no good evidence that injecting hormones in beef is actually dangerous. As Alter posits (2003) 'the US victory in the hormones case fuels the claims of producers of genetically modified

products. The damaging rhetoric is escalating as Europeans protest against US American 'Frankenfood' while US American label Europeans as 'whiny', self-righteous snobs who irrationally reject genetically modified foods while smoking cigarettes'. As he finds, 'the bickering over whether or not states are complying with a ruling, the authorization of retaliation, the release of new lists of targets sectors and the protests engendered by some WTO rulings are newsworthy events. These are further signs of the lack of regulatory platforms to ensure the consideration of sections of society and of regulatory diversity. They trigger greater conflict and serve to focus public attention on disagreements regarding the WTO, and on the less desirable aspects of WTO membership' (ibid: 788). In addition, the rapid changing nature of industry needs, lack of incentives for going beyond compliance, costs and complexities of enforcement, among others, refer already to the more diffuse and changing nature of the enforcement of standards (UNEP, 2009). These weaknesses have been addressed in some countries through a number of innovations such as specific compliance plans, industry sector agreements and more holistic or systems-based approaches. Whilst voluntary initiatives continue to have a role to play, Governments are increasingly challenged to consider revised regulatory mixes that include revised regulation, co-regulation, self-regulation as well as economic and information instruments among others (ibid). For this reason, the influence of WTO-SPS in regulatory autonomy and regulatory harmonization has been widely researched (Wirth, 1997:, Gruszczynski, 2006:, Buthe, 2008:, Koivusalo, 2003:, Bernstein and Hannah, 2008). In particular in these, dispute settlements have been analyzed for setting the baseline or ´normative closure´ in regulatory choice (Lange, 2006) for food safety and the environmentally related process of production.

The literature in these arguments highlights the homogenizing and deregulatory neo-liberal agenda of international trade of commodities without regard for traditional questions of public (animal and human) health (Braithwaite and Drahos, 2000:409-17), but also environmental degradation (Perez, 2004:13-20, Charnovitz, 1999) or participatory democracy (Emily and Steele, 2009:14). In this respect, they not only perceive the significant influence a harmonisation agenda exerts over activities that surpass a specific requirement of food safety for economic trade. They condemn the setting of standards and laws within the WTO for closing down regulatory choices mainly in two aspects. First the lack of regulatory spaces for less empowered or knowledgeable actors to dissent over the possible excesses of the marketization of trade standards (Anderson and Pohl, 2000; Gerald et al., 1999) and second, the lack of regulatory space to systematically include

those different trade-society interests in the setting, dispute or resolution of the trade regulatory processes[23].

Overall, the transformation of the WTO system into a one endowed with more authority against non compliance of international standards in comparison to GATT rules has triggered clearer and more transparent rules for dispute settlements. For others such as trade law academics, this transparency has translated into more conflicts. In fact, for some of them, 'the ability to block panel reports was a key weakness in the old GATT system, making threats of legal action far less menacing. The GATT however, did ensure that the most conflictual disputes did not escalate' (Alter, 2003:788). In this regard, disputes like the hormones case may be distorting the vast commonalities member countries have, such as Europe and the US. They certainly reflect the complexities when looking to integrate a more comprehensive regulatory platform able to discuss the variety of consumption and production preferences in the trade world. Nevertheless, they do reflect how actively both parts can counter-mobilize the ideas and meanings that actors have over their production and consumption interests, values and preferences.

2.5 Regulatory discordance and agri-food models of compliance: some conclusions

Overall, this chapter has charted some of the main legal and non-legal features shaping the effectiveness of compliance strategies towards safety and resilience in agri-food spaces in the last twenty years and the parallel developments in the Indian case study. It has been argued that agri-food systems have been influenced by a number of regulations at different governance levels and with different degrees of formality. As a result, the regulation of agri-food consumption and production is increasingly integrated in the International Trade system - which appears to heavily influence the sensitive regulatory choices of developing countries´ commodity trade in terms of food safety and the agro-environment at the very least. Non-State standards, on the other hand, which are affecting quality and other environmental processes of production, are also socially embedding global markets.

[23]Charnovitz (1999) a prominent scholar of the trade-environment relationship for instance observes that WTO rules are inadequate to prevent economic policy failures allowing wasteful subsidies that encourage overfishing, intensive farming and deforestation in the production process.

The chapter has discussed the extent to which international regulations may be distanced from sub-national agri-food practices or customary rules and with what possible consequences recognized as problematic in agri-food literature. It showed that the literature on international dispute resolution and harmonization has not yet engaged critically with work specifically concerned with the variety of expectations to comply or to conform to international standards and legislation affecting the agri-food spaces. This is particularly critical as actual efforts of international organizations to promote Institutions and regulations with Food Safety and Environmental Standards are fast growing in the agricultural developing world in search of mitigation or adaptation models to climate change (McCarthy, 2001:, Stern, 2008). At the international level, this is happening either through formal enforcement, such as Disputes resolutions, or through soft law mechanisms, such as Multilateral or Bilateral Agreements (i.e. Trade Related Assistance, Multilateral Environmental Agreements). A number of these have already begun to recommend 'best practices' under the assumption of 'poor safety' and animal farming health without an understanding of the degree of contestation and eventual counterproductive potential in farming and environmental activities.

Agri-food studies in particular in planning studies are interested in building on theories of spatial convergence or divergence (Donald, 2008:118-127) and have worked over a variety of concepts in order to recognize them in the spatial landscape. Concepts of embeddedness, hybridity, agri-food system networks and global chains have helped also to locate some of their main regulatory aspects. Despite their importance for contestations and diversity, efforts to be systematic and integrative are less valued. They are nevertheless important to explain the determinants of legitimate regulatory choices and regulatory preferences, as well as the role of formal or informal arrangements, or their hierarchical or accommodative nature for their emergence. The way formal and informal rules, conventions or interpersonal worlds become stabilized and self-reliant is however one of the main questions of this research in order help better recognize the qualities of the State and non-State regulatory preferences that eventually will help accommodate more legitimate and effective regulatory preferences. This is an important question in particular in developing countries where formal and informal rules coexist and where regulatory shifts are present.

As has been observed, agri-food models and their rules do not imply that their claims are justified in terms of justice or in their effectiveness of their regulation (see Table 2.1). On the contrary, the construction of an agri-food model does not guarantee that a particular convention or regulation automatically will deliver more effective or fair forms of agri-food production. In most of the cases formal regulations do not recognize the styles of enforcement and compliance, leaving

implicit expectations and assumptions of implementations as well as the nature and dynamics of regulatory capture or cooptation unanswered.

A research in socio-legal studies in this regard is complementary to this task. In fact a number of points of convergence of the study of the social basis of compliance in agri-food literature were analysed. Specifically, it was suggested that strong agri-food 'models' remain so since they are supported by their regulatory compliance practices and mechanisms (Murdoch, 2006). Nevertheless, it was observed that studies that examine the social basis of rural and agri-food studies have evolved faster than similar academic discussions on the evolution of compliance and regulations. In socio-legal studies, the end result has been that early considerations of social practices of the regulated recipients (Pound, 1910:, Sarat, 1985) are not any more self-contained but increasingly related to those of the legal regulation in society (Lange, 1999:, Sunstein, 1995). Another point of relative convergence is the recognition that agri-food regulations are operationalized through day-to-day social practices by a range of stakeholders, and that their multifaceted and embedded nature has produced a range of different linkages, similar to those of 'law in action' literature (Nelken, 1984). These ties are created both on a level of behaviour, through what the regulators and the regulated actually do in practice, as well as on a level of the meaning of rule interpretations (Hatanaka et al., 2005). After reviewing the academic literature concerned with these disciplines, a variety of semiotic interpretations of compliance practices rather than the purely classical formal enforcement approaches (i.e. food safety, environmental regulations) were identified as being interlinked in the construction of legitimate authority and levels of concern –which in turn affect the implementation of agri-food regulatory models. In other words, beyond dichotomism, the chapter has brought to light a wider range of embedded preferences of semiotic compliance for the different agri-food models reviewed.

The chapter pointed in this direction, recognizing first, the semiotic value of meanings of compliance in the regulation of agri-food models and second, how little is known about these semiotic practices. It was indeed observed that more often than not these are taken for granted rather than used to *compare* regulatory preferences to understand regulatory choice in this sector. As observed in this review, one of the problems of agri-food models and the legal regulatory literature is that they are embedded in different degrees of agro-environmental concern, underpinned by different paradigms and translation from one to another is difficult, if not impossible (Burrell and Morgan, 1979). For instance, research focusing on the agro-environment as a paradigm shift will be dismissed as ideological 'ecological-dictatorship' by those who view the agro environment as a strategic issue (Banerjee, 2000:, Newton and Harte, 1997). Conversely, the latter

will be accused of short-sightedness and of 'green washing by the former (Laufer, 2003). In turn, Industry regulatory or command-and-control models are seen as mechanistic, hindering competitiveness, reflecting an 'instrumental rationality of technology and bureaucracy' (Habermas quoted in Chouliaraki and Fairclough, 1999:85) whilst strategic greenings of agri-food chains are looked down on as dangerous bio-tech, managerial folklore, and 'green-wishing' by outsiders (Morgan, 1997).

Overall, this review raises important questions about the relationship between the variety of agri-food models and their assumed normative preferences and degree of agro-environmental concerns, which contrast with the dichotomic narratives at the level of the international legal mechanisms affecting the agri-food spaces in the developing world. In this regard, should the assumption of poor/non-sufficient governance and regulation promoted by international discourses on developing agro-environmental spaces be accepted? How can analytical and methodological elements emerge to account for the diversity of strategies of compliance or control in agri-food spaces? How can these offer at the same time equal elements of comparability between arenas of legitimate international rule-making such as the Dispute Settlement Body and the site-level practices among stakeholders? Furthermore, as identified by Marsden et al. (2010) and Hutter (1997), explicit recognition of sub-national strategies or discretionary discriminations can make compliance a highly contested issue in general. As the international and farming site of production expands, according to the connection to international trade, it is essential to understand the factors that influence the legitimacy of this process. This is especially so where such contestations are linked to unknown consequences jeopardizing the purpose of safer and more resilient agri-food systems. In this light, it is important to ask questions not only about the object of regulation but also about the concrete process of compliance, which implies a more profound examination of the preferred forms of normalization of agri-food practices among the different stakeholders and legal regulations.

By reviewing the academic literature on agri-food systems, the chapter suggests two particular things. First, that in comparing different regulatory spaces, formal and non-formal regulations are more visible, and second, that the variety of semiotic preferences of compliance are more often than not taken for granted capacities in the implementation of those regulatory mechanisms (see Table 2.1). It further considered that the recognition of such aforementioned mechanisms does not necessarily cancel other potential consequences, such as the possibility of appropriation or capture, by non-formal norms or conventions, as it is the apparent case in India. In socio-legal terms, how the variety of semiotic strategies may translate into normative preferences may help understand how to construct effectiveness towards safer and more resilient developments

in the agri-food spaces from a perspective based on the consistency of such embedded regulatory models.

This review is also intended to show that agri-food and regulatory literature cover a wide range of paradigms in several matters. Yet, a more systematic approach to include this variety has not been attempted. So far, the various theoretical perspectives and empirical approaches which have been used to examine stakeholders' variety of normative controls have not provided a unifying framework which can help us understand the consistency of the many different ´models´ now existing (Henriques and Sadorsky, 1996) or the reasons for choosing one particular model over another one. This bring us to the main research question of this thesis regarding how by improving our understandings of the nature of regulatory legitimacy of different agri-food models can more effective regulatory *choices* be identified, compared and analysed? To what extent can normative preferences (whether legal or non-legal) play a role in *the setting of choices* (such as between agri-food concerns and their styles of enforcement/compliance) towards safer and more resilient animal farming systems - and with what possible consequences?

As will be seen in the next section, this thesis has borrowed elements from Foucault´s Theory of Discourse and Dryzek's classification of environmental discourses. The aim is to put the literature on exisiting paradigms together in order to include the variety of assumptions and capacities of stakeholders' networks. Another aim is the more in-depth analysis of the construction of strategies of semiotic compliance and the role it plays in the consistency of environmental regulation. The thesis now begins to explore these analytical issues in more depth.

3 Environmental Discourse and Environmental Regulation: Disciplines of Environmental Change.

"There is no power relation without the correlative constitution of a field of knowledge,
nor any knowledge that does not presuppose and constitute at the same time power relations"
(Foucault and Sheridan, 1991)

An important part of the literature review in the last chapter documented the diversity of approaches that analyse the relationship of different stakeholders of society with the agri-food environment. The papers were classified into three groups relying on the styles of regulation observed and the agro-environmental concerns observed in the different theoretical perspectives. One of these, as pointed out, assumed a formal *binding* regulatory perspective of the agri-food models –wherein top-down capabilities played an important role in the effectiveness of regulations. The remaining two groups of literature viewed practices *as non-binding* regulatory perspectives of actors of agri-food models in accordance to voluntary or social appropriateness –wherein the awareness of the social or environmental concern at stake also played an important role. The distinction regarding the agri-food literature was important since the assumptions the articles made on the behavioural principles had a major influence on their conclusions and on their policy-regulatory models and recommendations. For instance, when studying commodities´ safety and the farming environment, the economic dimensions tended to become more salient and framed in terms of cost of compliance (Henson et al., 2007:, Jaffee and Henson, 2004). Social or environmental awareness, such as perceived behavioural autonomy or environmental knowledge resources of the regulatory parties involved were rather taken for granted, as automatic aspects in implementation. In this way, alternative rationalities, hidden motivations, tacit expectations or forms that go beyond the object of regulation but which are taken for granted in their successful implementation were less problematized. This thesis does not deny this complexity and recognizes that before more proposals on agricultural or environmental regulation (i.e. economic regulations) are designed, an understanding of how actors validate their regulatory dynamics through a diversity of values, assumptions or expectations needs greater attention. This element of regulatory validation, it will be argued, constitutes an essential factor in the dynamic equation of efficacious regulatory compliance,

as well as approaches to 'behavioural' expectations, and 'concerns' constituting all choices of valid regulatory practice.

In this chapter, the relevance of how valid regulatory or normative dynamics are constituted is explored through analytical and methodological discussions. First, this is made through socio-legal discussions on compliance, authority and social control and second, through a discussion between compliance power and norms by an examination of the theory of Discourse Analysis (DA) and Environmental Discourse Analysis (EDA). Whilst the socio-legal discussions concentrates on the fragmentation and spontaneity of chaotic order in regulatory change giving little space for the study of patterns of normative variation and validity, the discourse literature explores the potential of tools to represent a large variety of State and non- State relationships in terms of their normative and legitimate preferences as well as their influences on the choices of regulatory discourse. It provides a theoretical framework thus, to analyse, organise and interpret a variety of behavioural perspectives influenced by disciplinary values or legitimate duties to comply embedded in normative and discursive practices. These are particularly useful in terms of the expected duties towards levels of safety and resilience and the regulation of animal farming environments - the research case studied in this thesis.

In the following sections, the first part discusses the main aspects as portrayed by the academic debates regarding the shift of State regulation to non-State regulation and its role in the variety of forms of regulatory compliance. It examines the symptoms of contestation in the production of top-down order of the last four decades as well as the variety of more recent environmental regulations (whether centred or decentred, whether legally, socially binding or voluntary) in socio-legal literature. Section two presents Critical Discourse Analysis – which views discourse as a manifestation of centred and decentred power relations and their study as a key to explain the boundaries of normalisation processes (whether formal and binding or not) and environmental change. This proves highly useful to the study of environmental regulation in general and in developing countries in particular, where lack of formal enforcement is believed to be a key issue and power requires to be understood as any form of social control besides formal regulation. With the contribution of Foucault's, Habermas´ and Dryzek´s theories, section three further explores the analytical developments of discursive approaches, in particular, their relevance in further ´uncovering´ the taken for granted disciplines of normalisation and compliance expectations between regulators and the regulated in a systematic way. The first part thus, critically deconstructs discursive practices into their framings of agency and choice of knowledge and power to facilitate the understanding of the reproduction of legitimate disciplines of environmental regulation. Using

the example of the Ecological Moderns discourse, the last section demonstrates the relevance of using the construct of ´discursive framings´ to understand the formation of normative preferences in their meaningful contexts. Finally for the thesis of studying the role of legitimate expected norms as disciplines of decentred environmental change, this section calls for an empirical test that considers the consistency of normative practices when approached through the same constitutive elements of environmental discourses. In this way, the empirical data can be tested in terms of the discursive consistency of framings tools with environmental discourses. For the environmental discourses analysed, these framings are based on the dialectical premises of (1) scale of environmental concern and (2) levels and mechanisms of control (or autonomy) which are tested in the next chapters.

3.1 Regulatory shifts of environmental-society relationships: compliance and authority

Although there are different and growing definitions of regulation and deregulation (Baldwin and Cave, 1999:, Hancher and Moran, 1989), in socio-legal and legal philosophy studies, literature regarding these clearly agree in the shift of power or boomerang effect of institutional rule makers towards (or through) the 'recipients' of rule making (Lee and Stokes, 2009b:, Ayres and Braithwaite, 1995). Notions that have attempted to encapsulate and explain these phenomena come from a variety of fronts. Two in particular are here discussed: that of the decentred or polycentric understandings of regulation (Black, 2002) which recognise the changing role of authority not centred on the state, but instead diffused unpredictably throughout society and the other on how compliance between regulators and the regulated can be influenced by relations of legitimate authority. The second is concerned with 'how actors that can or not include the state, are, and might be, harnessed in the design of mechanisms in order to further public policy objectives' (Zwanenberg et al., 2008:7) in possible more effective ways.

More specifically a central issue in the conceptual analysis of a decentred understanding of regulation in socio-legal and legal philosophical literature has been the defence of alternative explanations to economic regulations that base actors on purely rationalistic or cognitivist formats of public choice as the objective rationale and a willingness to pay (WIP) as the only instrument processing State and non-State relations (Sagoff, 2008)[24]. Some of the features of such decentred

[24] The literature in this direction is obviously vast in different social science and constructivist disciplines but the main criticism remains in terms of the narrow imagined agency or behaviour of actors in economic models and the mechanisms used without consideration of the interpretative and contextual complexity of situated agents. Sagoff (1980) remains an important reference in political and legal philosophy of environmental

perspective are identified by socio-legal scholars such as Teubner that best represents the 'cultural turn' in legal and regulatory studies. In fact Teubner's approach of legal pluralism has significantly contributed to a wider consideration of the legal context in the factoring compliance with regulations. Concepts like bottom-up lawmaking, from this perspective, have the strength of the empirical basis of more decentred practices alternative or complementary to the economic basis of legal regulation that eventually lead to the creation of a body of law[25]. Black (2002) on the other side sees a less clear dynamic in those decentred practices. For this socio-legal scholar, these practices gravitate among others towards a complexity of interrelationships which are governed by a number of characteristics among others by: a socially constructed but fragmented nature of knowledge in society, a dispersal of power among social actors and between actors and the State, a relative autonomy and often ungovernability of actors and systems, and a growing rejection of a pure distinction between the public and the private spheres across contexts. These analyses suggest that studying the components of 'failures' in the implementation of regulations involves a complexity inherent to the relationship between State and non State actors (Datta-Chaudhuri, 1990).

Following this line of research, a few researchers have tried to answer the question of regulatory styles between inspectors and regulatees from an empirical perspective. They have sought to transcend the classical view of regulation of a single strategic conduct to be defined by a regulatory institution, (Kagan, 1994:388). Among other things, their empirical evidence confirmed the existence of different regulatory styles based on the combination of two particular dimensions: between levels of coercion and informality as in Australian business regulation (Braithwaite, 1985:, Braithwaite et al., 1987:, Winter and May, 2001); and similar levels of stringency (coercion) and rigidity (informalism), as in Danish farmers regulations (Gormley, 1998). The literature showed a diversity of regulatory styles (that actors followed as conciliatory, diagnostic, punitive or compensatory conducts) rather than a single continuum of the regulatory agency in question. These also elucidated the coexistence of a variety of regulatory styles and the potential advantages of considering this in favour of a more efficacious implementation of regulations in business, including the farming agro-environment.

Despite these studies showed some empirical relationships between authority and compliance, they were not enough to explain in a systematic way, the gap between a particular form of preferred control and the (i)llegitimacy of the regulatory process (Braithwaite et al., 1987) which

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studies in this matter, other studies in legal studies include Posner (1978) or Korobkin and Ulen (2000), in behaviouralist studies in law they include Scott (2000) or Mitchell (2002) and even in corporate law see Millon (1993) and regulation see Dunning (1993).

[25] The literature is extensive, see Woodman (1998), Tamanha (2000), Griffiths (1986), Merry (1988), Teubner (1991), de Sousa Santos (2002), de Sousa Santos (1987), Moore (1978) for a more recent overview see Tamanha (2000).

in turn would help explain the choice of interventions towards more efficacious regulation. As Black posits a decentring analysis that considers why organisations respond to certain claims and not to others and what are the implications of their communicative structures need to be analysed in greater detail, for instance by looking at how discursive schemes for the integration of legitimacy occur.

In this regard, the concept of decentred regulation appears not only as a State-non-State relationship. It also draws attention to the importance of how the relationship between legitimacy and authority - embedded within the regulatory networks- is perceived. As Black puts it, this thinking 'requires us to have a far more fine grained analysis of the social basis of legitimacy, the role of authority and the nature of the interrelationship between legitimacy and authority (…) than is developed in debates which have state, supranational or even international bodies in their sights' (Black, 2008:7). This institutional embeddedness, thus is critical for understanding how legitimacy is constructed, both by those making legitimacy claims and by the regulator who is responding to them, often by making legitimacy claims of their own (Black 2002).

Pointing at the ways in which actors make consistent sense of their claims through interpretive and discursive schemas and see their own and each others' mutual perspectives is constitutive of their relationship to legitimacy. The fact that organisations (including legal agencies but also social organizations) respond to certain claims and not to others' (ibid: 4) reflect to the competing legitimacy claims as structured by the particular institutional context in which the regulatory regime and the individual organisation operates. By concentrating on the actors' contextual meaning and theoretical deductions in search of legitimacy thereof numerous scholars of sociology and anthropology of law[26] such as in legal pluralism[27] have sought to come to definitions of the relationship between law and social control out of the synthesis of social theories. Criticisms however have also being addressed to what seems the deflection of substantial aspects of law from the social making of legal regulations, as well as from more significant tasks of testing the practical applicability of such deductive theoretical disputes or their relation to legitimacy[28].

[26] For instance see the classic texts of Nelken (1984), Ehrlich and Isaacs (1922), Hunt and Wickham (1994), Aubert (1969), Hyde (1983), the more recent works of sociology of law of Nelken (1984) or the sociology of law and governance of Hunt and Wickham (1994).

[27] Op. Cit 24

[28] In this respect, legitimacy has been seen mainly in sociology and social psychology disciplines represented as social construal of either a moral-social, functional-political, rationally-self interested (see Hyde, 1983), status or cultural capital (see Johnson, Dowd and Ridgeway (2006)) -oriented means toward the preservation of a particular social or legal order. Definitions of legitimacy have also been linked to theories of authority (see Dornbusch and Scott (1975)), effects of power (Zelditch Jr and Ford (1994)), stability (Zelditch Jr and Walker (1984)), expectations of power (Samuel and Zelditch Jr (1989)) validity, propriety of behaviour (Walker, Rogers and Zelditch (1988)). Legitimacy definitions in social, organisational or decision-making sciences however have not been able to explain how illegitimacy occurs in this process, which more often than not renders legitimacy a self-contained descriptive logic, separated from the substantial aspects of law or regulation. As it will be

Environmental regulation on the other side is born as a relatively young discipline in a time where power shifts or boomerang effects in some cases appear to redistribute the governing capacities to institutions in the global and local arenas (Fisher et al., 2009b:, Lee and Stokes, 2009a), creating a new hype awareness for re-regulation and the legal profession. Despite being a dynamic and young area of regulation in the last decades, it is still an area that 'has not come yet to an age' (Fisher et al., 2009a). For an Oxford socio-legal team, questions and challenges of environmental law and regulation appear growing more in the form of regulatory experiments rather than a lineal progression towards a better model of regulation (Fisher, 2007). Although these authors are not mainly concerned with the role of compliance with environmental law and regulation to further understand such configurations, they have observed a number of additional challenges of this young discipline. Some of these include the speed and scope of environmental change, the interdisciplinary character of environmental regulation, governance restructuring of authority and in general methodological rigor and choice. In particular, speed in the reaction of the legal scholarship is a challenge since there are few historical foundations for the subject to compare: there is a short recent scholar development in most environmental problems and a need to rapidly master and integrate non-legal aspects into the environmental legal analysis (Fisher et al., 2009a:16-19).

In relation to governance, they observe that the concept require scholars to think in a more diverse view than state authority and its exercise. Despite the fact that in some cases this reconfigurations relate to the more well-known reconfigurations of conditions of market access[29], the diversity of governance regimes often depart in disparate ways or combine soft and hard law[30] in unpredictable and complicated forms combining legal and non-legal frameworks[31] such as environmental management or rule systems, customary practices and environmental ethics in private-regulated organisations[32]. In other words, there is recognition of novel forms of authority, legal or otherwise, as well as the diversity of forms of incorporation of environmental concerns in legal or non legal decision making processes. How such environmental concerns are integrated into other areas of decision-making in legitimate relationships between the regulators and the regulated are however, not considered. The recognition of a mechanisms such as 'command and control, economic incentive, self-regulation, co-regulation, as well as post-regulatory, procedural, expressive

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argued, regulatory form and legal content can have a more intrinsic correlation which arguably can explain the emergence of illegitimacy and be observed through the lens of political philosophy.

[29] This is the case for instance for the EC chemicals law, REACH which reconfigures the conditions of market access for chemical manufacturers in the EC, see Regulation (EC) No. 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriciton of Chemicals (REACH) OJ L396/1.

[30] For instance the EC Water Framework Directive which specifies legal duties through a system of networked actors who develop legal and non-legal frameworks of water quality regulation for particular EC regions, see for instance Knill and Lenschow (2005).

[31] See for instance Schepel (2005) regarding the Constitution of Private Governance.

[32] Wood (2006) for instance refers to the power of voluntary environmental codes in sustainability.

and reflexive environmental law are only some categories to analyse environmental governance regimes and there are few interconnexions among regulatory examples. Most of them do not necessarily bear any relationship to each other and since there is no overarching methodological solution for legal scholarship, it becomes easy to overlook the trends in regulations and their relationships.

In this regard, Fisher et al rejoin Black in a view that suggests the need to recognize the fragmentation of knowledge and somewhat ungovernability of autonomous capacities in polycentric interactions in environmental law and regulation in particular. For Fisher this daunting task can be solved by mobilising different aspects of law, economics and social ordering or through the recognition of ´transdisciplinarity´ in the language of methods in environmental scholarship. This also means the need to develop a ´trascendent language, a meta-language, a space in which the terms of all the participants´ languages are, or can be, expressed´ (McDonell in Fischer et al:22). This type of interdisciplinarity does not concern urgent problem solving but more the development of a more integrative intellectual paradigm of environmental studies.

For Lange (1999) more concerned with the aspect of regulatory legitimacy and environmental compliance, a way out also include the study of the rules of environmental compliance linking regulators and regulated through practices of social control. These consist of the *negotiation* of rules of social control rather than pure behavioural observance recommendations (i.e. waste management controls[33]). For her, 'gaps' in regulatory enforcement do not have to be perceived as new enforcement categories which can explain why compliance with some type of environmental regulations seem to be more effective in some cases than others or where enforcement is not needed. The role of rules and regulations thus 'cannot be taken in isolation from social practices of control, whether they co-exist as top-down enforcement or binding group norms, customary norms or day-to-day informal agreements between the regulators and the regulated. In fact, what might appear as a deviance from formal legal standards can be in fact conformity with norms of a sub-culture suggesting that law has to be seen both as a prescriptive as well as a descriptive device of possible social and legal regulatory coexistance. Norms both reflect and direct social organisation' (ibid:564) which can be restrained or enabled (McBarnet and Whelan, 1997) in competition or complementarity with regulation.

[33] Lange's cases study observed six month day-to-day implementation of waste management regulation through licensing of waste management site under section 5 of the Control of Pollution Act (COPA) 1974 in a waste treatment plan in the UK. Negotiation in the field led to new rules and forms of compliance such as amendments of licences according to more appropriate amounts of waste and practices of operation among others.

A study of the rules and social norms of green compliance thus helps explain in which cases compliance with green regulations is considered 'normal' and in which cases not or not necessary a deviation from regulatory mechanisms. In other words, the variety of emerging environmental regulations through governance accounts helps observe the forms of contestations in the production of top-down orders of compliance as well as the possible forms these contestations are turning into new normalisation forms of regulatory compliance. However, how these choices are met and what forms of compliance whether legal or socially binding or voluntary agreements can actually be trusted as appropriate or consistent with their contexts is less clear.

The literature analysed in socio-legal studies, in particular related to environmental regulation attempts to recognize the complexity of State and non-State interactions. In the search of a framework that address some of the determinants of ´green´ compliance, rather than following a governance framework of ´unpredictable´ and chaotic decentred environments a platform encompassing the patterns of variation of normative preferences among State and non-State interactions seems more illuminating. This requires the provision of an analytical space to the expression of the complexity of social normalisation (Lange, 1999) including legal regulation, the study of their possible validity claims (Black, 2008) and the nature of their constitutions as elements explaining green compliance in environmental change. Finally, it also requires the formation of valid rules to be expressed through a language vast enough to be understood by disciplines of social, policy or legal practice (Fischer et al., 2009).

In this respect, the thesis understands the value of negotiation of rules governing society-environmental relationships, which cannot be isolated from contextual practices of social control. However, rather than following customary or tacit norms at different local levels of practice of social normalisation this thesis is interested in understanding the architectural nature of regulatory legitimacy. In other words, rather than describing self-contained contextual narratives of negotiation, this thesis is interested in decoding the architecture of regulatory legitimacy that would explain why and how some forms of green compliance are chosen over others. Fort this, it is argued, it is possible to elucidate and compare a variety of disciplinary agreements of socio-environmental change with their respective implications. With this intent, the next sections draw on the communicative structures of agreements through which the legitimacy of relationships between regulators and the regulated occur, specifically through an understanding of the process of ´normality´ and the constitution of social norms and norm formation with help of the political philosophy of discourse analysis.

3.2 Foucault and Habermasian Dryzek: Decentred environmental regulation and discourse.

3.2.1 Discourse Analysis: A theoretical background in modern philosophy

For the study of environmental regulation and environmental compliance, the academic literature of discourse can be clearly presented as a confrontation between two different inclinations of modern philosophy: 'the Foucaultian perspective, which influenced the most critical approaches to the current dominant pro-environmental discourses and Habermas theory, often defended by supporters of environmental sustainability discourse' (Vazquez, 2006:62). In the next sections, the diversity understandings of discourse, social norms and compliance is explored through the argumentative illustrations of these thinkers and their relevance for the study of green normative preferences and compliance[34].

3.2.2 Social mechanisms of control: Foucault

The concept of discourse has been used to represent the 'normative power' of social practice. Discourses embody meaning, concerns and social relations as they craft possibilities for engaged thought and action as processes of social normalisation. Foucault was originally concerned with the way mainstream ideas and structures of power were originated and reproduced in social practices through the so called discourses. He observed how power relationships in the institutional practices that he researched were transformed by restricting or allowing some human actions over others. These transformations or 'discursive practices' –he posits- rely on the close bond he established between 'power' and social constructions organised into very consistent narratives or discourses (Rydin, 2004:, Potter, 1996).

Through his research in prisons, schools, hospitals and government, among many other institutions, Foucault observes the existence of power structures that reproduce narratives made of inequalities, disequilibria and divisions. These ´narratives´ of power, he argues are not credited to subjects themselves or the pure result of institutional goals but are defined relationally through discursive practices. These practices exclude certain individuals, questions or issues from

[34] Confrontation of these philosophical inclinations has been illustrated by a number of authors including Ashenden and Owen (1999), Isenberg (1991), Flyvbjerg (1998). The following sections broadens this debate in its applicability to sustainability discourse and environmental management initiated by Vazquez (2006) by revising and further questioning the more specific constitution of normative formations and their legitimacy in contemporary environmental regulations.

participating in the discourse ruling them out as arguable cases (i.e. supporting sexual, racial, religious or minorities´ discrimination for instance is socially if not legally prohibited) (Vazquez, 2006:65).

Furthermore, Foucault posits that human action does not originate out of generous conduct but rather it is stimulated through the intention to create or reproduce power structures. In Foucault´s view, we often accept as true or valid what it is conveyed in the name of our best personal interest or determination. Our practices however are activated or encouraged by subjacent incentives communicated and supported through discursive 'appropriate' practice within the socially defined boundaries of interpersonal practices. In other words, individuals accept to play a particular role whether or not they are aware of the full narrative and the scripts ascribed to them as long as they believe this is in his/her benefit.

Foucault sought for explanations to the conditions of such structures of power and knowledge as the reproduction of a *discursive formation*, for which Foucault defines four kinds of discursive pre-paving relations: those which determine what sort of objects to be constructed or talked about; those that specify who can say what to whom in what contexts; those that define the relations of meaning among statements, and their organisation; and finally, those that tell us the alternative kinds of discourses that can be formed (Foucault, 1970:99). In other words, discourses are 'all about the setting the stage of authority'(Ball, 1990) through the ´right´ actors, contents and meaning.

Foucault was interested in the narrative elements of discourses as well as in the study of the codes holding them together and reproducing them which he defined as 'disciplines'. These less evident practices, techniques, mechanisms or 'artefacts' are the everyday systems of 'micro-power' (Foucault and Howard, 1975:118) which somehow resolve how large institutional systems actually work. For instance, discourses possess associated forms of internal discipline regarding *knowledge* since there are rules regarding the conditions under which a discourse is produced as truth or falsehood (i.e. were ´homosexuals´ in the 1950s or ´bipolars´ in the 1990s inexistent before the doctors of deviancy invented the categories? (Hacking, 2004:81)) and rules through which the discursive order is maintained and used (e.g. will the reasoning of a lay -non technically skilled- subject be acknowledged as a compelling argument in a debate about the nuclear power dismantling or the ozone depletion? (Hajer, 1995:49).

Foucault observed thus that conducts are drawn by the 'best interest' which he described to as 'pastoral power' (Foucault 1976) to illustrate how an individual is put on 'good' track in the field of ideas. Through the setting of choices of discursive 'appropriate' practices, an individual becomes a

subject that has either a body to be diagnosed with symptoms of illnesses (doctor/patient) (Foucault, 1988); sins to be forgiven (confessor/confessed) (Foucault, 1985:, Foucault, 1997); a mind to be taught (teacher/pupil)(Foucault, 1983); or an actor of society to be regulated (regulatee/regulator) (Foucault, 1980). Pastoral power is, above all, a classifying power of statements of knowledge (Foucault, 1976) that imply how 'progress', reason' 'morality' –indeed the very notion of 'truth' and the constitution of the subject are to be granted as the result of a chain of hierarchical procedures in an effort to remove the 'error' and other forms of false or non-knowledge (Vazquez, 2006). Pastoral power thus contributes to the discipline of edification and reproduction of knowledge and the imagined subjects within through particular exercises of naming, categorization, regulation, distribution and operation of statements turned over time into ´engrained´ beliefs, narratives or discourses able to produce a particular social ordering.

To illustrate his second most important disciplinary mechanism of social control, Foucault also used the metaphor of the ´Panopticon´. He suggested that institutions can exhibit elements of "Panoptical powers" alluding to a prison designed so that convicts *think* that they are frequently surveilled by their guards (Foucault and Howard, 1975)[35]. This particular architecture illustrates a permanent game of (in)visible surveillance that requires the support of a display of infrastructure of power to be in place even if not fully employed to be effective. Institutions in this area count among spaces with surveillance needs that include 'regimes that closely regulate schedules of activity as well as the display of interventions that punish deviations from the prescribed norm' (1975:92)[36]. He observed however that panopticon mechanisms of observation and individualisation confer order to a particular space inhabited by 'suspicious' subjects and authority to an apparent 'anonymous power'. Panopticon powers constitute, above all, settings of spatial hierarchical controls searching to eliminate the danger of either a plot among convicts; of contagion among patients; of copying or noise among schoolchildren; or of coalitions or disorders among workers (1985). The panopticon contributes thus to the edification and setting of the 'otherness' among subjects relying on the arrangement of 'visible', 'hidden' and 'apparent' artefacts of authority in order to be operational. In other words, whereas the effectiveness of pastoral powers relies on a disciplinary grid supported by a setting of choices in categories of knowledge and beliefs that of panoptical powers depends on a

[35] The original Bentham Panopticon draft contained the architectural setting of a thin cilinder within a cilinder from which all central controls were possible and from where prisoners could be physically seen but controllers not, Bentham (1843).

[36] The panopticon has been used in a growing number of disciplines with an institutional focus, from the field of obedience Milgram (1974); Giddens (1985) to increasingly in the last decade in the field of new technologies of surveillance, mobilities and privacy in western societies (CCTV, Digital lifestyle, computer interaction, etc) in Lyon (2001), Gandy (1993), Graham (1998), Groombridge and Murji (1994), Norris and Armstrong (1999), Amstrong (1994) Taylor (2003), Taylor (2002), Ouziel (2008).

coordinated body of more tangible and semi-tangible disciplinary interventions to regulate and bring 'uncertain' or 'risky' social interactions in particular spaces back in the 'right' track.

Social transformations for Foucault are thus less the effect of a centralised process driven purely by institutional goals from above than emerging from the interaction of micro-powers at the individual levels that somehow have agreed to play their parts in the discourse. For instance, making drivers and pedestrians stop on a public road when requested by a police officer or a traffic sign is not reflecting the power of the individual police officer, or the traffic sign over people. Compliance or non compliance with demands reflects the discursive power of the police institution, in which the roles of the policeman, the traffic sign and (non) compliance are defined (Hajer, 1995) and disciplined. Behavioural definitions made by institutions thus may appear as a centralized or unilateral activity. Institutions however, can only maintain their power in a lasting way, when supported by a discourse that effectively reproduces the role of that institution across the entire organisation (Foucault, 1976). This implies that power relationships between the regulators and the stakeholders enforcing or resisting the regulation will determine the extent of success or failure of any given regulatory practice (Rydin 2004). When roles in social practices match mutual *expectations*, legitimate reproduction of the discourse plays a vital function in institutional compliance. Illegitimacy thus appears symptomatic of the lack of contentment with the expected roles awarded in power relations.

Panoptical and pastoral powers thus help understand the elements to achieve greater legitimate transformation in regulatory terms through the study of the inequalities that discursive conditions reproduce. In legitimate regulations, the task of a regulator would be first to identify the actors interacting with others and with the regulator, to observe the characteristics or disciplines of the interactions. A regulator would reconstruct the components and classifications of knowledge (the pastoral power) that define inequalities and the correspondent discursive practices classified as 'appropriate' to solve the situation. This means that shared principles of interpretation of the call for enforcement or compliance need to be in place in order to justify a particular expectation of regulatory achievement. A further logical step would be to identify whether the (visible vs. apparent) disciplinary grid steering these interactions is coherent with the enforcement goals of the regulating agency (its panoptical powers) and how eventual discrepancies can be resolved. These panoptical powers will exert pressure on non-aligned actors through an enforcement structure able to achieve in a more efficacious way the same outcomes required by the 'pastoralized' intended regulation. This means that together with detection, punishment of offences must be in place even if intervention is not exercised but only seldom instrumentalized, as in a "shadow of hierarchy" (Gunningham, 1995:, Borrás, 2005).

Overall, Foucault's empirical topical studies remain relevant examples for his clear conception of the relationship between discourse and power in the production of a discipline. The combination of knowledge/power embedded in discursive practices continues to be relevant in the naming of illegitimate and contested events in the political arena. However, critics of Foucaultian theories find at least two elements of his work increasingly difficult in contemporary issues. One is his assumption of social agency and institutional contestation, and the other on the very constitution of the relationship between knowledge/power and the discursive narrative.

Regarding social agency, Rydin (2004) identifies -from a perspective on environmental policy and planning- that issues of power not only show increasingly in decentred practice in the form of continuous contestation but also across and within institutions. She also observes the emergence of power through mobilisation or repression beyond individual actions such as associations, communities or partnerships´ actions. Such diversified actors increasingly participate in creative contestations and power struggles helping understand the contemporary institutional practice in environmental regulation. Public-private-civic relationships, lobbying strategies obstructing new environmental regulations or the use of public relations management can all be read as acts of resistance to Governments commanding rules. In particular, those used to evade Governments use of positive stimulus such as Command and Control or in the use of tax incentives (Swanson, 1995). Beyond these, more understated forms of negative power in the way of formal restrictions such as enforced self-regulation (Ayres and Braithwaite, 1995) or informal through a number of environmental or social standards, assessments or transparency reports can also be read as alternative narratives of hierarchical rule-making and control in environmental regulation. In the same way, green civic activism constitutes a form of resistance against corporations to disapproval in threatened public goods.

An outline of these less dichotomic qualities and their relationship to the disciplinary 'micro-powers' would have helped to bring more clarity to the dynamics of contestation and the 'evaluative universe in the cultural internalisation of external constraints' (Lianos, 2003). For this, an analysis of the edification of the subject and of the social 'otherness' that would include individual or social motivations, interests or agentic powers would have been helpful in Foucault´s work. It could have assisted to reveal the variety of expected agencies in the (re)production of social controls or the underlying conditions constituting a discursive 'truth' (i.e. art, science, culture, governmentality). In contemporary contexts, as Black puts it, this would contribute to the study of seemingly increasing complex 'interactions between actors in society, the fragmentation and socially constructed nature of knowledge in society, the dispersal of power between social actors and between actors and the

state, the relative autonomy and ungovernability of actors and systems, and the collapse of clear public/private distinction s' (2002: 5).

In addition to the pastoral and panopticon powers, discourses often also associated with the way language is standardised in particular settings and claimed as appropriate and ´necessary´ (where the language etiquette need to be observed through linguistic regularities and where one statement presupposes another (Crowley, 1989))[37]. These linguistic standards are not clear-cut manifested as they are embedded in a variety of cultural or social codes, political expectations and values and only become gradually recognized until they are carefully contrasted to other narratives or compared to their relative absence. A clearer understanding of the linkages between the linguistic aspects and knowledge/power - the very narrative attributes of those subtle mechanisms of control- would have helped to recognize a discipline of power 'when one sees it'. As Rydin (2004) observes, power appears used and exercised through the presence and manipulation of the narrative or the use of discourse. The relationship between language and discursive discipline is something not technically explored in its depth. A more analytical examination of the pre-paving conditions of discursive formations (the narrative elements) and their constitution into narratives (for instance where and when a narrative's plot starts and finish) however would have been helpful to a more complete understanding of the composition and scope of discursive power. It would have been possible for instance to delineate the settings that shape the very emergence of equal or unequal interactions as well as the relational values between the parties in interaction from the perspective of the narrative consistency. Finally, a recognition of the increasing diversity in narratives of compliance and non compliance would have increased the accounts for what others have called the 'non reciprocal relationship between law and social norms' (Hedman, 1990) in their diversity or between social actors' and state actors' expectations of governability (Black, 2002) – aiming at improving regulatory legitimate achievement.

Overall, a worldview of constant struggle and hierarchical disempowerment as the one offered by Foucault (Habermas and MacCarthy, 1984:, Taylor, 1989:, Giddens, 1993b:, Giddens, 1993a:, Lukes, 2002) does not allow for an understanding of the growing variety of legitimate options influencing social interaction and its shaping of the 'social self'. The assumptions that mutual understanding and social interaction can be rationalized in society in order to find a more practical and more legitimate utility to discourses is an hypothesis that is explored by Habermas. In order to provide a further understanding in the study of the relationships between regulators and regulates

[37] Practices of standardisation however are not exclusive of language and discourse can also be observed in architecture settings, IT, open source (see Graham (1998) and Sack (2005)), toys, visual media (see Van Leeuwen (1996)) and practically everywhere where form is recreated as a ´normal´ practice and recognized through the subtle eye. It is however in language that most social science studies have been undertaken.

that can complement our study of environmental decentred regulation and legitimate expectations, Habermas response to Foucault is visited in the next section.

3.2.3 Habermas´ Theory of Communicative Action

In contrast to Foucault who concentrates an important part of his work to the study of hierarchical disempowerment, Habermas on the other hand empowers humans by focusing on their capacities for rationality and responsibility to commit to mutual understanding. Habermas is also interested in the day-to-day practices of socialization but rather than looking at particular institutions, he observes that the encroachment of the market system as well as the bureaucratization of authorities have eroded the spaces of emancipation. For Habermas is not only the hierarchical settings in traditional institutions but also the utilitarian commodification of social relations through capitalism that have destroyed what he calls a ´lifeworld´ of human communication. It is clear that ´people and things have to fit into this capitalist strategy decided on the system. People are thus forced to participate in what has already been set up, they cannot just pursue their own goals´ (Gaspar, 1999). In this situation there cannot be mutual understanding among individuals, nor genuine communication. For minimum conditions of legitimacy, social micropractices of power need to be performed at least between two individuals, capable of establishing interpersonal relations and of speech actions. Habermas is thus interested in understanding and setting the conditions to provide an adequate space for individual´s autonomy whilst taking advantage of technological advancement. This space is governed by binding consensual norms, which in turn are defined by their mutual expectations. It is then through uninterrupted and open argumentation then that the setting of ideal communication occurs.

Habermas´ point of departure thus is to acknowledge the difference between ´strategic action´ and 'communicative action'. Whilst the first is based on the manipulative use of power relations, oriented to the achievement of individual goals, the second promote mutual understanding based on reasoned argumentation and use of language for this purpose. For Habermas, an 'ideal speech situation' is a communicative action based on communicative ethics which involves the continuous interaction of equal parties, where power part taking is excluded and as a consequence, consensus is entirely contingent (Heather 2004). In order for an ´ideal speech situation´ where mutual understanding of claims takes place a tripartite structure is required: truth,

trust and knowledge. In Habermas terminology (1984), the Truth component implies that no mistakes or errors are found in the mutually acceptable solutions that accompany the arguments of actors in the communication (also called constatives). The Trust component implies that actors see themselves as mutually accountable and ready to take on obligations arising from agreements (also called normative legitimacy). The Knowledge component implies that actors must mean the same thing by the same words and expressions, as if they had a shared socio-cognitive structure -also called expressives. In other words, consensus through communication depends on the speaker being able to convince her listener(s) that the claims are rational and worthy of recognition. Rationality involves thus justifying the claims with reference to the appropriate criteria. In the case of constatives the reference point is factual material, for regulatives established norms, and for expressives authenticity (1984)[38].

The manipulative character of power relations of 'strategic action' according to Habermas cannot be an adequate starting point in understanding legitimacy in contemporary society. Habermas model assumes however that people have already a certain awareness of illegitimacy and focuses on the ideal conditions to access public space. For Habermas, people understand what is in their best interest and cannot pursue their goals as there is not enough space to set their choices of emancipation. However in contrast to Foucault´s concept of resistance, Habermas focuses on the ideal democratic environments and helps with it understand the minimum conditions of legitimate decentred regulation. In the ideal of democratic and equalitarian concept of sustainability, environmental regulation would be attuned with the concept of deliberative democracy, reflecting the diversity of social interests without the interference of political power, money or strategizing (Dryzek, 1994).

A number of aspects frame the Habermas-Foucault debate. In particular, the debate can be understood in terms of the way they construct legitimacy in environmental regulation and in society at large: through disciplinary pressures which are constantly contested (Foucault) or through rational inquiry and collaboration (Habermas). In addition, the role of collaborative and voluntary approaches to environmental regulation can be understood running apparently in opposite directions. From a Habermasian perspective, voluntary agreements are authentic and possible through shared understanding of individuals. From a Foucaultian approach however, uninterested voluntarism cannot be recognized outside of power games of strategy. Regulatory incentives will be

[38] In Habermas terminology, consensus through communication depends on the speaker being able to convince her listener(s) that the claims are rational and worthy of recognition. Rationality involves justifying the claims with reference to the appropriate criteria. In the case of constatives the reference point is factual material, for regulative established norms and for expressiveness authenticity.

communicated and reinforced through discursive practices in place and the so-called 'voluntary behaviours' in turn will intend for instance to tame or dispute that particular regulation. In contrast, a metaphor of control such as the panopticon cannot be used in a hierarchical deliberative way, it is the assumption and awareness of ethical capacities of responsibility and accountability, which allow for mutual expectations of non-hierarchical controls to happen.

Foucault and Habermas focus in different stages of the discursive narrative of empowerment. Whereas Foucault relates to the genealogy of the established underlying resistance as a necessary performative option, Habermas is rather forward looking towards the ideal rational speech reminding the minimum conditions of a rational communicative narrative to commit to mutual understanding. Foucault thus identifies the constitutive elements to a discursive formation and reproduction in social and institutional scripts and Habermas identifies the minimum formal and pragmatic conditions (truth, trust and Knowledge) for ethical deliberation, in a ´meta-normative´ sense.

Both social theorists manifest also some convergencies in their understanding of day-to-day ´micro-practices´ of knowledge and interaction. The Habermasian rationality inquiry for instance can also be read as a Foucaultian constitutive discipline with pastoral elements of rational classification as a precondition for justifications of constatives (truth). In similar terms, the role of normative legitimacy (trust) can equally be read as an expression of the semi-invisible panopticon required in certain forms of dialogue in deliberative processes. Furthermore, language in Habermasian model also plays an important role. This is however not determined in one sole direction as there exists a prior systems of meanings embedded in the community, as well as new ones as social emancipation emerges. Habermas posits that language can no longer be regarded as a neutral tool for taken-for-granted meaningful expressions (knowledge). It can either constrain individuals by the systems of meaning as well as it can help to communicate new demands that individuals want. Language helps thus to a continuous reinterpretation and reappropriation which however cannot block the common search for what is meaningful in a consensual way in ideal conditions. In empirical terms however, Habermas has been more effective to identify the constraints of languages as existing problematic paradigms in legal or social democratic cultures (Habermas and Rehg, 1996) than in proving the constitution of a convincing dialogue to help achieve agreement in less consensual environments.

The deliberative and ethical model of Habermas has also raised a number of criticisms which have mainly highlighted the utopic character of Habermasian interactions. As Rydin (2004) posits, Communicative Action proposes a model of behaviour which contributes little to policy applications (i.e. negotiation of conflicts). When agreement is reached, it will tend to be fragile and will rely on

individuals involved in the process rather than on the shared discursive script. When agreement cannot be achieved, communicative action provides very few options likely shifting into strategic action and bargaining (Habermas, 1996). In other words, inertial rational justification and consensual deliberation is most likely to be achieved only by those already exposed to them.

Despite the fact that Habermas does not explain how to transcend normative preferences in order to overcome entrenched conflicts of normative change or the eventual benefits of strategic behaviour in deliberative processes, he does suggest that a diversity of interest prevails over a dichotomist subjugation narrative. It is in the recognition of diversity of social interests that norms reemerge in legitimate ways. It is thus this diversity of construction of legitimate norms and the awareness that he raises in the role of language to reinterpret and reappropriate the diversity of such new demands of emancipation that constitute his main contribution.

Few researchers have tried to build a bridge between Habermas and Foucault in the environmental arena, interpreting the outcome of interactions as the result of relatively legitimate normative preferences or of their transgression: whether as the results of hierarchical power structures or less hierarchical communicative interactions between individuals and institutions. The next section elaborates on why this thesis draws heavily on the analysis of environmental discourses as reviewed by Dryzek in his book of "the Politics of the Earth". Dryzek uses primarily a Foucaultian perspective but also acknowledge its limitations by -implicitly or explicitly- incorporating elements of Habermas' theory. The next section discusses the main attributes of his analysis and the environmental discourses which will help introduce the notion of environmental compliance and normative preferences to build in our analytical framework searching to compare environmental norms in different regulatory arenas.

3.2.4 Means for environmental dialogue: An Habermasian Dryzek

Drzyek argues that Habermas communication theories can be extended to the environment through a non-anthropocentric approach, although he recognises that existing power structures also interfere with these higher forms of democratic exchanges. Dryzek argues that a genuinely democratic exchange process has the potential to improve the quality of environmental discussions

since in such forum community values are more likely to prevail over individual interests. In this sense, Dryzek uses a Habermasian approach to understand the general role that language and communication plays in environmental matters and in how principles of democracy can be extended to the ecological sphere (Rydin, 2004). Through a normative perspective of communicative action, Drzyek highlights the importance of purpose on creating authentic democratic exchanges to inform the decision-making process. In order for deliberation to be authentic, the outcomes of such arena are not determined by 'political power, money and strategising' (Dryzek, 1997).

Drzyek also developed a more descriptive and nominative work of classification of environmental discourses a few years later in his book 'The politics of the Earth'. In this, he researched how institutional, social and political aspects shape environmental paradigms and discourses (Kilbourne, 2004). His work is a major guide in this thesis which aims at the understanding of the construction of green compliance and legitimacy. For this, Dryzek identifies distinctive features of environmental discourses and provides practical recommendations for discourse analysis. Six distinct environmental discourses are defined and deconstructed by him, using two dimensions based on whether or not the discourse proposes a ´normality´ to deal with structural social change. He contrasts the 'Promethean' discourse, which he regards as a 'counter discourse' or a discourse denying the existence of environmental problems, with five other discourses which recognise to some extent the existence of environmental conflicts: 'Environmental Problem Solving', 'Ecological Modernisation', 'Sustainability', 'Survivalism' and 'Green Radicalism'.

Table 3.1 summarises the most important discourses on the basis of two dimensions. The first dimension assembles the kind of institutional changes the discourse reckons essential to deal with environmental issues: transformations can be made by improving the existing structure (Reformist) or by reinstating the existing structure with a different one (Radical). The second dimension captures the degree of innovation in the policies proposed: if environmental issues are considered as a threat or a burden the degree of innovation is low (Prosaic) whereas discourses considering the environment as an opportunity display a high degree of innovation (Imaginative).

Table 3.1: Classification of Environmental Discourses

	Reformist	Radical
Prosaic	**Environmental Problem Solving**	**Survivalism**
Imaginative	**Sustainability**	**Green Radicalism**

Source: Dryzek (1997)

According to this, whether a firm or stakeholder of a supply chain complies with environmental standards or regulation depends on what is perceived as economic or social appropriateness regarding the environment and the discourse dominating in practice (Vazquez, 2006). For instance, if non-compliance is implicit 'normal behaviour', the focus behind this assumes that the stakeholder maximise profits, and environmental compliance is an extra burden or 'unfair' cost which may be avoided. It is normal for some stakeholders to ignore the environment or to acknowledge it only through the filter of problems of its access or exploitation. Such assumptions are embedded in the *'Promethean discourse'* which posits that natural resources are unlimited and accordingly refute the need to care for the environment other than through the problems of freedom of human activities to make use of it[39]. Prometheans also assume an institutional context to regulate the environmental impact of human activities in line with its argument: in order to take care about the environment it is necessary to integrate it in the system of belief for instance through a willingness to pay for the environmental service defined by the market whether through a formal structure of contract, insurance, or a voluntary agreement to support free and self-regulation.

When the social institutional context of self-regulation is not perceived as a sufficient solution, especially when there are problems of over-exploitation of resources and the ´infinite´ quality of resources becomes ambiguous, then a higher pro-environmental behaviour in the form of formal regulation (i.e. enforcement) is regarded as a solution, institutions will exert pressure (formal or informally) in order to make stakeholders comply. This assumption is in a nutshell the essence of the Problem-Solving discourse which dominated policy-making until the 90s in western economies. *Environmental Problem Solving (EPS)* acknowledges that human interaction with the environment is accompanied by a range of environmental problems and thus believes that human problem-solving

[39]Dryzek refers to the discourse of 'industrialism' in Promethean terms (1997) refering to the Greek mythology. Prometheus achieves human progress by stealing the infinite source of fire from the gods. This gives the right of humans to progress and the power of humans over nature.

tools need to be utilized. According to such a view, human attempts should be planned by the expert intervention of the state, either through direct 'command and control' regulation or through carrots and sticks instruments, such as incentives.

At the other corner of the scale of environmental concern, the paradigm or worldview sees individual interest subordinated to the imperative of overcoming the environmental crisis. The first environmental paradigm to appear was the *Survivalism* in the 1970s that claimed the need to recognise the disproportionate risk between uncontrolled population and economic growth and the limits of the earth. Through 'Limits to Growth (1972)' humanity was warned of the trespassing of the capacity of ecoysystems to sustain industrial and population activity. For the organisations around the Club of Rome (from academics, politicians and industrialists) Limits to Growth presented the best evidence in computer generated projections that suggested that existent solutions were poor in proportion to the imminent danger of earth and human collapse. For this discourse, Science and Government (often in the form of elites or epistemic communities) require unlimited powers to save humanity from imminent ecological catastrophe (Dryzek, 1997).

Humanity for *Green Radicals* has a more imaginative role through traditional politics or resistance movements (i.e. non-governmental organisations like Friend of the Earth, green conservationists or members of the European green parties). They think the human relationship with the environment needs to be radically changed given the aggressive and unfair distribution of environmental risk in society and the norm of lax environmental compliance among industrialists. Environmental justice, Eco-feminism, Ecological Marxism or Ethnocentrism are sources of inspiration for structural amend to protect the most vulnerable sectors of the society. Green Radicals require the intervention of the State but only to replace the institutions of the present industrial society to represent a selective radicalisation of minorities' principles aiming at changing structures for justice and fairness. Environmental, human or animal rights, collective property rights or land rights are some of the regulatory tools of green radicals as they should serve to disappear the social environmental injustices 'from above'.

In the middle of the scale of environmental concern, a *Sustainability* view of environmental affairs implies that compliance is an implicit appropriate norm across different sectors of society and that many of those sectors engage in progressively ecological activities. It not only recognizes that firms still maximise profits, but that these and other sectors can behave increasingly in ethical and responsible ways towards the environment. Although this discourse is more prevalent in some international politics and agreements, it is also a discourse increasingly accepted in local communities of practitioners as the only way to deal with contemporary environmental challenges. Sustainability discourse assumes a natural willingness to comply and prevent environmental conflicts

and degradation through soft regulatory rather than hierarchical instruments such as partnerships, social licenses, communities of practice and associations from a variety of interest in society.

Finally a sub-discourse of Sustainability that has grown in influence in international policy-making is *Ecological Modernisation*. Born in the 1980s in Germany and followed by a group of northern European Countries, Ecological Moderns believe in the profitability of environmental technical solutions. For them, change of attitude towards the environment should come from the industrial managers themselves and those in power shaping the organisations, working mainly through public-private partnerships or environmental standards. To achieve this, market opportunities must be created so internal managerial incentives are in place. Clean Production, Eco-efficiency, Industrial Ecologies or cradle-to-craddle like approaches are managerial concepts with different levels of technical or technological fixes of resource efficiency and organic flows. This discourse acknowledges the need of the government to impose regulation but sees the private sector as associates in the joint design of legislation and policies. This implies that firms can define the boundaries of regulation and its stringency (i.e. enforced self-regulation), which in turn can hold back their competitiveness.

From the number of discourses analysed, Dryzek observed that actors of society with particular discourses can interact in legitimate ways whilst others not (1997). Collaboration and some degree of understanding may exist between discourses in the same row or discourses in the same column, but conflict is almost necessary when discourses in the diagonals interact. For example, a firm with an EPS discourse such as Nike will experience conflicts or confrontation when trying to collaborate with a Green Radical non-governmental organisation such as Greenpeace or RSPCA[40]; instead, they may look for Sustainable organisations such as the World Forestry Centre for collaboration. On the other hand, a firm with a sustainable discourse –such as Samsung- may still be able to negotiate with Greenpeace (i.e. joining some principles of conservation or biodiversity issues) rather than with a Survivalist Think Tank such as Worldwatch Institute (which will not change their measure of their population growth concerns).

In other words, in the absence of enforcement, compliance can be obtained through a number of other pressure mechanisms that persuade actors to think they are willingly complying with regulation as it becomes 'the normal thing to do'. In this process, the role of environmental expectations appears to play a role in the formation of normative legitimacy. As we will deepen in the next section, an important step in the discernment of legitimate expectations in environmental regulation is the degree of proximity or convergence of discourses between regulators and regulatees. In order to identify the elements that hold discourses legitimately together, namely

[40] Royal Society for the Prevention and Cruelty of Animals in England and the UK.

closer to the values of actors in terms of closer social disciplines of power and knowledge it is necessary first to recognize the concrete configurations that constitute them. These are the aspects that are revised in the next sections.

3.3 Critical Explorations of Environmental Discourse and Regulatory Disciplines

3.3.1 Mapping the diversity of Western (knowledge/power) practices.

Through the study of Foucault and Habermasian Dryzek work on Discourse it has become clear that emphasis on the 'uncovering' of the rules and disciplines of interactions between regulators and regulatees can lead to a better recognition of legitimate expectations of environmental change. Following Foucault's and Dryzek's useful theoretical deconstructions of legitimacy in decentred (environmental) regulation, three elements of comparison and of analytical development can be made: one concerning the very identification of a variety of agentic framings in comparison to a pure individualistic agency, the second concerns the setting of choices of agency regarding 'power' and ´knowledge´ and the third concerning the setting of choices of agency towards 'language'. They contribute to the understanding of the setting of pro-environmental expectations, attitudes and intentions to act from different sectors, ultimately all contributing to the framing of the different dimensions of agency. As it has been stated in the first part, Foucault distinction of the underlying conditions of the visible (panopticon) and less visible (pastoral) discipline have been a fundamental progress in the understanding of the claims of 'truth' and 'appropriateness' of knowledge and control. In comparison to Dryzek's work, however, Foucaults' narrow variety of agentic framings (mainly of disempowerment across the topics analysed) appear closely linked to the lack of exploration of the specific settings that shaped the emergence of interactions and the relational values between the parties in such interactions in the first place.

From a purely discursive perspective, Dryzek's work relevance relies in his deconstruction and identification of a series of elements holding those environmental discourses together in anglo-speaking countries and the introduction some elements of discernment in the commonalities of discourses. Each discourse rest on 'assumptions, judgments and contentions of actors, that provide the basic terms for analysis, debates, agreements and disagreements in the environmental area no less than elsewhere. If such shared terms did not exist, it would be hard to imagine problem-solving in this area at all, as we would have to return to first principles continually' (ibid:8). In particular, he

recognizes four deconstructions of agentic framings contained in environmental discourses: the recognition of basic entities; the core beliefs about natural relationships; the agents' self-motives and towards 'Others' in the topic; and the key metaphors and rhetorical devices (p.18). With this Dryzek clearly identifies a variety of anthropocentric or ecocentric agentic framings towards Nature different or equal to the agentic framings towards Other agents or actors of society. He distinguishes a more or less strategic, or more or less disempowered capacities of Nature and of Others as recognized units of interaction in society. This is considered to be an important distinction, given that less awareness exist in separating levels of environmental concern or value and levels of intervention in studies of regulation (as it has been pointed out in Chapter Two). These two perspectives are brought together (among others) in Dryzek work by constructing a narrative supported by particular combinations of environmental concerns and levels of hierarchical interventions, rejoining the recent discussions gaining territory among legal scholars in similar matters, see (Lee and Stokes, 2009b).

The table below (Table 3.2) broadens the deconstruction started by Dryzek regarding the constitutive elements of environmental discourses in western countries and more explicitly integrates the interest on the structures of social control (in the Foucaultian sense) more relevant to the concept of environmental decentred regulation in this thesis. It summarizes in a *typological* way, the distinct elements in particular the role of the Knowledge on Nature, the role of Social Hierarchy refered by Dryzek's Politics of the Earth (1997) and more comprehensively extended according to the levels of authority in formal and informal instruments of expected intervention or enforcement. For the former, no distinction between the levels of legitimacy between formal and informal controls is assumed when Discourses belong to or represent the same level of 'appropriateness' and normality (for a more detailed revision on legitimacy and authority see section 1 in this chapter)[41].

[41]Among behavioural studies, the distinction between levels of authority and levels of present concern (whether formal, informal) are also an important distinction of *when*, *where* and in *what* regard individuals or social groups relate to a particular paradigms or worldviews see Kemmelmeier, Burnstein, Krumov, Genkova, Kanagawa, Hirshberg, Erb, Wieczorkowska and Noels (2003), Koltko-Rivera (2004), Kemmelmeier and Cheng (2004) Gelfand, Triandis and Chan (1996), Triandis (1996) and in relation to environmental concern and regulation see Samdahl and Robertson (1989), Hahn and Stavins (1991). Difficulties to cover questions of *how* and *why* they relate to those paradigms and with what consequences are more often than not left unanswered. Despite modelling social behaviour and behavioural interactions, covariance across variables (correlations) cannot explain why subjects *choose* certain behaviours dismissing others (see Funck (2005))- which is addressed in this thesis as a legitimacy concern and main object of study. Part of this discussion will be re-addressed through empirical work in Chapter Five.

Table 3.2 Extended Classification of (Western) Environmental Discourses

Discourse → *Constitutive Elements ↓*	**Prometeans** **PR**	**Problem Solvers** **PS**	**Ecological Moderns** **EM**	**Sustainability** **ST**	**Survivalist** **SV**	**Green Radicals** **GR**
A. Role of Nature	Generous H > N	Tolerant H > N	Tolerant H > N	Tolerant H ≥ N	Ephemeral N = H	Ephemeral N = H
B. Recognized unit of interaction	N ≠ f(aH) a = Individuals	N = f (bH) b = Administrative unit	N = f(cH) c = Industry or Private Assoc	H = f(N, S) S = All Organized sectors of society	H = f(dN) d = Sophisticated Elite	H = f(gN) g = Grassroots Association
C. Recognized degree of hierarchy	Low	High	Medium	Medium	High	Low
D. Mechanism of formal or informal intervention	Contracts Insurance market Self-regulation	Command and Control (PS) Carrot and Sticks or Trade and Caps (EPS) Insistent Strategy	Information, disclosure, labellings Standards, CSR Persuasive Strategy	Education Participation Persuasive Strategy	Shaming or Institutional Awareness Social guilt, Partial Industry Regulation Insistent Strategy	Ecological lifestyle (Gra) Communitarism ,Media, Public Opinion(Gro) Self-regulation (Gra)
E. Metaphor	Cornucopia Endless Machine	Administrative mind, treatment plant	Life support system, Humankind as Housekeeper	Growing organism Humankind as Housekeeper	Spaceship Earth	Gaia (living goddess)
F. Normative Value	Efficiency	Efficacy	Pragmatism	Reciprocity	Status	Aesthetics

Where: N=Nature Capacity; H=Human Capacity
Source: Based on Dryzek (1997), Ayres and Braithwaite (1995) and Hutter (1997) and Vazquez (2008) and the author.

Taking for instance the discourse of Prometheans, compatibility with the rationale of self-regulation[42] (whether formal and informal conduct) appears evident where a group of firms or individuals exerts control over its own membership and their conduct and where environmental concern is low or inexistent. In regulatory terms, an association may self-regulate – in pursuit of the private ends of its membership – or it may act governmentally in so far as public policy tasks are delegated to private actors or institutions (Black, 1997:, Ogus, 1995:, Baggott, 1989). Prometheans emphasize the potential to produce self-controls efficiently. This informality makes voluntary self-regulatory systems provide remedies where more formal systems would not (Baldwin and Cave, 1999). Self-regulation may operate in an informal, non-binding, voluntary manner or it may involve rules of formal binding force that are enforceable in the courts, such as contracts. Because a part from the environment, there[43] exists a good level of understanding of the duties and obligations due to the flow and access to information, in formal regimes, self-regulators make demands that are

[42] On self-regulation in general see Baggott and Harrison (1986), Dawson, Willman, Bamford and Clinton (1988) Ayres and Braithwaite (1992), Black (1996).
[43] Power distance well known empirical perspectives in intercultural research where it is defined as 'the extent to which members of organisations and institutions accept and expect power to be distributed unequally' is similar as the use of hierarchy that is meant here, see for instance Hofstede (1994), Manikutty (2007).

acceptable and this produces higher level of voluntary compliance than is likely to be the case whether or not there are 'imposed' regimes of self control (enforced self-control) (Ayres and Braithwaite, 1992). In concrete, they have low levels of monitoring and enforcement costs and are able to adapt their regimes to changes in industrial conditions in a flexible manner (ibid:123-137). This view also rejoins a power distance perspective of intervention that recognizes for instance, the degree of hierarchy of Prometheans as considered to be low (as in the market structure), medium for Ecological Moderns (public-private partnerships) and High for Problem Solvers (public administration) (Hofstede, 1985).

Overall, concrete aspects of discursive perspective from this table (3.2) can also be discussed in relation to decentred regulation and its central characteristics as defined by Black (2002) (see section I) in the environmental western arena. For instance that if one understands that the roles of Nature representing the diversity of environmental core beliefs (rather than the only antagonic core belief of 'progress vs demotion' of what Foucault refers to knowledge in the pastoral power sense), then there is no *fragmentation* in the production of knowledge but a continuous accommodative alignment towards the categories of actors' environmental *core values* (as in A in Table 3.2). Subsequently, because different actors have privileged access to different discourses in western environmental settings there is no *blurred public/private distinction*, but a different predisposition for actors or sectors in society to be set as the central motion (as in row B) of knowledge and control accordingly with their discursive mindsets. Finally, if one makes the assumption that legal controls can in fact mirror social norms then the apparent disorder and *ungovernability* announced by Black in her diagnosis of decentred regulation can be understood as the variety of more or less hierarchical controls matching their legitimate social expectations instead of the cacophony of unintended effects of flat economic incentives (as in rows C and D in Table 3.2) over societal organisation.

The analysis of environmental discourses thus despite some limitations, can be a useful way of depicting social norms and public/private/civic expressions of authority, useful to compare the gaps between social practice and regulations. In other words, by initiating a systematic deconstruction and classification of the underlying conditions determining social control and the role of the environment, Dryzek only depicts the *type of interactional* values over macro empirical narratives and portrays categories of *knowledges* within those discourses. This being an attractive exercise of the policy-regulatory arenas, it remains let alone a static, descriptive rather than explanatory view of the last forty years of environmental policy-regulation in the western world. In this way, he leaves out the possibility of understanding the emergence of some environmental

discourses (and regulations) *over others* and with them, the nature of the conditions shaping the legitimacy of regulatory choices such as the similarities or differences of those constitutive elements of knowledge and control.

In order to understand legitimacy of environmental regulation, this thesis is interested in both, what makes discourses operate within confines of 'appropriate' action, as well as what makes them move away from the state of ´normality´ (whether centred in the State or decentred). As it will be reviewed in the next section, consideration to these underlying conditions appears vital in the understanding of what practically holds together power/knowledge, language, agency and choice, in other words, the semiotic preferences, as dynamic attributes of legitimate environmental norms.

3.3.2 Locating the diversity of green discursive practices in the knowledge/power continuum.

Foucault propounds that there is a discipline of knowledge/power for the topics of socialisation he analysed in France (disease, imprisonment, education, or government). His work however rarely faces up the central importance of dissecting knowledge from power ((Hajer and Versteeg, 2005b:, Lukes, 2002)) at the basis of decentred agency (Caldwell, 2003) or establishing the basis of this relationship. Drzyek on the other side, by taking one topic of socialization (the environment) across different national contexts propounds some constitutive attributes of knowledge (Nature concern) and power (hierarchical intervention) in discourses. Dryzek just as Foucault however, does not attempt to explicitly and directly demystify the relationships between agency and power/knowledge (of the role of nature and other important key actors in society), nor between agency and discourses (as the conditions shaping them, for instance language). However, as Caldwell identifies, it is essential to construct a viable concept that articulates the variable possibilities of agency, change and choice, as well as the differentiation of the role of the self and the other (2007) to identify the emergence of a disciplinary social practice. The work of Caldwell based on Giddens[44], as well recognize the need to link decentred power with centered power with agentic 'normalising' capacity.

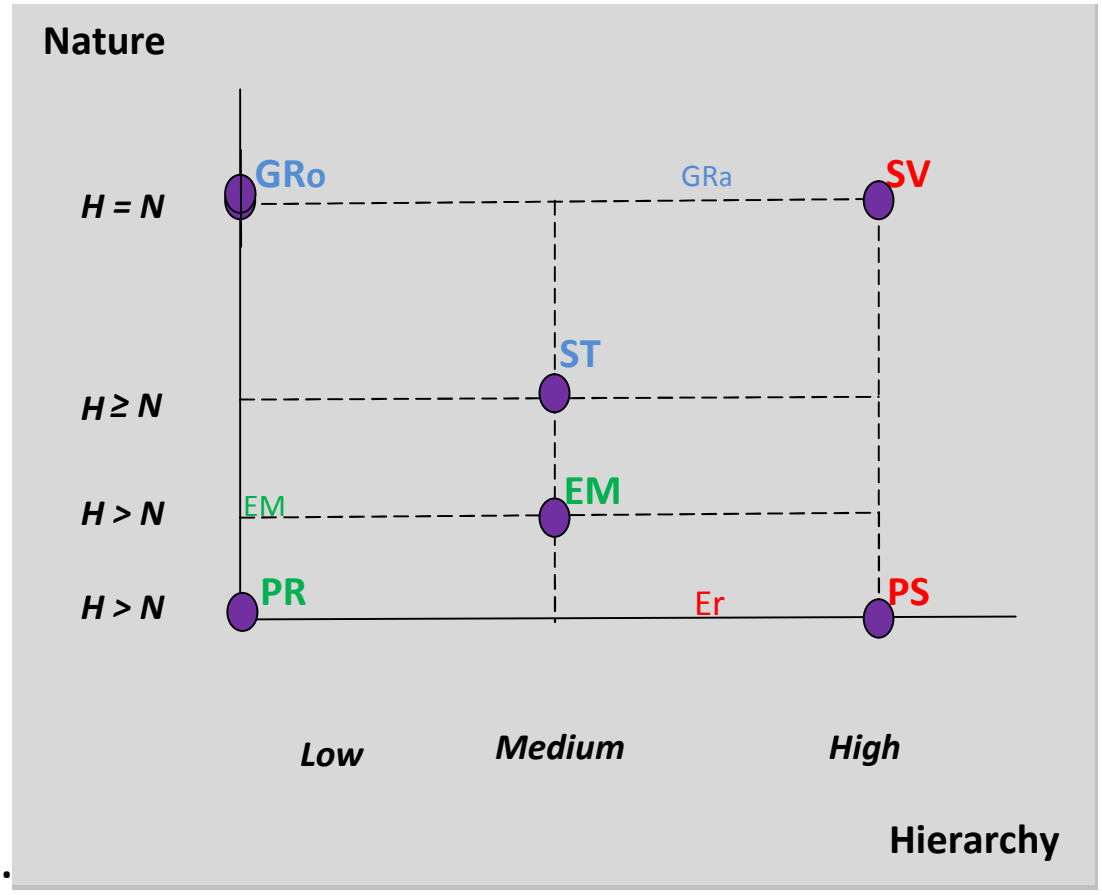
[44] In other words, the work of Foucault limits agency and change to discursive resistance, counteraction and transgression without offering the way out for consensual change. For Giddens Foucault's vision of decentring power through the centring of agency undoubtedly opens up new possibilities for rethinking agency, autonomy, choice and change in organizations and societies, it also closes down ideals of agency purely founded on intentional action, rational knowledge, autonomy and horizontal reflexivity (Giddens 1984).

To address the emergence of such utterances, some Discourse Analysists have tried to explain the emergence of a paradigm shift suggesting to look at 'discursive moments' in their 'dislocations' (Howard, 2000) in contexts of crisis or power struggles. The emphasis relies on the meaning that people give to a particular incident, which 'forces' the shift of a paradigm or discourse (Hajer and Versteeg, 2005a) in one direction among others. Critics of Discourse Analysis in Policy Making however dislike the fact that the very aspect of explanatory power which make so distinctive the discipline of discourse, remains descriptive and unable to explain how choices of direction of meaning in a situation of *crisis* actors take. Instead, often 'spontaneous' performance of a conflict appear as a solution (Fairclough et al., 2002:, Fairclough et al., 2004:, Jessop, 2004) in such situations of regulatory change. Shift of paradigms however not coming from 'crisis' but from 'transfer of knowledge' such as in the upgrading of international standards or through agreed intended new forms of regulation seem in this regard problematic for decision-making if based on the 'spontaneous' performance of environmental change.

In other words, followers of Discourses, have not yet provided a script of the paradigm shift options when they concentrate in the way actors have mobilized discourses, figuring out how they reconnect the previously unconnected extra-discursive issues (Jessop, 2004:, Hajer and Versteeg, 2005a:182). Given the variety of discursive methodological approaches, some researchers have found that mapping framing aspects of agency could help identify the articulation of interpretations of policy-regulations and with them help reconstruct and explain policy regulatory choice. In particular in policy studies, researchers have looked for practical forms to concretely trace and identify the network of meanings and competing rhetorical arguments such as in interpretative argumentative policy analysis (Fischer and Forester). They have for instance identified meta-narratives overcoming competing oppositional structured stories, such as in narrative policy analysis (Roe, 1994) or structured bias in particular practices in the exercise of authority such as in discursive policy analysis (Hajer and Uitermark, 2008:, Hajer, 2009). These structured reconstructions of bias, arguments and narratives mainly based on particular case studies, have considerably improved the understanding of how people –including policy makers- make sense of problems and policies by articulating their local contexts, knowledges and practical understandings about lived experience (Geertz, 1983:, Fischer, 2000:, Yanow, 2000:, Feindt and Oels, 2005). Interpretative studies of framing however have been less interested in depicting the 'agentic' dimensions in the utterances of actors' meaning-making practices in order to locate or explain the differences in the shaping the emergence of the diversity of discursive practices.

In this thesis, a grid of framed values and assumptions not only points toward the diversity of the ontological and agentic habits and micro disciplines that reproduce a discourse. It also allows for wider discernment of environmental discursive practices of power and knowledge by helping "locate" proximate choices of conduct along the value scales. In other words, by mapping and building continuum of values of environmental and social concern -from anthropocentric to ecocentric (Gillespie, 1997), or from empowerment to disempowerment (Hofstede, 1985), the thesis explores the idea of framing of choice of utterances through the "natural or legitimate" distance between values and concerns of green empowerment. The next graph (Figure 3.1) is an attempt to situate discourses discussed above in an effort to bring visibility to the idea of the *continuum* of legitimate discourses and choices based on the premises of environmental *values* or concerns and *agentic* framings, rather than the only focus on actors' identities and context. It is also an attempt to introduce some concepts regarding legitimate choice and the 'appropriateness' of environmental change for our case study.

Figure 3.1: Environmental concern and Social Hierarchy: a Continuum



Where:

H=Human Agency; N=Nature Agency; H=N (Ecocentric); H>N (Anthropocentric) ; GR = Green Radicals; SV=Survivalist; ST =Sustainability; PS= Problem Solvers; EM= Ecological Moderns; PR= Prometheans

Although actors are embedded in the social continuum and are vital articulators at a particular time and context (aspects that will be rediscussed in Chapter Five and Six) the pre-disposition of relational levels of hierarchy or horizontality, and the relational levels towards the topic of concern can and need to be differentiated in order to better discern the variety of discourses and regulatory styles within acceptable ways of seeing the world. In environmental regulation it is therefore useful to discern those two different relational aspects too. One that refers to the type of relationships in which one is perceived as being on the same stage of interaction as the others regulatees, wherever an authority is shared, and a second that refers to the type of relationship that regulators and regulatees share within the topic of action, in this case the environment. Each of these dimensions can vary separately, making through this the very diversity of discourses. In other words, it is possible to conceive of different individuals or cultural groups gravitating towards any of the three possible combinations of relating to authority (high, medium and low), as it is possible to conceive three possibilities of relating to nature (as a fine ecocentric balance of dynamic ecologies (H=N), dependent on some ecological aspects (H≥N), or dependent heavily on anthropocentric values (H>N)). In this configuration, some ecocentrics will assume lower rather than higher levels of hierarchy (i.e. communities of practice, ecoregionalism, green romantics), whereas Survivalist will expect higher levels of hierarchy and ecocentric values to tackle limits of resources (i.e. tragedy of the commons, collective property rights, radical eco-feminism) and weak Ecological Moderns will tackle environmental problems with a higher environmental concern than Prometheans but with similar market instruments of profit (i.e. eco-labellings) rather than with public-private partnerships of the strong Ecological Moderns.

This continuum helps to establish the dominance or coexistance of a paradigm (Kuhn, 1962) for a particular topic (Dunlap, 2002) which will explain the way it will impact upon the way regulators and regulatees conceptualise and interrelate to environmental issues here. In this light, in a consistent environmental discourse, the role of nature and the type of hierarchy are key components in the architecture of environmental choices. It becomes a continuum space for the imagined agentic capacities to play along in the vicinity of their choices and helps understand the limits of discursive opposites in the legitimacy of environmental regulation. For instance, a purely Promethean will find it difficult to abandon his intrinsic agentic predisposition to self-regulation to adopt a Survivalist Discourse of imposed hierarchy and ecological value. In the same way, a purely agentic expectation of hierarchical or bureaucratic intervention to solve an environmental risk issue

will find it difficult to second the humanistic *agentic* approach towards environmental issues such as the Green Radicals' lifestyle but will still cooperate with a Survivalist or more hierarchical activist or even technocratic view.

3.3.3 Framing Knowledge and Agency through Socio-Semantics

As it has been argued in the last sections, poor understanding of the choice of settings that shape the very emergence of interactions as well as the relational values between the parties in interaction has been given to advance a reflexion about the formation or reproduction of a discourse. These settings confer the ability to mobilize economic, social and political legitimacy in order to assist in the practice of (re)production of discourses (see Hardy and Phillips, 2004). From a pragmatic perspective of choice, this is what some have called the 'ontic' dimension (Howard, 2000) which it is believed to make more tangible a discipline of power 'when one sees it'. This pragmatic perspective observes that characteristics of actors within the context of a particular discourse, in Bourdieu's (1990) terms, their *habitus*, will accord them agency. As discussed in previous sections, basic features of such agency are dialectical and include: a degree of empowerment, a degree of access to knowledge, a degree other actors and nature autonomy, among others. In an empirical case, however the question remains within the practices of expression -in this case of language-. In other words, if environmental discourses were to be translated into specific script of values, what kind of linguistic expressions would be able to concretely identify and translate such 'agentic' features into 'appropriate standards of conduct' for every type of environmental discourse? Which kind of concrete attributes will better capture those dialectical core beliefs and empowered capacities? How are dialectical features of agency better framed in discourses and linguistic interactions?

The empirical-methodological perspective of Critical Discourse Analysis has significantly contributed to the 'linguistic turn' by questioning the translation of meaning, knowledge and behaviours and: "challenging reductionism, dogmatism and dichotomies, being self-reflective and making opaque structures of power relations and ideologies manifest" (Wodak and Weiss, 2007). These empirical studies have been vital in uncovering particular dualistic contestations and

conceiving core aspects of struggles such as in Antisemitism (Wodak, 1989:, Wodak, 1996), Identity Politics (Van Dijk) and integrating macro institutional theories with linguistic analysis (Fairclough)[45].

At the level of the performative framing of discourses, some aspects from socio-linguistic habits (Chouliaraki and Fairclough, 1999) which can lead to a more varied and less antagonic readings of discourse and agency were identified. Linguistic interactions in fact, represent and are expression of social action (Collins, 2010), therefore they can be considered as content of meaning, knowledge and behaviour as well as medium of interaction shaping them. In this way socio-linguistic *habits* also reveal social agency *habits* which in turn, can be isolated and mapped in order to give a clearer idea of their more expressive constitution (Halliday, 1970:, Van Leeuwen, 2008).

This thesis utilizes empirical tools of critical discourse analysis developed by Van Leeuwen (2008), and which concentrate in the representation patterns of social exclusion and inclusion through language[46]. Despite his focus on social discrimination, his myriad of dialectical applications of registers and categories highlights a substantial number of choices where discursive narratives can take place. The many social agentic components and dimensions within those discursive narratives allow for the recognition of predispositions and/or subjections of actors in a *continuum* of socio-semantic choices. For instance, how agentialized/deagentialized expectations are; how much assumed space or time to social interaction is prearranged, how much value to a subject and the object is given or denied, etc, are main dialectical concerns that can be expressed in a platform of continuity in this approach. Its main value for this research relies in the effective tools that he

[45] Given its diverse ramifications in the last decade, the 'linguistic turn' of Critical Discourse Analysis can be arguably synthesised in three different continental methodological standpoints: the Wien School, the studies influenced by Siegfrid Jäger in Schiffrin, Tannen and Hamilton (2003) and the developments of Norman Fairclough (2001a). Whereas the Vienna School is more based on the Frankfurt School in their empirical analysis through argumentation theory and rhetoric, the work of Fairclough usually tends to illustrate his theory with few selected data with Functional Social Linguistics, whereas Jäger proceeds in a more abductive manner typically through studies of Metaphors in the study of texts and spoken discourses. For a more developed overview and their different methodologies and compatibilities see Meyer and Wodak (2001). and Van Dijk (2001)

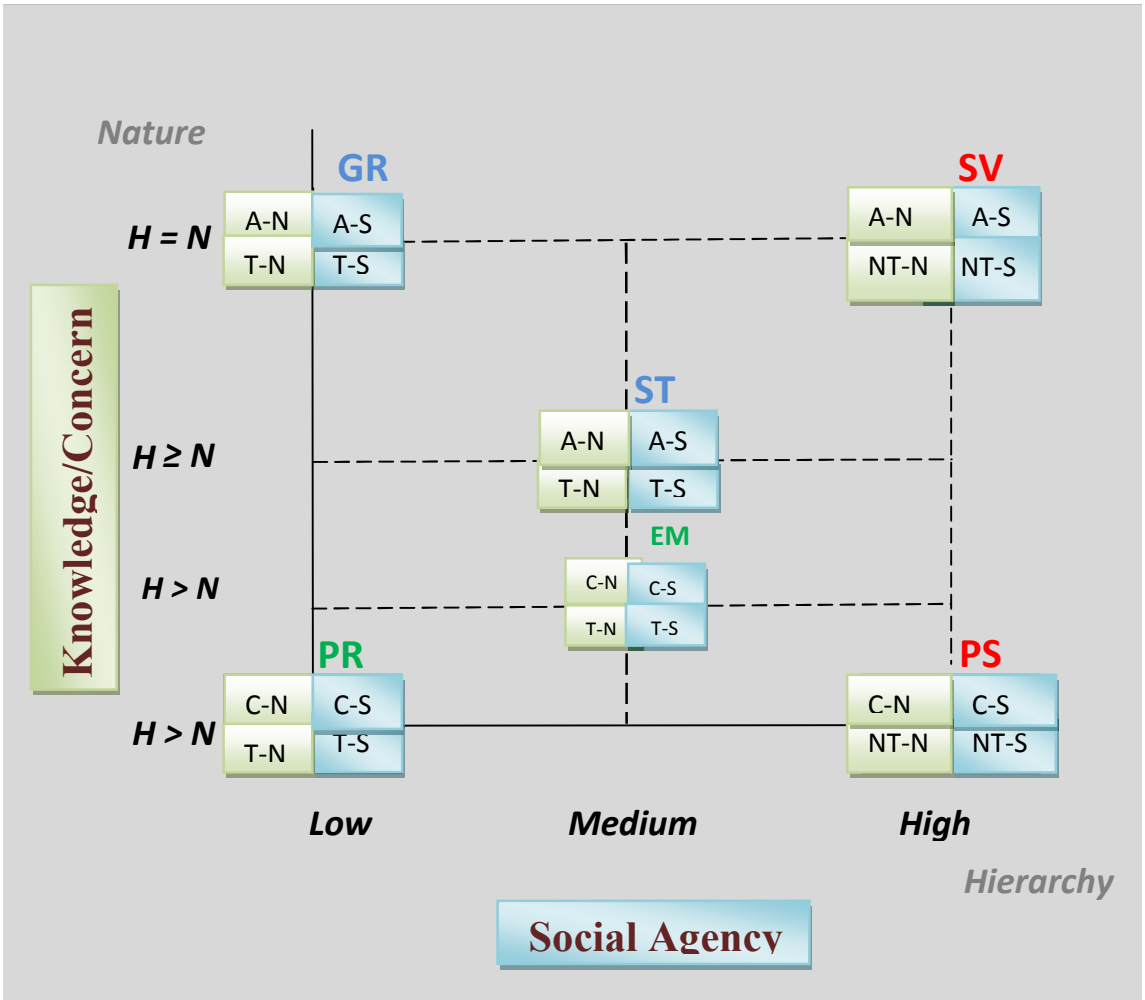
[46] Van Leeuwen is heavily influenced by a more concrete application of the Functional Systemic Linguistics, developed in the 1960s which sees every linguistic interaction as a subsystem of linguistic choices in which: 'the particular form taken by the grammatical system of language is closely related to the social and personal needs that language is required to serve' Halliday (1970), Halliday and Hasan (1989). Halliday's work attempts to link social agency language to linguistic structures by relating the networks of choices between ideas, persons and texts, which he calls functions, see Halliday and Hasan (1989). Van Leeuwen a former film-maker, introduces the idea of socio-semantic tools to treat social agency as a 'script', applied more to the field of the 'Dramaturgy of politics and social practice'. Van Leeuwen links linguistic choices to the discrimination of roles, style of interaction, settings, timings, etc. This manipulation of linguistic social inclusion and exclusions in real life, allow for the identification of stories of control of knowledge production and contested legitimacy in areas such as social class, race and education. Van Leewuen in this way joins with it other intellectuals of the micro-analysis of discourse who also see 'politics as a dramaturgic stage' such as Hajer and Versteeg (2005a). His work however is more grounded in data and thus more palpable and traceable for the study of agentic and knolwedge components more suitable for this research (see Chapter Five and Six).

provides to link in a practical and traceable way language in the continuum of social agency. Two devices are relevant for the study of environmental decentred regulation from the perspective of the underlying conditions that allow the *emergence* and *comparison* of social agency in discourses: their Scale choice (as defined concrete or general scope) and their Interactional choice (as defined as transactive or non transactive) when representing action through language[47].

Van Leeuwen develops the study of dialectical choices of discrimination/manipulation of social agency by studying how choice of one particular preference of interaction over another one takes place. His framing devices of Scale and Transaction (as conditions for representing action) allow, at the same time, a clear recognition of the commonalities and differences shared across agentic components and thus, a continuum of knowledge/power possibilities. The next graph (Figure 3.2) translates the combination of the linguistic framing devices into more detailed scripts of values, core beliefs and social empowering capacities. It is observed that these framing devices are activated differently in relation to the environmental concern as well as for the topic of the social interaction in accord with the environmental discourse set. In this light, the next section demonstrates through a framing analysis of the Ecological Moderns discourse the value of the combined focus on these two devices.

[47] Although developing a full case of the growing relevance of these two devices among others is out of the scope of this thesis, it is clear that a focus on scale and interaction have become significant concepts in the study of environmental discourse and environmental regulation. Problems like climate change, droughts and floods, pollution, conservation and animal disease stretch across local and global scale levels and cut across traditional jurisdictions reflecting in first stance the complexity of interactions and the scales of social and natural routines which in turn facilitates or hinders their regulation. In the practitioner and grey literature level these two main axis have been used in a number of social and humanitarian methods (see PCPD, Post Conflict Development, and upstream policies UNDP, 2008) In social sciences, in philosophy, as well as in political science, scope and interaction are cross-cutting relevant aspects responsible for the definition of alternative ontologies and political solutions to mainstream knowledge and decision-making, see for instance the debate initiated by Marston, Jones Iii and Woodward (2005). Linguistically across discourses, these framing devices were selected after a manual trial and error exercise testing all dialectical devices in selected fieldwork and recognizing the consistent repetition of two of them across framed meanings. Scale and Autonomy in the myriad of Van Leeuwen tested devices thus, were found as the more consistently present discursive frames able to cope with the variety of social agencies across environmental discourses. In this way, they helped to distinguish and compare social agency scripts form one discourse to the other (see the practical extraction of discourses in Chapter Five and Six and Appendix).

Figure 3.2: Framing Devices for Environmental Concern and Social Agentic capacities



Elaborated based on Dryzek (Dryzek) and Van Leeuwen (2008) categories w*here* :

Environmental Discourses:	Discursive devices:
GR = Green Radicalism	A= Abstract Scale (Generalization or Distillation)
SV = Survivalism	C= Concrete Scale
ST = Sustainability	T = Transactive Action (Instrumental or Interactive)
EM = Ecological Moderns	NT = Non Transactive Action
PS = Problem Solver	N = Framed Knowledge/Concern with Nature
PR = Prometheans	S = Framed Social Interaction with Other Stakeholder

Looking at the level of core beliefs or knowledge about Nature (green boxes in Figure 3.2), Ecological Moderns of the last two decades in northern Europe, according to Dryzek still have a concept of the environment that see natural systems as isolated events. Main assumptions rely on the human capacity to anticipate and prevent unwanted environmental ramifications of production and consumption decisions. From an agentic perspective, *Ecological Moderns* see Nature as either denied of any capacity to surprise or as to defy human management since it is rarely framed as to

have its own intrinsic value, its own open-ended developmental (and non interconnected) pathways. The *scale* of focus of this complexity is less abstract than the *general* principles of the duty of care of the environment *Sustainability* relies on, but less *concrete* than the sophisticated technical environmental impact or risk assessments of the Knowledge architecture of *Problem Solvers.* Managerially, Ecological Moderns incur in less atomistic relations than the material interactions of individualistic *Prometheans* (ibid:51); but less *hierarchical* than the bureaucratic public administrations of *Problem Solvers*. If they build partnerships with the Public Sector is to propose managerial strategies or certifications with public recognition. This level of interaction with Nature for Ecological Moderns is consistent with an anthropocentric focus on managerial or technical issues (i.e. standards, certifications) which reduces the complexity of environmental stress – interdependent causes or effects- in the ecological context or of the ecological limits to growth (p. 149). To be effective in its focus, the scale of *transactions* with Nature needs to allocate 'expert' knowledge and technology with the aim to uncover uncertainties and appear to 'tame' them, through innovations of the processes. In contrast to Problem Solvers, technology is not imposed but strategically and interactively (*transactively)* consented in order to be operational.

In this light, the architecture of Knowledge of Ecological Moderns requires a shared underlying scale of imagined interactions with Nature as conditions for this focus to be effective. This means that if core assumptions are legitimate, the *architecture of deep core knowledge* of the environment for Ecological Moderns will reflect a script of actors of *medium hierarchy* and a relative degree of *concreteness* for the generation of anthropocentric knowledge.

Regarding the actors' capacities of interrelation with Others (blue boxes in Figure 3.2) stakeholders in the same environmental issue, Ecological Moderns prefer a partnership in which governments, businesses, moderate environmentalists, and/or scientists cooperate in the restructuring along more environmentally defensible lines. For this empowerment architecture to function, actors usually need to see themselves as having a common and *concrete* objective for the partnership to take place. *Weak Ecological moderns* however tend to see actions with other actors as more market *instrumental* of a thin managerial form of political economy (ibid:147); *strong ecological moderns* on the other side, tend to view interaction with other partners as *transactive* and relatively egalitarian in their political relationships (Dryzek, 2007:145). Strong ecological moderns have wider motivations with the rest of the society, *transacting* with these not necessarily because they are loyal guardians of future generations' *generic* pro-environmental principles as most followers of Sustainability would do but because they have *concrete* expectations to define more economic and environmental opportunities in which they can play a tangible strategic role.

In other words, the hierarchical architecture of Ecological Moderns implies a focus on public-private partnerships in a *medium level of hierarchy* and a knowledge concern architecture of *concrete* expectations and follow-up actions rather than general principles of the associative world of dispersed mutual benefit of Sustainability followers. This concreteness and medium levels of hierarchy define the *agentic* position of Ecological Moderns as of either hierarchical (strong) and self-regulatory (weak) expectations of control from society. However, this position does not encapsulate all sub-discourses of Ecological Moderns. Still, important nuances in agentic and knowledge concern capacities can translate in different intensities of discourses (i.e. in the form of transactivity or in the form of abstraction). Weak Ecological Moderns for instance will keep rather more horizontal interactions more likely to rejoin market oriented mechanisms and still keeping similar environmental concerns (i.e. eco-labellings in products). It is therefore important to keep a distinction of the differences (as it will be examined more in detail in the next chapter) which will help identify dominant vs non-dominant or emerging discourses.

From this perspective, agency is structured differently according to the parameters of scale and the interactional value of actions framed across. However, a continuum suggests that the more general *scale* of the physical and social environments are framed, (whether when framing interactions about Nature or Other regulatory stakeholders), the more interactions are defined by deductive principles or moral obligations without the need to justify in terms of empirical inductive evidence or pragmatic assessment. Conversely, the more concrete the dimensions of the physical or social environments in environmental discourses appear, the clearer the visibility of actors, properties and consequences of their actions are required to justify the level of operation. In the same line of analogy, the less transactive the interrelation (whether when talking about Nature or talking about Other regulatory stakeholders), the more *authority* the non-transactive entity appears to exercise. The contrary also reveals that the more *transactive* the relations with other actors or the environment are labelled, the more horizontal interactions appear whether social or material as a result from the structuring effects of those discourses.

This thesis draws in these framing notions of agency and knowledge to understand the power of the settings of frames and the focus of anthropocentric/ecocentric micro discourses for the empirical case study. They suggest human predispositions of framing in which, the more detail the framing in a conversation, the more anthropocentric (whether efficient or effective) the conversation can turn, and the more abstract, the more eco-centric (whether aesthetically or morally) the turn of the conversation will be (see Table 3.2).

Finally, such an understanding also provides alternatives to the usual conceptual sociological distinction between 'structure' and 'agency' and the traditional micro-macro divide (Goldspink and Kay, 2004). In fact, from a discursive linguistic perspective, this notion of agency is similar to the concept of 'linguistic agency' in terms of the 'iterability' and continuous 'resignification' (Ahearn, 2001:, Butler, 1997) that takes place in the social interaction. From a framing and linguistic perspective social or linguistic agencies are not different and only depend on definitions of their interactions, including their scale of interactions. There is thus no micro and macro structure divide but a constant creation of 'alternative ontologies' (Escobar, 2007) as understood from a political ecological perspective (Jones, 2008). It is in the diversity of such agentic attributes of the 'social ecosystem' where the resignification of 'otherness' constitutes the 'agentic structures' of interaction. For this reason framings help this study to further clarify how discourses articulate and to the mapping of the diversity of agentic capacities of discourses. The usual dichotomic versions of discursive contestation in that case are substituted by the scripted dimensions of agency in the linguistic communication, which more distinctively help clarify, if and how actors *accommodate* their empowering capacities and legitimate assumptions across environmental discourses.

3.4 Conclusions

The analytical developments in Socio-Legal and Discourses literature helped to examine how useful discursive framing tools are to detect environmental worldviews of 'regulatory recipients' and form the basis of their normative preferences which in turn influence the application of regulation. Discourse analysis also helped to make the distinction among normalization practices or disciplines, endowed with agency and concerns. A conceptual continuation rather than a rupture was found between the continental philosophical genealogies of Foucault (from the 1970s) on power and knowledge, and Dryzek´s genealogical basic premises on environmental relational assumptions and their motives (in the 1990s). For this variety of combinations it was necessary to understand how Foucault and Habermasian Dryzek are analytically complementary to the understanding of ´legitimate´ environmental regulation(s). This was an essential clarification in building up the framework of discourses and the constitution of the *discursive consistency* between claims of concern and expected pressures to enact discourses of different normative narratives. In addition, it

was observed how a discursive angle based on ´knowledge ´ and ´agentic power´ properties is suitable in the understanding of a non centralized regulation.

This led to the important recognition that given that a regulatory frameless view of an environmental collective reality is practically impossible, actors tend to 'position' their scripts and frames according to their particular preferences. It becomes then the task of the researcher to identify the categories of choices of actors in order to locate empirical practices into discourses. In this case, they can be compared with those depicted in the Dryzek´s western, international as well as in the subnational developing world. Given the variety of possible combination of basic premises and the geographical discursive spaces, it was argued that logically, underlying framings can overcome Dryzek´s continental taxonomy (2007). Thus, a *continuum* of basic premises was proposed for the common ground comparison of diverse framings with Dryzek´s western ones –such as in this research case of animal farming norms in different discursive spaces. Discursive framing thus not only recognizes the contested manifestations of regulation but informs across the grid of different normative strategies, why certain forms of regulation and styles of enforcement are used while others are disregarded. The next table (Table 3.3) summarises the approaches revised in this section and the analytical developments followed.

Table 3.3: Discourse and Regulation: Convergence of Concepts and Applications

Author	Empirical (Topic) Field	Discipline	Agentic Power value	Contribution to the architecture of social knowledge (epistemological)	Contribution to the architecture of political emancipation (ontological)	Contribution to the architecture of social communication method (semantic)	Main contribution to policy-law
Foucault	Prisons, Hospitals, Government, Education (1960-1985) in France	Political Philosophy	Social dis-empowerment	Disciplines in the production of social knowledge (Pastoral)	Disciplines in the production of social control (Panopticon)	General contextualized semantics.	Genealogy of social and institutional epistemes.
Dryzek	Environment in English speaking countries (1970-2000)	Environmental Policy	From Social dis-empowered to empowered	Core beliefs of the role of Nature, social knowing of Nature	Deconstruction of discourses to operate in: Recognized units of action Core motivations of agents	Metaphors and Categories	Variety of core epistemic values for an Ecological Democracy
Hajer, Laws, Uitermark and Versteeg	Environment, Antisemitism (1990)	Environmental Policy	Empowered through coalitions of language	Deconstruction of knowledge production in policy	Shared understanding of mutual rules of interaction	Storylines, Dramaturgy (settings, scripting, staging)	Micro-foundations of deliberative governance
Van Leeuwen	Class, Race, Child Education, Media (1980-2010)	Media and Communication	Social dis-empowerment	Reconstruction of production of social knowledge	Re-contextualization of ontological aspects of choice (i.e. scale, frequency and interaction)	Dialectical (Analytical) categories, Dramaturgy (roles, styles, settings, timings), Register	Patterns of representations of social exclusion and inclusion and scale of knowledge
Black	National and Transnational Regulation (1980-2010)	Legal Philosophy, Socio-legal	Assume complex Inter-relationships	Fragmentation of Knowledge	Dispersion of sources of power, autonomy and governability	Important role to discursive schemes and meanings	Decentred Regulation Legitimacy, Authority
Analytical Development	Environment	Decentred Regulation	Agency	Social Construction of Knowledge	Social Agency and Power Relations	Socio-linguistic Framing Devices	Decentred Agency

This chapter achieved thus the purpose of better understanding the taken-for-granted normative preferences in regulatory implementation and it made a progress to advance the question of how is validity of norms constituted. After the introduction of authority, norms and regulation literature and the Foucault-Habermas debate and the further critical analysis proposed the chapter defined two elements in its theoretical framework. The constitution of legitimate norms based on combinations of discursive framings of hierarchy of agency and scale of knowledge concern; and the hypothesis of a continuum of frames able to facilitate the understanding of (i)llegitimacy of environmental norms according to the consistent proximity of discursive constellations with environmental discourses. Legitimacy of environmental norms is thus not only built on resistance or deliberation but depends on the consistent alignment of the core discursive elements with their respective discursive narratives.

With help of discourse literature, regulatory practices were defined in relational terms and from this perspective, a sharp distinction between the lawful and the illegal was not anymore asserted (Gottlieb, 1983:612). The line of demarcation between the informal and formal is not a

sharp one but distinguishable through recontextualization. What becomes important is the concern with legitimacy and the co-existance of formal, social or voluntary norms in the discursive normative space i.e. where enforcement may be lower or social enforcement stronger. Such an approach proves highly useful to study environmental regulation in developing countries, where lack of formal enforcement is a key issue and power requires to be understood as any form of social control besides formal regulation.

The next chapter will develop more in detail the idea of tracing discourses from the particular case study of stakeholders in the animal farming production in India. In this, the discursive approach supported by the scale and interactional framings of actors and by 'assembling' their agentic composition will be more pragmatically discussed within the research design and methods. It will also make a researcher's account on how to ensure the quality of the data collection, sampling, validation and analysis of the interpretative case study on the field. Chapters thereafter will test empirically those framing tools for the thesis of decentred regulation and legitimate change in the case study.

4 Research Design and Methods

The thesis studies the regulation of animal resources' production which involves a number of actors with different normative preferences, values and disciplinary expectations from an empirical perspective. Empirical research in the field of regulation has been key in law and society and socio-legal studies movements in the last forty years (Outhwaite et al., 2007). However, it is only recently that discussions have increased with most researched versions of it dominated mainly by quantitative research from the strand of empirical legal studies (ELS) in the United States (George, 2006:, Black and Caron, 2006:, Burns and Hutchinson, 2009)[48]. In the field of environmental regulation in particular applied to the regulator-regulatee relationship and its determinants, empirical literature also remains quantitative in Australian (Braithwaite, 1995) and in North European cases (May and Winter, 2000:, Braithwaite, 1995) with a few qualitative applications (Outhwaite et al., 2007) from UK literature. This chapter sets out the research strategy to translate the framings of projected conducts, values and beliefs of those different stakeholders (including regulators) into possible environmental discourses and their regulatory narratives. It will be argued that a quantitative approach is unduly restrictive for the purpose of *illustrating* the variety of the qualities of the scripts of formal and non formal regulatory practices and their semantic value added in terms of norm-making and normalisation processes[49]. More specifically, a qualitative approach appears better suited for the illustration of the *diversity* of regulatory claims between state and non-state actors and the nature of their discursive (in)consistencies. Therefore a qualitative analysis

[48] However the concept, boundaries or field of empirical legal studies (ELS) is far from being defined as for what it is and how it can help in the re-establishing a dialogue between the academy and profession. Outhwaite et al. draw on Suchman: 'At the Law and Society Association (LSA) meetings, presenters proudly proclaimed allegiance to ELS, and law schools touted their ELS bona fides. Everyone, it seemed, was confident that ELS was the wave of the future and that they, themselves, were riding the crest. No one, however, seemed quite as confident of what, exactly, ELS is. People who merely parsed ELS's self-proclaimed moniker wondered aloud whether ELS might simply be the sociology of law in new clothing. Or more menacingly, law and economics in sociologists'clothing. Or more cynically, the legal professoriate in the emperor's new clothing. But the uninitiated were hardly alone in their uncertainty. Even some editors of the ELS blog could be heard soliciting others' opinions about what exactly the enterprise should entail. ELS may be all the rage, but in Meadian terms, it is still an "I" in search of a "me"' (ibid, 2006:2).

[49] Quantitative studies on the semantic value-added (discourse analysis) of regulations in socio-legal areas are rare. An important exception is the study developed in the field of environmental regulation of Argentinian firms, focusing on the meaningful construction of story-lines of environmental discourses, see Vazquez and Liston-Heyes (2008).

based on semantic findings grounded through stakeholders' interviews and formal texts data rather than pure legal or statistical behaviour will be the main explorative lens of this chapter[50].

The first section of this chapter places this chapter within the scope of the research. It also introduces the analytical framework striking a chord with the framing devices in the environmental discourses of the last chapter. More specifically, it describes the discursive features or devices needed to reconstruct the attributes of 'knowledge' and 'power' for each environmental discourse. For this purpose, it outlines the main analytical steps that interest this study and their data requirements. The second section sketches the process of data collection, access and sampling to ensure the quality of grounded findings for illustrative purposes. The third section looks at aspects of the data coding and the socio-semantic analysis approaches of discourse. The chapter concludes with a summing up of the research design and a discussion of the limitations encountered and the possible implications for this research.

4.1 The scope of the study

This method chapter seeks to present one approach for the investigation of regulatory animal food production frameworks and through this contribute to the field of empirical socio-legal research. More specifically, the aim is to contribute to the more general literature examining the qualitative discursive methods of empirical socio-legal research to illustrate the variety of regulatory (formal and informal) framings. Regarding the scope of the regulatory typics, this thesis intends to cover the social understandings of safety of the animal product and of animal health in farming production in the south of India in order to be contrasted with the international standard' setting frameworks. For this reason it leaves out other aspects of the animal production chain[51]. This comparative case thus aims to contrast a formal and an informal regulatory arena (internationally and sub-nationally). The international measures examined touch upon the trade-food safety and trade-animal health environment, mainly from the perspective of the WTO-SPS- the Agreement on the Sanitary and Phytosanitary measures and through specific international resolutions' ruling on standards' compliance conflicts such as those of the Dispute Settlement Body of the WTO as

[50] An additional reason in terms of categories of data analysis is that some of our informants could be placed in disadvantage by the methods of data collection. Farmers in particular, are actors whose complex decision-making process tends to be more dependent on their cultural embeddedness for which quantitative analysis often tend to reduce such complexity. See Vanclay and Enticott (2011), Roncoli (2006) and for the value of ethnographic work in farmer cultures Enticott and Franklin (2007b).

[51] It concentrates around the farming production activities not covering transportation, slaughtering, distribution and consumption.

elaborated in Chapter Six. The decision to use one of India's animal's production sites was made given its relevance to the potential for integrated trade in an emerging economy, the agro-ecological and other disease-ecological problems such as the zoonotic outbreaks more generally in the region, as well as the easy access to key stakeholders in the field. Equally important were the language and English common law advantages of the Indian context, and the increasingly organized and internationally integrated animal food production in India (see Chapter Five for more detail).

4.1.1 Analytical framework

This analytical framework is offered as a means to bridge the philosophically grounded theory of discourse in the policy-regulation context of the production environment. Its starting position is to accept that actors are strongly involved in the production and transformation of regulatory discourse through meaning. However, rather than examining the actors' perspectives of sense-making by exclusively following their contextual conditions a different sequence is explored as a basis for this research design. In regulatory discourse, actors are not completely free since they have to operate within and accommodate existing social structures of power and knowledge production. Actors are, as holders of specific positions, 'entangled in a web of meanings' which provides them with a routinised understanding of reality. Within this perspective it is important to understand that a 'discursive production is ultimately determined by the internal rules of the field that he or she belongs to' (Chalaby, 1996:695).

In this chapter, by taking meanings as vital and temporarily given in language, this chapter builds on the analytical framework of the last chapter which looks for a practical way of recognizing the variety of dimensions of social agency through understandings of reality. Such variety includes the *what* type of dominant agentic dimension is more or less preferred and the *how* such a dimension becomes more or less visible. The ontological platform of framing devices (introduced in the last chapter and explained in more detailed for environmental discourses) thus helps to articulate within a common framework of expression these dimensions and gives continuity and diversity to the ontological values shaping a discourse in a particular context. It is thus meaning and choice or the role of meaning in the construction of normative preferences (over others) that the added ontological platform searches to elucidate. In this way, rather than shaping political sociological values in a Habermasian sense it aims to establish the basis of an architecture common enough to allow for the discernment of a continuum of differences and similarities of aspects of

agency and knowledge concern whilst uncovering the internal rules hidden in the context according to every discursive practice reviewed.

Following the analytical discussion of Dryzek's deconstruction of environmental concern in the form of 'deep beliefs' about the environment, it was observed that the role of environment holds a dominant equivalence with the 'pastoral power' of Foucault about what is by some believed as a discursive 'truth' or 'progress'. The same dominant similarities with the 'panoptical power' of Foucault were observed in the deconstruction of social and formal norms as forms of legitimate authority and compliance.

An important point was to accept that more than ´a shared way of apprehending reality' (Dryzek, 2007:8), discourses are forms of ´appropriation of a reality' according to the validation of a situation by their stakeholders, usually through written or spoken text[52]. When the environment and society are appropriated they become entities (or main components in Dryzek´s terms) of a discourse. In this case a discourse about environment and society that explicitly takes levels of authority and intervention into discursive practice is considered in this thesis a regulatory (discursive) practice about the environment. They represent the non-written rules (the core assumptions) in the production of a disciplinary practice about how to govern the environment and society relationship. This 'disciplinary' or 'normalization practice' is considered to be shaped through aspects or levels of knowledge and agency. In this sense, these components are not only the embedded filters through which a disciplinary practice expresses its diversity but they can also help order a practice into its discipline[53]. When appropriation of a reality and its entities is filtered through levels of agency and knowledge that converge as in the case of Environmental Discourses, (see Chapter Three) then one can say that the discourse is consistent and effective since how nature-society relations were conceived reflect how those nature-society relations are perceived. In other words, when pastoral and panopticon power rely on those same modes of production of knowledge and agency, they form particularly *consistent* discourses that form the basis of *legitimate* relationships.

Foucault's ability to frame a pastoral power in which actors were not completely free and rather subjected as a stable discourse and counter-discourse is a case in point. Actors according to him had to operate within existing rigid social structures of 'knowledge' and 'power' production.

[52] Other discursive practices include architecture, media, visual media, etc. (Van Leeuwen, 2008)

[53] This thesis assumes that agency is always the basis of knowledge but a performative agency not always is based on knowledge (or is aware) of itself (Dijksterhuis, Aarts, Bargh and van Knippenberg (2000), Graybeal (2008). In discourse studies, this means that in order for a discourse to remain in place, the same structure of reproduction of power needs to be maintained. For this reason, the empirical continuous validation of a regulatory design or an economic model is a requirement of their reproduction. This sense of 'incompleteness' is why models and regulations require continuous improvement (through new conceptions of new agentic forms for their subjects) since experience expand faster than the knowledge of it (Commons in Bazzoli (1999).

Regarding knowledge, actors were holders of specific positions 'entangled in a web of meanings' which provided them with a routinised understanding of reality (Harré, 1993). In the same case Foucault's panoptical power framed agents subjected to the authority of the 'apparent' surveillance, effective as it prevented social confrontation or subversion. The subjection or automatic 'deagentialization' that entities of Foucaultian discourse suffer has evolved in new forms of critical discourse analysis (Chouliaraki and Fairclough, 1999) often as particular forms as criticism towards the basis of 'new' projects of modernity (Jessop, 2004).

For Dryzek, subjected voices or narratives such as the Foucaultians are only but one discursive form in the realm of discursive forms of regulatory practices or more generally speaking, normative preferences. This means that position-holders can have a normative value suggesting the growing need of radical change as in Foucaultian times in the 1970s. Position-holders nowadays can include these preferences but can be as diverse as the normative values and narratives behind practices. The disciplinary form remains however in that 'once having taken up a particular position as one's own, a person has a strong predisposition to see the world from the vantage point of that position (Davies and Harré, 1990). A variety of such values are observed in Dryzek's environmental discourses in regard to the environment and society relationship, and 'radical change of status' is only one expression of the normative requirement embedded in that relationship. What is conceived as knowledge can also be perceived as applied agentic capacities in a variety of other ways. This discursive consistency has been found in, and reconstructed for a variety of environmental discourses and their regulatory practices (see Chapter Three).

However, when a pastoral (the conceived knowledge) and a panopticon power (the perceived agency) differ inconsistencies in the expected normative or disciplinary values of stakeholders can create important misunderstandings, cacophonies or unintended outcomes. They refer to the fact that the level of environmental protection designed for a particular regulatory issue (the pastoral design) does not correspond to the style of formal or informal enforcement perceived as performed (the panopticon). Discrepant expectations in the environment-food-society relationship can refer for instance to 'inappropriate', 'dissonant' or 'illegitimate' forms of the best perceived way to implement regulatory change, to better internalize norms or make receivers assimilate disciplinary behavior. Dissonances can mean prefering 'educational training' rather than a command and control, or a 'service-based' or 'taxes' over a 'certificate or labelling', or as a public-private partnerships, etc (Outhwaite et al., 2007:522). Same dynamic appears when knowledge-based principles of regulations are perceived as dissonant since for instance ´evidence assessment tools´ are preferred over ´standard guidelines´ or over existing social or local tradition principles or

lay knowledge solutions for behavioural change in the community, or viceversa.

How the right combination of the level of knowledge concern and the social, formal or voluntary norms fits together suggests a mode of 'accommodative regulation' that requires the understanding of how narratives including those basic assumptions are articulated by actors in their scripts accordingly. More concretely for our case study we need to identify tools to bring to the surface those basic assumptions of the stakeholders, including regulators, in the production site regarding their forms of ordering and the forms of challenging socio-environmental norms, in this case, towards 'safe' or 'healthy farming' practices. How their assumptions can be acknowledged at different discursive spaces and the relevance to compare framed registers of agency and knowledge in a non-western site with those of western environmental paradigms is the focus in the next sections.

4.1.2 Finding the platform of comparable framing devices in environmental discourses.

As discourses are socially specific ways of knowing and ordering social practices, discourses are useful as resources for representing those practices. In other words, because rules and conventions have to be constantly used and reconfirmed in verbal or written communication, the social context itself is a continuous discursive construction (Harré, 1993). When routinised, for instance in 'the way one talks on this sort of occasion' this translates into pastoral and panopticon power relationships. These are particularly effective as they avoid confrontation, i.e. the speaker being unaware of their arbitrary character and hidden ideology (Harré et al., 1999). Van Leeuwen (2008) views social practices entering into texts, interviews and other media from where they can be translated into a model of representation of social practice called 'recontextualization'[54]. His work is useful in particular in finding the forms of 'agentialization', 'deagentialization', 'suppression' of actors and actions. Two devices are particularly useful and were adapted in order to facilitate the distinction of core assumptions in the scripts of environmental discourses. These were the *scales* of knowledge concern and the *visibility* of relational socio-linguistics developed here as frame devices to filter stakeholders' mindsets of the animal farming production site. The intention is to distinguish and

[54] Van Leeuwen's devices bring to the surface core assumptions of scripts of social agents similar to a 'dramaturgical stage'. Although not all are always represented, social practices usually include 'participants', 'actions', 'performance modes', 'eligibility conditions', 'presentation styles', 'times', 'locations' and 'resources' Van Leeuwen (2008:6-12). In all these representational modes, Van Leeuwen argues that backgrounding and foregrounding devices are crosscutting aspects of significance in order to understand the form and variety that discursive practices take and their normalisation processes. It is in this regard that his devices are tested in this thesis as they appear appropriate to studies seeking to facilitate the recognition of the ´comparative scripts´ of environmental discourses.

locate, core assumptions previously identified in the environmental stages of Dryzek's paradigms and to see if they occur differently in a non-western environment. For a start, this section intends to translate these devices from socio-linguistic terms into discursive frames by searching and identifying them in the 'western' environmental discourses presented in the last chapter.

Framing devices can be found in most text, media and practically every material representing social action, which when strong enough will recurrently 'manipulate' those devices in order to gain a view or position of the worldview or paradigm in relation to the topic the actor is relating to[55]. The practical examples given in this thesis are the environmental paradigms deconstructed here. Framing devices, especially when used in combination with a pre-existent taxonomy of discourses are useful tools in reconstructing the discursive architecture from raw narratives of discursive practices. For this same reason, they can help contrast the convergence or divergence among discourses in the Indian farming production site and those of the international rules resolutions' discourses in next chapters.

Van Leeuwen has worked in the categorization of a number of dialectical socio-linguistic devices, mainly to understand how social agency is reflected in language. Such dialectical exercise has helped him to establish architectures and maps of choices of action for instance in textual narratives to identify ranges of visibility and of scales of actions (among many other devices). However, given the number of categories assigned (usually three) his dialectical choices work less as a rigid architecture and more as a continuum as follows. When framing a *scale* of concern in texts, qualitative devices are activated in that continuum as generalizations, distillations and concretizations.

Generalizations **(Gral)** are frames of abstraction; they abstract away from the more specific micro-actions that make up actions. This scale frames abstract qualities from actions and makes actors' qualities appear indiscernible. Whether temporal or spatial, the degree of generalizations, that is the scale of focus or concern, becomes more apparent in comparative representations of similar actions (2008:68-70) When used for their explanatory power as abstract frames they can serve as deductive qualities, explanatory of actions for instance, as principles based on status, morality, justice or aesthetics (in a general-deductive form).

[55] Similar to Vazquez study (2006), this thesis uses the term paradigm, worldview and discourse as interchangeable as if they were all consistent versions of strong discourses of ideas and performances. Strictly speaking, paradigms are seen by some discourse analysts as part of discourses, or *a reflection of them*. 'Paradigms rest on assumptions and values, they make sense of the world, and their understanding may be restricted to those who subscribe to it' (Darier in Vazquez, 2006:16). However a paradigm relates more consistently to the performative practices and behaviours, which (if the paradigm is strong) should be consistent with the discourse, see for instance Darier (1999). Worldviews on the other side involve or a wider encompassing of components, which extend much further than the environmental issues and the social relations to it, see Koltko-Rivera (2004).

Distillations **(Dll)**. another form of abstraction, distracts away from the substance of what actually happens when they relate to the actors or actions, as long as they are seen to 'interact with', 'relate with', 'be involved with' but no actual effect can be traced from the 'interaction' that has caused it. They, however, are referred to as having a 'positive' or 'negative' impact because of that particular interaction. When used for their power to correlate, as preferences or attitudes, they can serve as abductive *distillations* or non-defined correlations such as qualitative correlations which exclude any inductive or deductive reasoning (as a distilled –abductive form)**.**

Finally, *concretizations* **(Cr)** refer as the name says, to more tangible effects linked to their causes and subjects or specific groups which can be clearly identified by their tangible or measurable attributes. When used for their explanatory power as concrete qualities they can serve as inductive reasoning, explanatory of actions such as concrete evidence backed up on cause-effect rationalizations such as in search for efficiency gains or effectiveness (as in concrete-inductive ways)

Regarding the socio-linguistic devices of *visibility* of interactions, Van Leeuwen identifies three devices-stages in this continuum: *non-transactive*, transactive instrumental, and transactive interactive actions

Non-transactive **(NT)** interactions are framed actions that involve only one participant, the 'actor' having the behavior, or that are 'unilateral'. This category distinguishes between 'actions which have an effect on others or on the world and actions or actors that do not' (ibid: 60). When an agentic visibility is framed as unilateral, hierarchical where social or human interactions become invisible, suppressed or substituted they are *non-transactive* transactions. Qualities of actions appear deagentialized on one side or overagentialized on the other, expressed as unilaterally dependent, unilaterally imposed, passively affected, or the only option left to the actor to activate action. There are for instance non-transactive frames in 'sound assessment', 'prescribed standard', 'eminent status', 'free of sins', 'hazardous rank', 'command and control', 'victims of a tragedy', etc, or clauses denoting this semiotic aspect (suppressed-dependent). Actions can still be portrayed without purpose or effect on one side, while having an unilateral effect, a goal or a strategy on the other.

Actions or actors that affect people or things can be referred to as a human goal with *human* attributes, in which case fall in either the category of *interactive transactions*, or they can be referred to as having non-human attributes, which can be projections of attributes of *objects* or inanimate matter. When the agentic visibility is framed as human-like actions, where qualities of actors' actions become filtered and visible, they are humanised *interactions* **(Intve).**. However, they are still

strategically foregrounded in some areas but ignored in others such as in 'partnerships', 'agreements', 'negotiation', 'fellowship', 'affiliation', 'strategic management' etc, or clauses denoting this semiotic aspect (in an interactive-interdependent way)**.** When the agentic visibility is framed as object-like where social or human interactions are backgrounded and only visible through material or objectivised interactions independent of each others' qualities, they are *instrumentalized* **(Inst)** social actions such as 'market', 'contract', 'setting', 'systems', 'mechanisms', 'equation', etc or clauses denoting this semiotic aspect (in a instrumental-independent way).

In a semiotic analysis based on frames the complexity or simplicity of texts (simple sequence of words, phrases, clauses, sentences or entire paragraphs) is not a decisive factor for the analysis itself. This is because it is not the quality of the grammar, syntax or linguistic formulation but its persistent and consistent ordering or positioning in relation to a chosen semiotic scale (level of choice of knowledge and level of visibility of agency) which makes it possible to recognize core premises from transcripts[56]. As discussed in the last chapter, it is the recognition of those core premises - even in simple words, clauses or expressions- that if utilized recurrently by actors, are expected to provide enough material to reflect elements of a pattern, their chosen scale of the classification of the in/validity of their truths and their level of control of their dis/empowered actions.

The following reconstructions in meaning-making of the described components of discursive practices help transcend the Foucaultian antagonism into a variety of meaningfully framed practices of environmental discourses and tests the discursive frames and devices in the subsequent way. *Survivalists* as proponents of the ´discourse of the limits´ (Dryzek, 1997:69) for instance, see humans as intrinsically and continuously in need of redefining the new conditions of (the fragile) balance with the environment. Their ´Tragedy of the Commons´ is an emblematic storyline that assigns a static, *non-transactive* agency to the environment who has *apriori* little capacity to regenerate or adapt. Nature tends to reacts to human action and in the 'pool of the commons' this condition becomes clear as a 'given characteristic´ which reduces carrying capacity and presents the 'overuse of resources' or collapse as 'inevitable'. In order for this vision to work, this relationship is built upon a

[56]Opposite to content analysis, semantic discourse analysis observes the presence *and* absence of discursive devices in order to locate a semantic classification. As discussed in the last chapter discursive semantic analysis does not require the exclusive use of interviews but includes any kind of textual or biophysical material (i.e. buildings, visual media, toys, etc). In texts, units of analysis can contain simple words or can make simple circumventions already reflecting a type of connotation in context (i.e. 'protecting from', 'operationalizing', etc) as such material for semiotic analysis. The additional advantage with the examination of textual connotations through interviews (in addition to verbs, adjectives, clauses, phrases, etc) is the auditive and contextual realization (such as changing of tones, silences, recurrent naming circumventions, etc) (Van Leeuwen,2008).

very *generic (Gr)* scale of population or meta-population (Hardin, 1968:, Hardin, 1998), as the basis of a social order unable to manage itself. Within this scale of treatment, one is *incapable* of distinguishing the subjects and/or their attributes and thus their social agency becomes *non-transactive (NT)*. The tragedy can only be resolved with a sectioning or scaling down of meta populations into more distinguishable structured groups (Killingback et al., 2006) rehabilitating agency and unlocking the dynamicity of discourses and by making *interaction* with population and the environment a more *transactive interactive (Intve)* issue.

Similar to Survivalists, the Green Radicals consider that interaction with others is conceived in ecocentric and *abstract* (Gral) terms. However, proponents of Green Radicalism are more *transactive interactive (Intve)* than Survivalists and believe that change is possible either through a radical change in life-style (Green Romantics), through the political representative system of the parties (Green Rationalist) or through the associative world of bio-politics (Bio-Regionalist). For Green Romantics if only *everyone* would change into a green life-style consumer or producer role, where only these dimensions of complex being could be more instrumentalized (Inst) in a day-to-day basis for these purposes, then environmental problems on earth would be solved. Green Romanticism is based on a general principle and despite the lack of *concrete* evidence of the impacts on the complexity of ecosystems relationships with their units, instrumental models and simulations are on the rise, on the basis of a more environmentally friendly principle, in particular in those involving the personal carbon credits and footprints of citizens[57] (Roberts and Thumim, 2006:, Vandenbergh and Steinemann, 2007). However, cause-effect concrete impacts to the complexity of ecosystems or the differences in the impact of the interactive participation of certain sectors of society in overall complexity are never foregrounded for the consistency of the discourse. Green Rationalists on the other hand, believe in the formal representative system. Green European Parties for instance are emblematic of such discourse; they are seen engaging in formal institutional discussions and therefore less interactive than their similar Bio-Regionalists who engage at different levels of polities from regions to communities and associations. In this sense, Green Parties depend on the sophistication of this *generalization* in the form of scale with nature, which is also defined by the fact that rationalists do see the mutual benefit of the representative and advocacy world and are ready to align some evidence in the defense of the environmental *principles* but in practical terms they search *no* empirical sophistication to *concretely* trace the evidence of the impact of formal representative world of subjects in the unfolding of more sustainable ecosystems.

[57] These, especially if linked to a principle of environmental justice, see for instance Szasz (1994) Bullard (1994), Stallworthy (2009)

Sustainability Discourse on the other hand such as that of Agenda 21 does not disassemble the impact of nature in the associative world or vice versa by tracing the concrete circuits of how a balance between humans and ecology will impact on a more resilient future. At its best, sustainability is still in the making of the common best practices for an intergenerational principle of fairness and its basis is moral rather than pragmatic. Thus, its representation form is more one of a *distillation* of the benefits of following a principle of correlations rather than a concrete systemic cause-effect assessment of sectors of society moving towards a common aim. Because of this level of generality, it is not yet a discourse that acknowledges instrumentalized objectives through social interaction but rather the role of *interactive* subjects in the making of a best practice.

Table 4.1: Summing up socio-linguistic framing devices of environmental paradigms

Environmental Discourse*	Framing Devices			
	Nature Scale (n)		Social Relational (s)	
	Abstract: General or Distilled	Concrete	Transactive: Instumental or Interactive	Non Trans active
Prometheans		**C**	**T-Inst**	
Eco-Prometheans	A-Dll		T-Inst	
Problem-Solvers		**C**		**NT**
Eco-Problem Solvers	A-Dll			NT
Democratic Rationalist		C	T-Intve	
Sustainability	**A-Dll**		**T-Intve**	
Ecological Moderns		C	T-Inve	
Survivalist	**A-Grl**			**NT**
Green Romantics	**A-Grl**		**T-Inst**	
Bio-Regionalist	A-Grll		T-Intve	
Life Style Greens	A-Grll		TInst	

*Not bold= Subdiscourses; Categories=Abstract-General (A-Gral); Abstract-Distilled (A-Dll); Concrete (C); Transactive-Instrumental (T-Inst); Transactive-Interactive (T-Intve); Non Transactional (NT). Green Romantics and Life Style Greens represent the same discourse.

Taking the level of concern about the role of nature in *Problem Solvers'* discourse, its defendants also consider that through rationalism and pragmatism it is possible to overcome an environmental problem. A problem in order to be solved requires scientist and engineers to work side by side with the authorities and technical staff to explicitly agree on the scientific certainty and the form of dealing with the *concrete* and partitioned parts of the problem. The contribution of interest groups, individual citizens or elected bodies towards the definition of a problem is believed to be in general separate from the practical solution. Problem solvers search to objectivize by means

of compartmentalizing problems. Despite the vulnerability and certainty of the implementation also depending on political negotiation and customary norms, the discourse remains a package of measures, regulatory designs and guidelines. Examples of them in environmental policy-regulation abound and are recurrently framed in terms of risk assessments and evaluative reports. The fact that this discourse is unable to see systemic risk is a characteristic of the intrinsic compartments of bureaucracy. This intrinsic difficulty of interaction among administrative units provides evidence of the lack of internal tools to account for increasing interdependency. What makes the sub-discourses of *Problem Solvers* different among each other is the role of the hierarchy of experts in the definition of the problem and the degree of environmental interest in it. Scientists for instance, can be considered as purely esoteric problem-solvers (Administrative Rationalism), as part-taking advocates (Economic Rationalism) or as mediators (Democratic Pragmatism). In each of these sub-discourses, experts talking will frame their counterparts (*other* sectors of society) differently according to their more or less hierarchical relationships (Hisschemöller et al., 2001:437-510).

4.1.3 Data requirements

There are some data requirements of the empirical data that are essential in order to explore the translation of data into environmental discourses: an adequate sample for deconstruction and reconstruction; their capture of framing devices, and the access to primary data (for the stakeholders' social accounts) and of secondary data (for the legal accounts). In both cases, data needs to be sufficiently rich to allow for reconstruction in terms of visibility aspects of framed agency and scale of environmental concern. In the first case, this implies that actors are able to speak about themselves, their roles in the farming production activities, feeding, rearing, and their relation to animals, animal health and disease and in general about changes in their relationship (ideas and actions) with nature in relation to the farming production site. Enough data is required to talk about the other social stakeholders and their relationship to them, their roles and how they relate to nature and the animal production environment. In the second case, the collection of policy-regulatory documents for discourse analysis was facilitated by the public online resources.

Regarding the capture of framing devices, unstructured and semi-structured interviews for stakeholders were considered helpful by making different points and bringing counter examples about the topics that would convey richness and more quality to our data. Firsthand data was important in corroborating the differences of perceptions among stakeholders and for further comments on contrasting formal and informal practices. For this primary data, access needed to

allow to question in different ways the taken-for-granted assumptions and to understand the way actors articulate meaning.

4.2 Data Collection

In the case of the subnational, sectorial practices in farming production, India was a likely case to conduct the study given the access to this site. A first interest of the thesis was to work with texts from interviews and secondary data in order to explore the empirical approaches of discourse and regulation in a developing country. Textual and contextual methods of data collection were considered in order to gain a better understanding of and involvement in the topic (May, 1993). For this, special attention was given to the collection of elements within and outside the moment and location of interviews and of the events attended. Besides semi- and unstructured interviewing, a revision of policy and local literature and studies, as well as specialized conference speeches and newsletters were used to gain a more insider focus in the context.

4.2.1 Policy Documents and Literature

This thesis looks to understand legitimacy from the perspective of the appropriate environmental concern and social norms of stakeholders in the production site to be compared with the international formal legal reports and documentations. Since analysis of discursive practices at the international level focused mainly on the Dispute Settlement Body, reports on Sanitary and Phytosanitary Disputes were the main secondary data collected. For this reason less attention was accorded to national documents for discourse analysis. Nevertheless, national, international and sub-regional and stakeholder policy documents and reports were necessary as support for the fieldwork mainly in three aspects.. One, in order to set the first context and give a general policy-regulation idea, paving the way for a further understanding of the influence of the context in interviews (as examined mostly in Chapter Two), second, to recognize the key most interactive actors of the process in order to make a selection of the sample corpus for the analysis of the data (see Chapter Five); and third, in the recontextualization of results (see Chapter Six and Seven). Given the qualitative aspects of the form of discursive framing undertaken in this study, special attention was given to a balanced collection of documents and reports on the policy and other

implementation guidelines of the standards and regulations around trade and animal health issues as well as trade of safety of food products.

At the international level, additional academic and policy literature, as well as existent animal health and environmental standards and regulations' reports were necessary. At the subnational level, documents from scientific, public, industry and civil society actors in the sector (poultry) production chain environment were collected (see Chapter Five). These were available from public institutions, industry, local libraries, newsletters and specialized conferences attended. They rendered apparent some of the external and explicit pressures and potential conflicts on the surface of the area researched and with them they expanded the author's perspective on the possible borders of discourses and values within those discourses. Subsequently, they provided help in the design of interviews by pointing to more concrete aspects and possible tensions between standards/regulations for safer trade and healthier animal resources exploitation. For instance, documents were considerably useful in pointing towards those apparently more fragmented or overlapping aspects of formal and informal implementations of standards or the lack of mechanisms of coordination backwards in the food chain. In this way, they helped in the first approach on the boundaries of some discursive practices, as well as among regulatory priorities of some stakeholders in some areas rather than others of the agri-food sector examined.

4.2.2 Access in Sampling

As (Dexter, 1970) and (Platt, 1964) point out, collection of data such as the location of interview and method of questioning are all sensitive issues that require adequate thought in qualitative research. In this research, fifty-six interviews were obtained from policy-makers, farmers, processors and animal health experts related to public and private sectors in six different locations between November 2007 and June 2010. Some of these interviews were recorded, in most of the cases the interviews sought to make the situation for interviews as natural and spontaneous as possible, be it at work, at the farm, inside or outside in order to elicit more accurate data (Spradley, 1979). The interviews were done in two stages: a prospecting pilot form in order to identify the animal supply chain and the most appropriate design of research for the thesis and then returning with a more particular interest of focus on discursive aspects of stakeholders and one animal production chain.

Accessibility, in particular for the sub-national practices of animal farming production, was not an initial problem, given the existing links (former employers) with key stakeholders (including

decision-makers) in India and because there was some existing knowledge about the background to these frameworks that provided a useful starting point[58]. Contact was established with technical and administrative staff (the German International Cooperation –GIZ, which was in this case the operational arm of the EU-Trade and Investment Development Program (TIDP). The TIDP was a trade facilitation, technical assistance program offered by the EU to India. It was offered prior to negotiations of a EU-India Free Trade Agreement (whose negotiations stagnated at the moment of writing this thesis) for Indian trading counterparts, to better understand the European Food Sanitary Standards among other services (the GTZ). From and from these contacts a snowballing process, mainly of institutional and private contacts, started. Introduced through former colleagues and institutional contacts, I was given easy access to senior officers and key informants. This allowed for quick and uncomplicated arrangements for interviews involving hot issues in the drafting of Free Trade Agreements, imports and disease control officers, and some key actors in the animal production chain. For the more technical and managerial aspects, vets and other animal health care experts among the main players in the animal resources industries were also available after attending a national popular show fair on Animal Health in India (VIV-India). The first visit helped to provide information on the location of the supply chain case study and also in the more detailed design of the research. The poultry cluster in the south of India was selected given the availability of data, the size of the industry, the value and potential in the animal health and food branch, in trade openness and in general welfare (see Chapter II). This second trip aimed to reflect a more balanced perspective (in comparison to the senior officials) to reach stakeholders' perceptions closer to the day-to-day agro-ecological activities. Thanks to the visits to the variety of locations and organizations along the poultry chain, interviews unfolded into natural environments of investigation for most of the participants.

4.2.3 Semi- and unstructured interviews.

Semi-structure interviews provide a framework of 'flexibility balanced by structure' (Gillian, 2005:70) through which gathering of rich and deep qualitative data is possible. According to May (1993), this type of interview is used in order to gain 'clarification and elaboration' (ibid: 123) as well as an explanation of understanding people's thoughts and actions (Rubin and Rubin, 2005:, Seidman,

[58] Previous to the doctoral work, the researcher undertook several consultancy contracts for the GTZ -the operational arm of the German Development Ministry- to draft team proposals of upgrading Indian Sanitary and Phytosanitary Standards (SPS) and Trade Facilitation with the European Union in Latin America and for the World Bank environmental services in India, those professional contacts were key in the snowballing process for interviewing 'elite' officers.

1998). Because ‘a precise route for all to follow’ (Holstein and Gubrium, 2001:86) is practically not set a priori, interviews allowed researchers to open up the scope and flexibility for research operability.

Semi-structure interviews allow a high degree of control over topic sampling, and getting at the range and uses of interpretive repertoires that a participant has available (Billig, 1996:, Wetherell and Potter, 1992). The intention was to depict the Interviewer's own categories of normative values and social rules (of knowing and controlling) through linguistic interaction of the question-and-answer format, or the turn-by-turn taking. Ideally, unstructured interviews can allow for the interviewer’s own timing for the development of their own narrative or rhetorical argument where specifically coherent ‘stories’ are not sought, as some prefer this format (for example Gabriel (2000). For instance, they allowed the interviews to be conducted at a more relaxed pace so that topics could be developed. These included power relations, legitimating and responsibility issues (as situated in the production chain) or their ‘compliance tasks’. Questions could be asked as to how other stakeholders of the production chain could improve knowledge or attitudes towards disease ecology, animal health or environmental stress. Where conversation did stray to sensitive topics it helped to confirm the discursive frontiers in that topic area –what was unsayable or unthinkable clarified the framing scale of (non) transaction- in relation to that subject. For aspects of knowledge rules, when interviewing politicians and professionals at times they would assume knowledge of specific legislation and acronyms which required clarification. If same framing devices were used in the clarification this also helped to confirm the discursive confines. Language was sometimes a challenge regarding farmers’ framings given the need of a translator. In this case, counter examples with specific questions were given –such as existing and desirable rules- as measures to double check the quality of data for further checks on limits of their discourses.

Figure 4.1: Example of Interview Topic List

- Your background and involvement in the day-to-day activities in relation to the animal resources exploitation.
- Your views about animal health, food safety and animal farming resources and environment. How do you relate to animals and ecosystems? What is the prevalent situation? What are the recurrent challenges in terms of product safety? What are the recurrent challenges in terms of farming production? Are you happy in implementing new changes or new standards? What needs to be improved or changed? What needs to remain the same? What is the role of the ecosystem in that change?
- Your views about the role of other stakeholders in animal health, food safety and the animal farming resources and environment. How do other stakeholders relate in making production process safer or more resilient? What is the prevalent situation? What are the recurrent challenges in terms of others' participation in food safety? What are the recurrent challenges in terms of others' participation in resilient farming production? Are you happy with how other stakeholders are implementing new changes or new standards? Who needs to do what in order for this to be improved or changed? Who needs to remain the same?

In other words, questions of informants intend to cover the topic of interest of regulation, as well as to depict the framing devices from the narrative of the context itself. For this reason, a particular required format (semi- or unstructured) interviews was *a priori* not a necessary condition in the need of confirmation in the case of doubt of coding (as discussed in the next section). Semi- and unstructured interviews thus appeared to be appropriate in accessing such type of values from participants (in line with Potter and Mulkay, 1985; Mishler, 1986)[59]. A total of forty-one interviews which lasted between 60-180 minutes were conducted and thirty-six of these interviews were audio-taped before being transcribed.

4.2.4 Validation of evidence collected.

For Maxwell (1998:89), the empirical works needs to be validated through a "Validity Checklist" necessary to every development of qualitative research. This checklist is based in the principle of searching for discrepant evidence -with the consequence that this can lead to retain or modify the conclusions- and secondly, triangulation. Both of them are subject to threats of validity of practical and theoretical interpretations. Concerning practical interpretation, Maxwell mainly refers this 'uneveness' as the threat of imposing 'one's own framework or meaning, rather than

[59]Other methods of data collection regarding social interactionist approaches exist, such as the Conversational Analysis or Discourse Analysis from a Psychological perspective. They constitute different approaches (i.e. cognitive aspects, membership or turn-taking categories) that distance from the philosophical-regulatory approach on the constitutive elements of disciplinary values that is attempted in this thesis. For more on these methods, see Potter J Discourse Analysis and Constructionist Approaches in (Ed) Richardson V.J.T.E. (1996) Handbook of Qualitative Research Methods for Psychology and the Social Sciences.

understanding the perspective of the people studied and the meanings they attach to their words and actions. This 'researcher' bias can be avoided by focusing efforts on different methods of data collection that account for the practical overlap of data whilst allowing the investigator to take advantage of emergent themes and unique case features (Eisenhardt, 1989:, Yin, 2009)

The diversity of data collection in this thesis is exercised through primary data (interviews and fieldwork notes) and secondary data (reports and documents) as observed in the last sections. This aims to strengthen not only the balance of sampling of views but to contribute to the grounding of triangulation of evidence in qualitative inquiry. In the case of discourse analysis a full triangulation may not be the main aim, since lack of consensus may only mean a shift in the discursive practice or the emergence of a new discourse, rather than a lack of objectivity. As part of the discursive framing analysis, triangulation was sought among different actors within the sector, through the principle of inference and comparative exclusion for the corpus sample examined only to evoke a sense of the discursive frontiers of data as unpacked and depicted in the next section and chapter. From a data collection perspective, balance of topics, questions, clarifications and counterexamples during the conduct of interviews were sought to obtain an equally balanced corpus sample source of quotes.

4.3 Data Analysis

Discourse Analysis as defined here focuses on the analysis and interpretation of units of content which can be predefined in relation with a context, meaningfully articulated by actors through framing devices. In this regard, the adaptation in this research of Critical Discourse Analysis differs from the more classic views of linguistic CDA that see relations between text and context as: *production*, *distribution and consumption* (Fairclough, 1992) of meaning in what is excluded from a text as in what is included in it (Foucault, 1968).

This thesis, has little relation with 'distribution' and focuses on *production* (what features or devices in a text can be used to classify discourses and values) and *consumption* (i.e by environmental actors, as social norms, through discursive classifications)[60]. In turn, CDA methodology analyses the latter using three mechanisms of discourse representing relations between a text and its context: *exclusions, hybridity* and *discursive practices*. These devices are compared with those of the

[60] *Production* refers to the process of creation of texts and implies the study of units of text in relation to other units within the same text (sentence organisation, repetition of words and coherence). *Distribution* relates to the way in which texts are interpreted (background knowledge, reading purpose, nature of participants). Finally, *consumption* refers to how texts are used and how institutional and social context might shape the interpretation of a text (who the social actors in a text are, what is excluded from a text, what type of discourses the society makes available).

approach of Van Leeuwen in order to assess why and in which cases the latter has been adapted for environmental discourses.

In the case of *exclusions* (Fairclough) and *suppressions* (Van Leeuwen) there is no allusion to the social actors or actions in question anywhere in the text, whereas in the case of 'back-grounding' some actors or actions may not be stated in relation to a given activity although they are stated somewhere else in the text, and one can thus assume who they are. In the latter case, they are not so much excluded as de-emphasised or pushed into the background. In addition *'Backgrounding'*, for instance in an *instrumentalized* way rather than a *non-transactive* interaction'; or an 'abstract' rather than a 'distilled' scale of focus can make the difference between a dominant discourse and a sub-discourse in Van Leeuwen terms. The person or action is reduced to an instrument or a function, but the reader, or interlocutor, can still infer other aspects of the person or his actions. Other qualities are also pushed into the background. Thus a more diverse nominalization of categories in the continuum of representation using Van Leeuwen's categories is more useful than a purely antagonic narrative of critical discourse analysis.

Hybridity implies that texts are not discursively homogeneous, frequently containing echoes of more than one discourse (Tischer et al., 2000). In this respect, texts are 'patchworks' of different and often contradictory discourses (Fairclough, 1992), even though hybridity also implies that one discourse can dominate over others coexisting with it (Catasus, 2000). This mechanism of discourse analysis has been particularly used in environmental and spatial planning discourses (Dryzek 1997; Hajer 1995; Rydin 2004). For the purpose of this thesis, Hybridity will be an important concept against which the ´discursive consistency´ of topics can be tested and with it the discursive legitimacy of the regulatory model. As it has been discussed in the last section, discourses can be distinguished according to their disciplines of knowledge/agency. In this light, when basic assumptions about knowledge and power are 'uncovered', environmental discourses can be identified in the continuum map of discursive practices (see Figure 3.2). However, rather than hybridity of discourses, in the reconstruction of environmental discourses this thesis recognizes the effect of the close discursive *topics* that echo in the environmental discursive continuum. In other words, different from being inconsistent as a discourse, it may only mean a different construction of discourse in relation to a different topic or subtopics in the discursive practice. In the light of the empirical case, it will be important to remind the extent to which the mapping of discourses can also reveal embedded topics or integrate 'emerging' topics that define sub-dominant and dominant discourses (in a photographical sense). The result of this will be a mapping of hybrid positionings of discursive topical accounts (texts samples). This differentiation will be important to remind the reader that the vicinity in a 'cluster-wise' form of topics can still be tested according to its discursive consistency of

conceived knowledge translating into its perceived agentic capacities.

Finally, *Discursive practices* 'are mechanisms (for example, repetition, degree of detail, use of passive voice) that are used, often unintentionally, to manipulate the reader and reinforce power relations (i.e. by emphasizing the importance of some actors involved in the power relation) (Vazquez, 2006:104). Discursive practices for this study are the basis of the linguistic interaction and as such are integrated as temporarily fixed meaningfully charged practices that reflect framed agentic and knowing capacities of social actors. In contrast, Van Leeuwen refers to 'very specific micro-assemblages in the representation of practice and normative power' (2008:24), and serves as a 'traceable' toolkit to approach discourse[61]'.

In the aim to 'uncover' and identify aspects of (framed) agency in this empirical case, the same question was asked for every text: 'How can the 'focus' of agents of verbal processes, in interviews and texts be/was represented –rather impersonally, non transactive, instrumentalized or personally and interactive; rather individually, materialistic, or collectively or abstract; rather by reference to the person or to their utterance, etc- without privileging any of these choices as more 'literal' than others, and without thereby also privileging any of the context or contexts in which one or the other tends to occur as more *normativ*e than others? '(2008:24). The scrutiny of such text analysis has to be 'ordered' through a coding system that allows for wider room for organization and reflexive discussion, and second use a principle of inference and comparative exclusion, as it is underlined in the next section.

4.3.1 Management of data: NVIVO and manual Socio-semantic Coding

It is worth mentioning briefly the practical operational advantages that have made this program efficient in the use of large amount of qualitative data for discourse analysis. It is a text based manager with possibilities of coding words, quotes, clauses, paragraphs or entire documents. It allows for search of codes and retrieves incidences of text. By connecting codes it is possible to build in a rapid manner the possible interconnections between actors, attributes of actors and forms of framing, particularly in relation to a topic. This sophistication would not be possible if everything was in paper version. Nevertheless, the increasing family of qualitative programs, and their apparent

[61] Main focus however remaining on sociological categories, i.e. *agency, social actor,* or ontological i.e. *nomination, scale*, etc rather than linguistic ones, such as *nominalization, passive agent, deletion, nominal group* etc. They are used here as it has been mentioned through the repetitive use of ontological 'frames' or 'categories' of scale (degree of detail) and sociological category of interaction (form of interrelation) rather than specific socio-linguistic modes.

'automatization' have not removed the need of interpretation of data. The exercise of qualitative categorizing in programs like NVIVO induces the researcher to translate assumptions and hypotheses into a codebook. This capability forces the researcher to look constantly back at the data applying a more reflexive and comparative method when looking for discrepant or related qualitative evidence (Outhwaite et al., 2007).

For this thesis this means, for instance, that texts about perceptions can be first organised in categories of scale and relational values, and second they can be categorized through topics and subtopics of knowledge/concern and of social control, and third, they can be recontextualized to test their strong or weak interconnections in building up an environmental discourse. Despite the use of text analysis software, in order to fully assess the extensive obtained corpus of texts, further sampling, of sections or locations within the collected material were selected for assessment and to constitute the 'Sample Corpus' of the analysis (Fairclough, 1995). In order to develop this corpus sample of text and to make the analysis of deconstruction and reconstruction more manageable, the following four step process was addressed:

i) First, a compilation of the topical contents of interest in the animal farming production site was made through open coding. Open coding is 'the analytic process through which concepts are identified and their properties and dimensions are discovered in data' (Strauss and Corbin, 1998:102). For this research they were ordered through free nodes, and some thematic tree nodes of subtopics such as animal product (1), and animal health environment (2). This classification intended to reflect back on the aspects of regulation of the 'finished product' and the 'process of production' (Lee and Marsden, 2010:121). This codification represents an attempt to separate their embedded practices and meanings and given their relation to the food safety in relation to the finished product (1) and food safety in relation to the process of production through the animal health environment (2). This codification also searched to reflect back on comparable aspects of regulation in agri-food models (see Chapter Two, p.27) such as the hygienic anthropocentric model and the rest of the animal health and farming socio- ecological models. For this purpose, sometimes citations were coded very specifically such as in 'pathogen free', 'meat', 'animal product', 'substance' as similar subtopics belonging to 'animal product' and farming (1) on one side, and as 'cleaning practices', 'biosecurity', 'disease', 'health', 'zoonosis', 'stress', 'disease ecology' for similar subtopics' codes belonging to the live animal health and farming part of 'the process of production' (2) on the other.

ii) Second, a compilation of axial codes was identified for the framing (Scale/Interaction) devices. The emphasis in axial coding was on coding for explanation and understanding of the data, in light of the already identified framing categories. The objective in doing

this was to look for answers at a more abstract level than in open coding and to develop and consider initial hypotheses' (Outhwaite et al., 2007:509 drawing on Strauss and Corbin). The main process of axial coding (see Table 4.2) was developed regarding the devices (scale and interaction) mainly through tree nodes for each category as developed by the semantic choices of Van Leeuwen. This coding thus, was based on the values for each device (abstract or distilled and concrete) for scale, and (instrumental or interactive and non-transactive) for the relational choice. Although sometimes identification became quite straightforward and obvious, other times the back grounded aspects made this identification less straightforward. In such cases, a high and granular degree of reflexivity was required. In case of doubt, dilemmas were then organized according to their common levels of 'scale/relational' and comparing them with relative absence of scale/interactional in the three other EDs and of similar presence of scales comparing them with two ED discourses (as in Figure 3.2 and Table 4.1). This in other words, constituted the main principle of the discursive framing analysis of this thesis of constant 'inference and comparative exclusion' until the right frame was confirmed.

iii) A building of a set of codes of data to 'assemble' together the combination of framing devices as a starting place to look at the possible consistencies of discourses and subdiscourses: consistency with anthropocentric or ecocentric knowledge concern values as well as with levels of authority whether explicit or backgrounded through non transaction or generalizations devices of perceived agentic capacities.

iv) A coding of fieldwork notes to the interviews in order to relate in case of further ambiguity of knowledge/agency values and as more sources of confirmation supporting the validation of the framing devices extracted from the context.

Table 4.2: Example of a coding structure and discursive frame analysis

Actor in the animal farming production ↓	Agro-environmental Topic *(i)Open Coding* ↓		Framing Analysis				Environmental Discourse
		(*iii) Sets Codes*→	Human-Nature Discipline of Knowledge/Agency (n)		Social Discipline of Knowledge/Agency (s)		Combined Disciplines
		(ii)Axial Coding →	Coding Scale of 'Nature' Representation (1)	Coding Relation with Nature (2)	Coding Scale of 'Others' Representation (3)	Coding Relation with Others (4)	Combined Framings
Stakeholder	Food Safety Process	Quote No.					
	Animal Health and Farming						

(1) Whether responses frame Nature in a generally (deductive), concrete (inductive) or distilled (correlated) scale.
(2) Whether responses frame appearing interactions with Nature as interactive (interdependent), instrumental (independent) or non-transactive (dependent)[62].
(3) Whether responses frame social relations with Stakeholders in a generally (deductive), distilled (correlated) or in a concrete (inductive) scale.
(4) Whether responses frame appearing social relations with other Stakeholders as interactive (interdependent), instrumental (independent) or non-transactive (dependent).

In synthesis, this is an exercise of recontextualization of basic premises with interviewees' responses in order to recognize if framings in different discursive spaces match with western environmental paradigms: those in the empirical grounds of social and agro-environmental regulations of respondents in India and those of the international legal resolutions in the animal farming sector. It is clear that an important degree of reflexivity in the management of data was helpful in the constant need to isolate the elements in the construction of discourses and then in their recontextualization given the apparent overlapping of 'explicit/implicit content and form'. The illustration of this reflexivity in the treatment of empirical data until the right frame is found was what this thesis is turning in the next chapter.

[62]They refer to transactions interdependent with, independent of, or dependent on *high levels of uncertainty* in order for those frames to take place. Whilst independent transactions tend to concentrate on tangible and visible material transactions as a form of control of uncertainty, the lack of transactions (non-transactive) interactions always depends on these high levels of uncertainty as an underlying condition for external interventions to take place.

5 How framings of social compliance compare: recontextualizing choice and autonomy in Indian animal farming production.

One of the first discussions of this thesis suggested in Chapter Two that there exists little literature to identify and compare the styles of enforcement (Winter and May, 2001) and compliance with agri-food regulations and their agro-environmental concerns in order to study decentred regulation in agri-food environments. This was particularly the question when analyzing at the value of interpretations of food safety -including the international standards-- and other farming production processes such as animal health for their effective implementation. Traditionally overlooked by studies of economic behaviour (Campbell and Picciotto, 1998:, Scott, 2004:, Bartiaux, 2008:, Ehrlich and Posner, 1974:, Posner, 1978), *interpretations* of decentred preferences remain important given the increasing shifts of power between legal, social and voluntary rules in a context of increasing complexity and vulnerability of the world food systems (Lee and Marsden, 2009) and where policy-regulatory counterproductive 'failures' appear recurrent (Campbell and Lee, 2003a:, Kouba, 2003b). In search of an insight to address the nature of discordance of 'normative preferences' through discourse and framing literature, the previous two chapters have addressed and discussed the best possible form to address the research question: how by improving our understandings of the consistency of different discursive practices and their constitutive normative preferences of compliance (such as legal and social norms) can effective and legitimate agri-food regulatory *choices* be identified? To what extent can such discursive framings be said to inform *the setting of choices* towards safer and more resilient animal farming systems - and with what possible consequences?

In this respect, the previous two chapters introduced the idea of discursive framing based on a variety of filters representing the validity and ability of concepts and expected actions dealing with complex agro-environmental practices. It was observed that when those constructed discursive 'filters' stabilize, they are able to inform the formation of conventions and rules across different social practices, and for this reason they help understand the formation of normative preferences. Further deconstruction of environmental discourses allowed us to recognize the core premises of such discourses in terms of knowledge and agency in environment-society relations. The combination of knowledge and agentic frames formed the styles of compliance that represented the

legitimate normative preferences as projected by the stakeholders/discursive entities whether in legal or non-legal practice[63].

It was observed that normalisation processes are narratives of compliance that share the same constitutive elements of particular environmental discourse (and not others) since they are a part as well as a representation of those discourses. The shortest version of a discourse can be represented through storylines. These just as normalisation processes, they rest on the 'same core assumptions and contentions that prove the basic terms for analysis, agreements and disagreements in the environmental area no less than elsewhere' (Dryzek, 2007:9). Whilst environmental discourses constitute socially embedded principles and values contained in practical accounts, framings of legal or non legal compliance function to structure more specifically the visibility of regulatory practices and their (i.e. linguistic) narratives within the same discourses[64]. For this reason, when similar framings of normalisation processes are recurrently and consistently similar to discourses is because, their regulatory framings subscribe to the same core postulations and judgements of the contained major environmental paradigm.

As with environmental discourses, normalisation processes are embedded in language and semantics that enable those subscribing to them to interpret bits of information and put them together into coherent stories or accounts (ibid: 11). However, discourses and framings are never straightforwardly observable to those taking part. They can only be inferred and isolated from discursive practices through the reading of the uses of language of actors and linking those framing or rhetorical devices to their basic assumptions about disciplinary practices. This embeddedness of language and semantics helps make sense of unfamiliar environments by transferring through frames and devices information of basic assumptions across from more familiar settings (Vazquez, 2008:1-2). In doing so, they identify basic units that when correlated produce a set of 'stories', 'metaphors' or 'framings devices' associated with a particular discourse. This chapter builds on the argument of the previous two by empirically recognizing the framing devices to categorize discursive practices into environmental discourses: first on how 'specific' conceptions over uncertainty about nature and social relations informants hold –identified as *choice of Knowledge concern* (K); and second, how 'visible' empowered relations between informants and nature are perceived to be –identified as A*gentic visibility* (A). The uncovering of these basic assumptions aims to understand

[63] In this respect, terms such as interventions of control, expectations to comply or duties to comply were treated as similar normalisation processes or regulatory framings revealing degrees of autonomy and concern in the last chapter.

[64] The same visibility of practices occurs for other elements of discourse such as the role of technology, management, etc, which reflect the variety of topical framings that are part of an environmental discourse.

how consistent day-to-day categories of social compliance are in the Indian animal framing sector[65] and with what consequences. The socio-semantic framing devices found will illustrate the relational inequalities in the diversity of their discourses and finally discuss the diversity and similarities of the 'normalisation' or 'standardisation' practices and their likely implications. As a result, combined framings of scale of knowledge (K) and visibility of agency (A) will facilitate the categorization of empirical normative practices into one, more than one or none of Dryzeks' environmental discourses defining the making of their consistent positions accordingly.

The aim of this chapter is thus twofold. Firstly, it aims to empirically illustrate the *existence* of informants' framings of compliance according to their environmental discourses, their discursive framings - through a selected number of transcript accounts[66]. Secondly, this chapter aims to illustrate the clustering of 'compliance' *positionings*, of stakeholders in the Indian animal farming production, their convergence/divergence and to discuss some of their implications.

In order to present the findings of this research, the first section of this chapter introduces the animal food production and its regulatory context in South India and its main actors; in particular in the poultry sector chosen for this investigation. The next section follows with the illustration of the framing devices' analysis of the basic premises of stakeholders' transcripts in the case study and the localization of their regulatory framings in the platform of discursive practices. As much as the data allowed, framings of two embedded particular topics of regulatory relevance in agricultural production were thoroughly examined (food safety and animal health). They refer to the interrelated regulatory topics in agricultural regulation analyzed in this thesis, namely that of the animal product and that of the process of animal farming production (Lee and Marsden, 2009)[67]. This section thus examines core presumptions of knowledge and agentic autonomy of actors shaping framings of compliance at a livestock production site in South India.

The third section discusses how such choices lead to a first reading of dichotomist nature of discourse in terms of their scripts and likely implications in the configuration of relationships. It further discusses the possibilities of clusters of framings following a more refined platform according to the variety of environmental discourses and their correspondent regulations. It discusses the

[65] For the purpose of the frame analysis along this chapter, these common denominators serve as an anchor for the analysis, a continuous calibration to bring the various ways in which each category of social actor and the topic of regulation is represented under such common denominators, see for instance, Van Leeuwen (2008) at page 31.

[66] See full analysis in the Appendix.

[67] For the purpose of illustration of the role of framings in regulation and compliance, this thesis relates only to those aspects of animal food production and does not refer to the environmental aspects of the processes of animal farming production.

semiotic convergences or divergences of discourses and their mechanisms in relative comparison to each other. It observes the emergence of non-western discourses and their normative practices as well as the nature of tensions of existing regulatory agreements likely to facilitate failure or success. With this discussion, research questions of this investigation are partially asked in terms of the role of discursive consistency in social regulatory practices and their likely implications. Finally some conclusions are drawn in order to introduce the discussion of regulatory choice for the next chapter in a context of mutual influence of sub-national (sectorial) and international regulatory framings.

5.1 The South Indian food poultry production network

International trade has been growing rapidly and now counts for about 10 percent of world consumption (FAO, 2004:161). Parallel to this trend, Indian poultry farming production appears to follow as one of the fastest growing animal industries in the world. With more than 800 billion of poultry population (150 billion layers and 650 broilers including non industrial) India´s poultry population is the highest compared to the rest of the livestock sector in the country (Balakrishnan, 2002:215). India was ranked the sixth largest poultry producer in the world, after the United States, Brazil, the European Union, China, and Mexico in 2002. In 2003 India is reported to have climbed to the fifth place (CLFMA-India, 2006). USDA estimates that India's poultry meat production grew about 6% annually during the 1980s, accelerated to 11% annually in the 1990s and to nearly 19% during the 1997-2002 and 23% during 1998-2004. However production figures varies with the source (see Table **5**.**1**)

Table 5.1 Poultry Production (egg and meat)

Year	Egg production			Poultry meat (1 000 tonnes)		
	FAO Estimates (1 000 tonnes)	USDA estimates (million eggs)	GOI estimates, (million eggs)	FAO estimates	USDA estimates	GOI estimates
	(1)	(2)	(3)	(4)	(5)	(6)
1995-1996	1 496	28 000	27 198	624	590	--
1996-1997	1 512	29 100	27 496	714	610	--
1997-1998	1 579	32 000	28 689	648	630	--
1998-1999	1 621	34 000	29 476	763	670	361.81
1999-2000	1 675	35 000	30 447	875	690	382.3
2000-2001	2 015	--	36 631	1 136	710	364.06
2001-2002	2 130	--	38 729	1 307	1 250	393.51
2002-2003	2 190	--	39 823	1 460	1 400	439.05
2003-2004	2 222	--	40 403	1 662	1 600	507
2004-2005	2 468	--	45 201	1 715	--	507
2005-2006	2 539	--	--	--	--	537
Growth rate (% *per annum*)*	6.18	6.24	6.18	14.0	14.09	6.50
Growth rate 1998–2004 (% *per annum*)*	8.78	--	8.79	18.52	22.97	4.24

Source: FAO (2007), USDA (2007) and (Mehta and Nambiar, 2007) and (Kornel, 2008)

For a number of actors such as government, scientists and industry associations, this strengthening of Indian poultry farming is believed to be the natural outcome of the Green Revolution (Rosset et al., 2000) extended to animal products (see Chapter Two). The poultry revolution has given rise to thousands of poultry farms, both large and small. For the poultry industry this has led to the providing of improved breeds for production purposes. In fact, over the last four decades, significant developments occurred with each decade focusing on different sectors. The seventies saw the birth of systems of egg production; the eighties an acceleration in broiler production; the nineties advances in poultry integration, automation and feed production and the last decade has concentrated on the value added products and the global trade avenue (Balakrishnan, 2002).

In terms of population, in 30 years until the 1990s, the poultry population increased 3.5 fold whilst egg production increased more than 12-fold in this period. This also reflected the reduction in a number of indigenous breeds such as *Desi fowl*, and their replacement by highly specialized layer and broiler stocks with greater productivity. In fact a broiler population that was only 4 million in 1971 exceeded 250 million in 1990 and 650 million in the 2000s (Vercoe, 2003). Geographically, an Indian central state such as Andhra Pradesh has one of the most important clusters of poultry in layers (egg production), followed by the Southern states such as Tamil Nadu and Karnataka which constitute the biggest cluster of poultry for both layers and broilers together in India (Khan and Bidabadi, 2004:, Soundararajan, 2005). Whilst broiler production continues to be an important driver of economic growth, egg production has experienced an unprecedented increase. A network of more than 500 hatcheries has been established to supply quality commercial hybrid layer and broiler chicks. Most private hatcheries receive their grandparents stocks from internationally breeders (such as European and US providers), ensuring the availability of commercial layers and broilers (Panda and Mohapatra, 1993:, Mehta and Nambiar, 2007).

5.1.1 Contract and Traditional Farming Systems.

Chapter Two reviewed how socially embedded agri-food systems can be. India´s poultry production is based mainly in three different poultry farming systems (of meat and eggs) that extend mainly across rural or semi-rural landscapes: intensive, semi-intensive or mixed, and traditional or backyard farming. Each one of these sectors is organized through a different set of actors and aims at different expected outcomes of production. Traditional farming constitutes more than 70 percent of the total poultry farming activity in India. With some 20% of self-consumption and 15% of self-

breeding; the rest of the production is destined for the local live market. This organization includes the farmers, the local or regional veterinarians and eventually the buyers in local markets. Veterinarians are often part of extension programs that seek to improve the production processes, or the recovery and reuse of waste products..

Intensive farming on the other side is mainly organized through a more dense set of networked actors or market participants that co-ordinate between the different stages of the chain. They include feed manufactures, equipment, pharmaceuticals and biological companies, as well as the intensive farmers, the processors who take the role of integrators and eventually the intermediaries between the farm and the market. For the governance of this farming system a series of improvements of contract farming or vertical integration is ideally attributed to the flow of information across the chain as well as the management of the product quality and flows (Singh, 2002).

Contract farming has been defined as an important mechanisms of governance for intensive farming for market efficiency with the advantages seeing the capacity of farms increased for better quality of the commodity, the more efficient use of resources and farming methods, large volumes of produce or animal food and lower costs of collection, the firm's capacity to bear risk in case of produce failure, and various services provided by these large producers like transport, storage, etc (Singh, 2005). Despite some of the problems recognized in the functioning of contracts in farming, such as the power increased by buyers and intermediaries, this agri-food model continues to be framed by its successes rather than by its contribution to production as compared to a non-contract situation (GOI, 2007).

Processors are generally located close to the urban areas where there is ready market for poultry and their products. In the case of the Southern cluster chosen for this investigation, they can be found in and around Bangalore (urban and rural) as well as proximate cities and rural areas such as Mysore, Kolar, Bellary, Dakshina kannada and Mandya districts who have large number of poultry farms across the states of Karnataka, Kerala and Tamil Nadu. A traditional breed of poultry, the *Desi fowl* is usually reared in the rural areas where they are significant in population numbers. Broilers and layers are reared in commercial poultry farms following the above mentioned model of vertical integration as the following table details (Table 5.2).

Table 5.2: Type of Vertical Integration Farms and Partnership Activity

Type of vertical integration or contract farming in vogue with respect to the broiler industry	
Broiler farmer	Integrator
Owner of broiler shed and equipment Buys litter material Attends to rearing activities (e.g.) brooding, feeding, watering (self labour or hired labour) Bears cost of electricity/ fuel for brooding Takes the manure and empty gunny (feed) bags.	I. Supplies the following inputs Day-old broiler chicks – owns a breeder farm and hatchery to do the same. Broiler feed required by the birds – owns a feed mixing unit Medicines and vaccines – buys quality medicines and vaccines and supplies it to the farmers as per requirement Veterinary services required, emergency and routine – engages qualified veterinarians for the purpose. II. Pays the rearing cost to the farmer towards cost of litter, labour, electricity, rent for buildings and equipment and also a part of the profit. III. Takes back the finished broilers and arranges for their marketing, mostly through traders.
Major kind of partnership activity in the layer industry	
Input by the farmers	Input/facilities by the trader
Land and housing Equipment – cages Chicks Medicines Labour Electricity Marketing of culled hens, manure, gunnys	Feed Vaccines Marketing of egg Transport Consultancy

Source: Private Sector Partnership in Poultry Production and Marketing in India. (FAO, 2001)

India is essentially a 'wet' market. This means that consumers prefer purchasing live birds, getting them dressed and then carrying them home for consumption. While industry sources opine that rural consumers demand such a practice, an alternative opinion is that this traditional marketing system has resulted in such a practice (PwC, 2007). A growing observation is that in newly developed, urban townships, where planned development prohibits public slaughtering of birds; the Indian consumer has readily switched to chilled and frozen chicken. However, where there is a choice, rural and semi-urban consumers appear to prefer live birds (GOI, 2006). The industry estimates that 98% of consumption is of 'manually' processed chicken while only 2% of total consumption is catered to by modern processing plants. With a well managed cold chain that assures consumers of quality, convenience and price; Indian consumers will gradually switch to processed chicken (PwC, 2007: 22).

The rapid expansion of large industrial poultry production units with significant economies of scale has raised concerns about the backyard poultry production models. There are however,

those that posit the complementarities rather than the competition among both systems since there is enough market segmentation and product differentiation for indigenous breeds, as well as for the efficient utilization of available resources and food security (FAO, 2010). However, because of its continuous and significant growth contract farming represents the main agri-food model of active expansion of the Indian poultry-farming. This agri-food model is often referred to as highly capable of addressing the social demands of small farmers by integrating them in systems of cleaner production and more standardized processes (GOI, 2007) considered as a progress for the farmers and the rural markets. Furthermore, it is seen by mainstream stakeholders (government, scientists and industry associations) as an efficient model on animal health, nutrition and disease control. By integrating farmers in the global supply chain, the goal is to develop a mode of livestock production that is one of the fastest growing and most resilient in the developing world[68].

5.1.1.1 Food Safety and Animal Health Inspections

How cooperative nature responds to the social and farmer (agri-food) arrangements through the mechanisms of regulation presented is a task that is often measured against the success in the eradication of diseases and public threats or at the minimum the control of the rates of recurrence of these. India's strategy towards animal health and disease is composed of an 'efficient health coverage' through a disease surveillance information system and the existence of a network of laboratories and regional animal health institutions, such as those providing research on diagnosis of diseases as well as an 'effective disease control strategy' based on the development of vaccines and 'indigenous kits'[69] (Kornel, 2008).

The impetus given to the regulatory mechanisms for the marketization of the livestock production in the post-independence era resulted in a phenomenal increase in the cross bred livestock and poultry in the aforementioned southern states. With this, the disease profile in these states has also been altered. Diseases causing large-scale mortalities among livestock and poultry have been controlled but not eradicated. There is a wide prevalence of several bacterial and viral diseases amongst livestock and poultry resulting in severe economic losses. The State Department of Animal Husbandry and Veterinary Services through several centrally sponsored schemes and with the assistance of the Institute of Animal Health and Veterinary Biologicals undertake the function of monitoring and controlling diseases mainly through vaccinations. They also monitor the movement

[68] Interview with Senior Official
[69] These are kits of medicine or vaccinations adapted to the local pathogens.

and migration of livestock, the importation of livestock and poultry and existence of diverse bio-ecological situations in the southern states (IAHVB, 2007). In this sense, research centres undertake and develop the surveillance systems required to control domestically and report internationally outbreaks of diseases (IAHVB, 2007:, IAHVB, 1998). Institutes like this have the responsibility of providing diagnostic services for livestock and poultry diseases and production of biologicals for control of common livestock and poultry diseases in the states[70]. Whenever outbreaks are reported to the disease investigation section, these are followed together with environmental factors, the species affected, and clinical signs are investigated as well as management practices and movement of animals.

In addition, health coverage is provided for the livestock and poultry of the states through the department of Animal husbandry and Veterinary Services of the states for diseases. As per recommendations of the National Commission on Agriculture, Government of India, there should be at least one veterinarian established for every 5000 head of cattle. Based on this recommendation the state has already established 3065 veterinary institutions in the state of Karnataka and similar numbers in Tamil Nadu. In addition to treating sick animals they also undertake preventive vaccinations to control various diseases prevalent in the areas under jurisdictions.

Despite all these efforts, not only are new epidemics emerging but also important viral and bacterial epidemics believed to have been under control are reappearing. Common poultry diseases in India with a high incidence of death are new Castle and highly pathogenic avian influenza, less mortal but endemic are fowl pox and cholera and Mareks disease (Kornel, 2008). The most economically important, the avian influenza epidemic, which was believed to be under control in 2007, has re-emerged every year with higher numbers of culling hitting the main processors in the North of India[71]. As reasons for the fast spread and recurrence, traditional farmers are blamed in particular for their apparent poor bio-security measures of backyard and other traditional systems and the prevalence of HPAI in surrounding regions and farms. Moreover, the agrarian practices, lack of implementation of sanitary regulations, unchecked movement and migration of livestock,

[70] Regions in India are organized through Regional Research Units for Animal Health. In the southern states, this case, it is located in Bangalore at Institute of Animal and Veterinary Biologicals (former IAH). Units like these function as full-fledged research units. Among their functions they produce biologicals required for control of important bacterial and viral diseases of livestock and poultry in the state and also conduct research on these topics.

[71] See several articles downloaded at August 2007-2011 in http://www.worldpoultry.net/news/avian-flu-up-in-india-9896.html.

importation of livestock and poultry and existence of diverse bio-ecological situations in the state appear to have all contributed to this situation[72].

Despite the development in recent years of a vaccine against this virus by the network of health organisations of the Government of India, lack of investment in the production and dissemination and above all lack of interest in vaccination products in exporting commodities in the agricultural sector have significantly impacted this model of health coverage. The disease-free status on the international movement of animals and animal products from countries where vaccination is practised affect the options in export oriented agri-food industries[73] and tend to be generally avoided. It is here, where suspicions around vaccinated animals apply and where international standards exacerbate the public opinion's beliefs that they reduce the trading choices of the sub-national agri-food model.

Moreover, other animal health and welfare management related problems are common in particular in the contract farming model in India such as stress, heat stress, cannibalism, feather picking (Shindey et al., 2005) and injuring. Stress is also believed to be at the root of disease outbreaks specially heat stress, overcrowding and excessive transportation[74] (ADMAS, 2007).

Regarding food safety, despite several incidents of pesticides and other toxic components that are often found on food, the Indian experience shows low consumer awareness, limited willingness to pay and lack of private sector involvement in the areas of promotion of food safety. Despite the slow development, more attention to food safety issues has been paid in the last five years, and a summary table is presented as follows.

[72] See different specialist opinions such as Thirdnetwork reports downloaded at Jan 2010 and 2011 http://www.twnside.org.sg/title2/susagri/susagri087.htm and http://conservativehome.blogs.com/platform/2011/03/dr-neil-hudson-have-the-right-lessons-been-learned-from-the-foot-and-mouth-outbreak-of-2001.html, downloaded Jun 2011.

[73] Despite the fact that the OIE is neutral towards vaccination, suspicions of importing partners are based on the possibility that vaccinated animals and their products may contain the viruses and thus pose a risk when introduced into countries or zones free of disease, see detailed in the OIE Terrestrial Animal Health Code (The Terrestrial Code). The complete terrestrial code at http://www.oie.int/en/international-standard-setting/terrestrial-code/access-online/

[74] Downloads also on may 2011 http://www.smallstock.info/info/health/poultry-disease.htm#diseases

Table 5.3 Role of Public and Private Sector in enhancing Food Safety capacities

Public Sector	Private Sector
Policy and regulatory environment • Adopt domestic food safety legislation and standards suited to local risk conditions and preferences and consistent with WTO and other treaty obligations. Risk assessment and management • Strengthen national- or state-level systems of pest Address animal disease surveillance and market surveillance programs. • Address animal health constraints that limit domestic (for imports) and foreign (for exports) market access (e.g., product inspection, development of disease-free areas). Awareness building and promoting good practices •Consumer awareness campaigns about food safety risk and improved hygiene at home. • Raise stakeholder awareness and promote good agricultural, hygiene, and manufacturing practices and quality management. Incorporate into curricula of public agricultural/technical institutes and universities and extension program, including through public–private partnerships. • Accredit private laboratories and conduct reference/consistency testing. • Facilitate technical, administrative, and institutional change and innovation within the private sector, e.g., through public–private partnerships.Public expenditures • Invest in water supply and sanitation, marketing facilities, to reduce food safety hazards. • Support research to address food safety and agricultural health concerns, internationally. Undertake continuous dialogue and periodic trade diplomacy • negotiations to address emerging constraints or opportunities.	"Good" management practices •Implement appropriate management practices to minimize food safety risks. Examples include "good" agricultural, hygiene, and manufacturing practices and HACCP principles. • Where commercially viable, gain formal certification for such adopted systems • Develop incentives, advisory services, and oversight systems . To induce the similar adoption of the above "good practices" by supply chain partners. Traceability • Develop systems and procedures to enable the traceability of raw materials and intermediate and final products in order to identify sources of hazards, manage product recalls or other emergencies, etc. Develop Training, Advisory, and Conformity Assessment Services • On a commercial basis, provide support services to agriculture, industry, and government related to quality and food safety management. • Invest in the needed human capital, physical infrastructure, and management systems to competitively supply such services. Collective action and self-regulation • Work through industry, farmer, and other organizations to share the costs of awareness raising and systems improvement, alert government to emerging issues, advocate for effective government services, and provide a measure of self-regulation through the adoption and oversight of industry "codes of practice."
Source: World Bank (2007) and Umali-Deininger and Mona Sur (2007)	

Food safety then is addressing the issues of the domestic food market such as domestic food safety scares and the more notable food-safety problems faced by Indian agro-exports. The Directorate provides third-party certification under the AGMARK quality certification scheme. The 'AGMARK' seal is supposed to ensure quality and safety. Any consumer, trader, or manufacturer can have products tested at one of the 23 regional AGMARK laboratories for designated commodities. Typically, testing is only carried out for adulteration-prone commodities such as oils, ghee, whole and ground spices, honey, and whole and milled food grains. Blended edible vegetable oils and fat spreads are compulsorily required to be certified under AGMARK[75]. For export products, the APEDA is the institution responsible for the accreditation of export products, for most exporting markets including organic certifications. Efforts have been also made in the assessment of the

[75] The Directorate of Marketing & Inspection under the Department of Agriculture and Cooperation is responsible for enforcing and implementing the Agricultural Produce (Grading and Marking) Act. Its mandate includes promoting standardization and grading of agricultural products. Grades and standards have been prescribed for 164 commodities under the APM Act for domestic trade, for export trade, and for grading at the producer's level. The AGMARK grades are primarily voluntary grades covering aspects such as size, variety, weight, colour, and moisture levels. Different grades and standards are laid out under AGMARK for domestic consumption versus exports. Full information from the Ministry of Food Processing Industries in http://mofpi.nic.in/ContentPage.aspx?CategoryId=141, accessed sept 2011.

implementation of the HACCP[76] but at the moment of this investigation no development had been made.

Despite such efforts, it is often suggested that India has a weak proactivity in addressing food safety concerns. Several factors contribute to this. In the case of exports, many if not most of the emerging SPS and international standards are widely viewed in India as not scientifically based and as representing unfair barriers to trade. They are also viewed as efforts to protect foreign farmers or processors from competition, or as being fuelled by unreasonable consumer fears in high-income countries that already posses improved technologies for detecting their hazards´ concerns. Consequently, the approach of the government and private sector has been to try to negotiate away the problems with trading partners and, failing that, to address the various measures in international standard-setting at dispute forums (Umali-Deininger and Sur, 2007). As a consequence, insufficient attention is devoted to monitoring the requirements of official and private standards, interpreting their implications for Indian agriculture and using current and anticipated requirements as catalysts to upgrade existing operations and strengthen supply chain management.

Regarding its agricultural trading capacities, India is a net exporter and agricultural policies support domestic production at the expense of imports. Agricultural imports are relatively low (4.4% of total merchandise trade) and are concentrated in few commodities. Indias's agricultural policies remain consistent protecting domestic producers from foreign competition and consumers from global price fluctuations for food staples in particular products. Importing of animal products into India require sanitary import permits issued by the Department of Animal Husbandry and Fisheries and permits must be obtained prior to shipment from the country of origin. The Department approves or rejects the application based on an import risk analysis on a case-by-case basis. Some imports of animal products also require an import license issued by the Director General of Foreign Trade (Chapter III (2)(vi)(b)[77].

Concerning poultry, it is mainly "desi egg and poultry" reaching the international markets particularly the Middle East with production increasing around 100,000 eggs per day[78]. Although such recent developments continue growing, in parallel there exist a concern about the recurrence

[76] The Hazards Analylsis Critical Control Points, as observed in Chapter Two, is a 'enforced self-regulatory' (Braithwaite, 1982) approach within the frame of risk management and traceability.
[77] Word Trade Organizations, Trade Policy Review India Profile, WT/PR/S/249, page 128-131, accessed June 2011.
[78] World Poultry Network News, accessed on June 2011, http://www.worldpoultry.net/Layers/Eggs/2010/2/India-Poultry-eggs-reach-international-market-WP007104W/

of poultry diseases such as Newcastle, but also important for international trade such as Avian Influenza. Such food safety concerns however have not hindered Middle-East countries such as Afghanistan and Algeria to continue import eggs from India even when the OIE classifies India as bird-flu affected. They are convinced that eggs from the South of India (Namakkal) are safe as we are far from the affected zones, such as Bangalore region[79].

5.1.2 The Research Case for a Comparative Discursive Analysis

As examined through this literature poultry farming appears to most agri-food scientists, industries and government officers in India as a resilient model able to broaden the success of the Green Revolution in the livestock sector. In addition, a particular agri-food model, contract farming, is presented as not only able to prove high results on animal health efficiency and growth, but also as a likely contribution to the solution for 'food security' and protein sovereignty, especially when it includes small farmers (FAO, 2010). For international trade, an important tension in the contract farming agri-food model in relation to highly contagious diseases appears to be the reduction of trading choices when using vaccination. Despite the fact that OIE is neutral towards international trade of vaccinated commodities, in practice, agricultural policies have applied significant culling in the last decade[80]. The visions of less mainstream stakeholders, however, have been less researched in academic literature (traditional and small contract farmers and their ethnoveterinarians, as well as more diversified versions of the public sector). Nevertheless, more prevalent is the important amount of grey literature in developed and other less developed countries in the public sphere which reflects salient degrees of contestation in some developing countries and by some epistemic communities. For instance in relation to contract farming regulation a report by a Southern NGO in countries like Thailand with similar conditions of contract livestock farming since the early 1970s showed that livestock smallholders were urged to leave behind their traditional methods and engage in industrial farming. 'Farmers were provided far-too-optimistic projections regarding their income level and income stability (...). However since companies are not obliged to deliver healthy

[79] World Poultry Net News, accessed Sept 2011 http://www.worldpoultry.net/Other-Poultry-Species/Turkeys/2012/10/Indian-bird-flu-outbreak-raises-export-fears-1094337W/

[80] Up to 10 million animals in outbreak of Foot and Mouth Disease in the United Kingdom, many of them without clear evidence of infection. Some 10 years later, through a 'compartmentalization program the World Animal Health Organization searches to contain diseases through trade by the surveillance of standards of farms that isolate farming-ecosystem contact. Through production best practices it is expected that they will contain the pathogens to a minimum through highly sophisticated farming spaces (i.e. in Thailand). See note section 2.5.1.

chicks regularly, disease epidemics, such as the bird flu left farmers unemployed for longer periods without compensation. Fluctuation gaps between the production cycles (...) and farmers' inflexibility of bank loans commitments have translated into a strong dependency on the contract agribusiness companies in already highly indebted farmers'[81].

A similar tension is found in relation to animal health regulations and the biodiversity of (local) breeds in China. In this country, it appears that the recurrent outbreaks of highly pathogenic diseases such as Avian Influenza have been used as a pretext to eradicate backyard poultry, given that contract farming methods are regularly presented as more resilient for their animal disease controls and their infrastructure more sophisticated to isolate animals from local ecosystems. Despite the fact that traditional farmers and other civil society organizations argue that caged animals have debilitated immune systems and resistance to disease, traditional breeds on the other hand have been regularly blamed for spreading diseases on a dispersed and proximate ecosystem basis[82]. In addition, contract farming has not only banned the choice of alternative veterinary services to farmers, but also their inputs, such as feed and breeding stock.

To summarize, the main contestations appear polarized among mainstream actors in favour of contract farming on one side, and farmers and civil organisations against them on the other. Traditional farming on its own is more a neutral area rather supported by non mainstream actors and absent in the discourse of rural and agricultural markets. On the other hand , the livestock industry is growing in these countries almost seven times faster than smallholder livestock systems and for non mainstream actors, they are very likely the result of heavy financial and regulatory support[83]. Regarding food safety and animal health on the other side, contestations appear more related to the international discourses of the WTO-SPs and of the OIE than to the sub-national regulatory models. In other words, there exist perceptions about the 'weak enforcement' and 'inappropriate' levels of food safety concern and animal health in the sub-national implementations of food safety laws on one side and different associations of the possible correlations, cause and effects and general principles of the regulatory choices available but having no connection between each other. Again the main question of this thesis is the understanding of how discursive consistency can contribute to the understanding of the production of 'effective' regulatory choices that also address 'legitimate' and 'appropriate' normative preferences.

[81] The ThirdWorldNetwork on statements on Southern NGOs and Thailand Government reports, downloaded on April 2009 at http://www.twnside.org.sg/title2/susagri/susagri087.htm
[82] Ibid.
[83] Ibid.

Through this schematic examination a variety of actors on the general poultry farming stage were identified: poultry processor companies, intensive and traditional farmers, animal health companies and the state (animal health institutions) and national (Ministry of Agriculture and of Commerce) public sectors .

Table 5.4 Categories of Discursive Entities and organisation of discursive material for analysis.

	Material for access and sample	***Material for Discursive Framing Analysis***	
Category of Discursive Entities	**Number of Interviews (including pilot sample)**	**Transcribed interviews/ documents relating to AHFS**	**Quotations in Interviews, relating to AHFS**
National import and disease control officials	2	1	5
Regional disease control officials	15	1	11
Poultry processors and vets	2	3	22
Farmers	12	3	22
Animal health care companies	4	2	41
Trade Ministry	6	2	5
Retailer	2	0	0
NGO	1	0	0
International Organizations (OIE)	2	0	0
Dispute Settlement Case (WTO)	0	1	8
Total	**44**	**13**	**114**[84]

In the next sections quotations of the actors will be granularly analyzed in the search for such discursive consistency. The next section is illustrative of the discourse analysis of the day-to-day practices. Quotations were picked first, through a topical selection with NVIVO coding regarding the regulatory topics of the product and production process in interviews (food safety and animal health); second, through the different discursive frames chosen through inference and comparative exclusion in relation to the frames of scale and visibility. The next sections thus represent a detailed

[84] See Appendix. These quotations may slightly differ from the number of quotations in the qualitative analysis in the appendix given the fragmentation of social and environmental practices in some cases (such as when discourses for the social or environmental concern are kept separately by actors during interviews) and which may have not been counted double.

illustration of the work undertaken in the Sample Corpus (see the Appendix). The sample corpus was made of more than 114 quotations (reduced from a sample of 260) of a selection of topical codes (of food safety and animal health related codes) out of a total of originally 44 interviewees, reduced for quality purposes of illustration to a sample of recorded transcripts of 13 –see table above) for which a granular discourse framing analysis was made. For graphic purposes in this chapter, few quotations are fully examined in the next section to depict the transformation of data quotes into discursive framings of agency and knowledge. A synthesis table of the total transformation of the raw data can be found in the appendix. The following anaysis illustrate the most recurrent representations of discursive practices for this empirical comparison case.

5.2 Illustrative Findings: Framing autonomy and knowledge concern in Animal Health and Food Safety by production Stakeholders.

Given the variety of actors in the network of the poultry farming chain, the diversity of informal or tacit rules beyond the typical pure market exchanges and the different production systems and environments, it can easily be said that poultry farming in this region is socially and environmentally embedded. Significantly, focus at the level of micro practices, i.e. on the interviews will show how social agency and choice ´enter their texts´ and recordings (Van Leuween, 2008) through implicit ´heuristic´ rules (Uzzi, 1997). It is expected that the micro practices analysed in the following sections will contribute to a better understanding of the selection mechanisms unfolding a consistent narrative of 'normality'. It is then on this basis that framings of compliance, regardless of their level of formality, will entail on their own a 'normality' that will then be compared with the rest of actors and reflect their choices of manoeuvre. In this sense, the following section seeks to illustrate the importance of studying the diversity and commonalities of framed expectations to discover untapped possibilities of regulatory manoeuvres in the space of animal food production. For this reason it does not seek to claim to represent the number of conflicts or tensions expected in the regulatory topics and space analysed but rather to acknowledge the relevance of their variety and similarities.

In such a qualitative endeavour, the explanation of premises cannot be quickly summarized –especially when as in discourse analysis that what is not said is equally significant as what is said. Thus, the next section is dedicated to the critical analysis through inference and the relative exclusion of semantic relations for each extract of pertinent material. The categorization of core assumptions for each quote is discussed first in relation to human-nature relationships in the first

row and in relation to the nature to human-social actors of site of production in the second row. The first column stands for the representation of knowledge, the second the representation of agency. The third column represents the 'uncovered' positioning of the regulatory framing according to the combined discrimination of core premises. A 'positioning' *a priori* may or may not match environmental western discourse. If they do, they can only be adjudged to belong to it if they consistently match the same categories of frames for the same topics in the discursive map.

5.2.1 Framing Animal Health and Food Safety

As revealed in the literature review and in the last chapter, in the animal food production context, food safety is closely linked to the animal health management standards in the farm (Henson and Caswell, 1999:, Pell, 1997). Empirically, such strong correlation was also observed in the accounts of informants exercise of coding in the interviews [85], which helped select quotations in this section to study both aspects of food safety and animal health.

The following extracts intend to put into perspective the nature-society presumptions that affect the outcome of food safety and animal health procedures – which were analysed until the right frame of preference was found through the template of features provided. The search for the forms of representation of knowledge (whether *deductive, abductive or inductive*) and representations of agentic visibility (whether *independent, interdependent or dependent*) are the main qualitative features that will be discussed and unpacked in the subsequent transcriptions.

To begin with, in the following excerpt, one traditional Farmer (F1) recurrently refers to the particular 'resistance' qualities of reared animals when referring to human-animal relations. This quality not only associates the genetic breed to its physical properties, but also to its physical actions (i.e. "they [animals] resist different environments"). Visually or semiotically, they remind the passive but 'strength' properties of materials when dealing with important tensions. In this sense, the agency of animals and the animal environment is more apparent than that of humans (which

[85] In fact whilst the scale of the animal body and feeding practices was the frame of reference to code topics related to the food safety process, same framings were found when coding at the topical scale of animal health and the farming environment. In particular since feeding and stress appear to be correlated to the food safety process of the animal products (see Chapter Two). For this reason despite the differences made as regulatory topics, for the purpose of discourse analysis they are taken as a one topic. However these differentiations are important and retaken for the recontextualization of regulatory narratives. For the embedded quotations, see Appendix

consistent with this framing, is rarely mentioned or foregrounded). As instrumentalization devices do, this typically suggests strong 'objectified' capacities of nature, which are independent of human behaviour, in this case animals dealing with the environment,. This is confirmed by the fact that no other type of human interaction is framed ("you can leave animals and have no problems") so the level of visibility of farmer-animal transactions remains Instrumentalized **(Inst)** and never framed as interdependent (as Interactive-transactive devices would do)**.**

On the other hand, for this interviewee, animal health is linked to a rather *abstract* principle where exposure equals immunity resilience **(Gral)** as in "they [animals] usually have no problems" or "they are used to that". As the conversation unfolds, the justification for this type of framed relation appears with more clarity. By consistently excluding a cause-effect framing, supported by details of evidence in his experience (as concretization devices would do), or excluding explanations of the hypothetical correlated qualities of 'resistance' (as distillation devices would do), what is left is a sense of deductive logic (as generalizations do) used as guidelines to justify farmer´s actions. This rationale is confirmed by more recurrent logical deductions such as in "everyone agrees with" implied by the form in which the 'others' deal with other 'nature (N) uncertainties' such as animal diseases. The continuous use of generalization devices of this farmer also defines the discursive limits of this farmer's scale of representation of knowledge, which then is used for closer topics like animal disease within the conversation. In other words, framing of this farmer is constituted by a general and logical deductive synthesis but made of objectivised apparent properties. Given this 'logical' qualities of animals to react by themselves, this *knowledge and agentic* framing belongs to an ecocentric Lifestyle Green (LG), a form of Green Romanticism-- in which nature with strong capacities and 'wisdom' will take care by itself of its own problems.

Traditional farmer Quotation

1-1E How do you manage the diseases when they get ill? I: They don´t get easily ill, because they can be raised in all the places, they resist different environments, you know. E: Oh I see, what kind of environments? I: Their immune system is very resistant ma'am, everybody knows that here. You can give these animals different feed and leave them in different environments, they usually have no problems E: No other diseases? I: They are used to all common problems ma´am, these animals are used to that.	K	A	ED
	Gral-N	Inst N	LG
	Gral-S	Inst S	

In relation to the social autonomy (S) of this farmer, implied regularities used to refer to interactions with other stakeholders were to be extracted. In this particular case, the visibility of social agency of *other* stakeholders is constantly backgrounded within the conversation. Social transactions with

other farmers appear to be filtered through objectified clauses such as in the phrase “where animals can be grown”. In this case, the most important social relationship framed for this traditional farmer with other farmers. However, an implied justification for inaction is based on the principle that the self or other farmers do not need to act in different ways given the reassurance of ´common´ knowledge – i.e. in “everybody knows that here”- despite the different possible changing environments. In other words, the principle of logical deduction equally serves here as a guiding explanation for other stakeholders and the environment **(Gral)**. By excluding any kind of ‘concrete’ or ‘distilled’ justification for action (or inaction), the farmer chooses to frame at the general level which in turn serves to imply a justification for or inaction in relation to disease control. Finally, the conversation frames with other farmers appear to exclude hierarchical relations (or dependent relationships) which is found nowhere in the conversation, neither high levels of interaction (interdependency) and to include objectified transactions. It is thus through exclusion that one can make the comparative inference that relationships with other stakeholders remain instrumental (**Inst)**. Given the consistency of both the social and nature framings, it can be said that traditional farmers resonating with these premises reflect an expectation to comply with a Lifestyle Green (LG) Discourse.

In a close relationship with nature as the next quotation shows, nature is granted with agency through the intrinsic wisdom it represents, whilst animals on the other side can only ‘react’ to climate changes ‘accordingly’ in a more unilateral or non transactive way (NT). This is confirmed by the fact that the farmer replicates this non transactive semiotic form when denying himself any sense of interdependency – or any other further complication - in his present relation with the animal when asked about the options as possibilities to enhance animal health. In his narrative, **a**wareness of this relation has already been decided as ‘a very simple work’ and where ‘farmers can react accordingly to what they know’. Given the lack of elements that would indicate a general principle leading the course of his actions along the interview, these simple correlations can be classified as distillations **(Dll)** where no abstract directions are pre-given neither a concrete cause-effect mechanism have explanatory power, other than a sense of contingency to act in accordance to what nature decides**.** This is also confirmed by the recurrent absence of correlation in the details in the preparation of herbs in ‘he uses a mix of herbs’**,** without explaining the logical value of it, neither its concrete functioning for its validation. In this regard, the farmer cannot decide the amount of agency granted to nature powers, however implicitly correlated they are.

Intensive farmer Quotation

11-31E: Has he thought to suggest ideas for things he might be interested? I: Ideas like what? He means, he does not need any ideas, but he does need the support of the government. E: There are many things that could be better researched?.. i don't know, you know strategies to reduce waste, avoid weight reduction, manage resources, diminish all diseases..things like that..? I: He's saying that the only thing is about the climate changes.. He says that this is ultimately a very simple work... and... he can sense the climate changes... so... he can react according to what he knows.. he uses a mix of herbs like turmeric, long pepper, red sage mixing.. he says it is common knowledge Mme, you put some natural plants to prevent colds, that's all.. he says…	K	A	ED
	Dll-N	NT-N	IPS (N)
	Cr-S	NT-S	PS (S)

Regarding the farmer's relationship with other social actors (S), this intensive farmer chooses to represent agency of the 'other' social actor as opposite to that of the farmer. It appears then that one important lack of the relationship framed and the one that this farmer gives more agentic invisibility is with the Government, which is explicitly "needed". Thus, the rather dependent or non-transactive relationship **(NT),** here framed, implies the expectation of a unilateral action - based on the hierarchical agency of the Indian State. When framing "not needing any ideas [from anyone]" but the rather [tangible] support" **(Cr),** this intensive farmer directly points at the fact that the expected relationship with the Government is not based as equals on knowledge but on the differences on agentic visibility of the State to intervene through authority to ameliorate his/their condition. Clearly for this farmer, social and nature framings differ: whereas the farmer's relationship with other stakeholders appears to resonate with the core premises of a Problem Solver (PS) discourse –as expectations of concrete resolutions are mentioned; the farmer-nature relationship tends to be placed in an inedited hierarchical discursive space with attitudes based on correlated concerns rather than concrete or value based. Given the recurrence of this combined framing and the lack of environmental discourse provided by Dryzek, this discourse is denominated here as of Indian Problem Solver (IPR), which reflects a more ecocentric concern than a Environmental Problem Solver (EPS) Discourse but is less radical than a Survivalist Discourse (see Figure 3.1 and Figure 5.1).

As discussed below, the positioning of different framings has repercussions for the consistency of regulatory framings and the environmental discourses they belong to; and thus furthermore, in the forms of construction of legitimate expectations to comply given the variety of appropriate autonomy and concern implied. In this case, a framing of autonomy and knowledge in relation to nature clearly differs from the framing of the farmer with other stakeholders. This was a recurrent aspect in the responses of farmers of the 'intensive' system, diverging in a consistent way that will be expanded in the next section (also see Appendix).

Frame analysis of animal health for animal health service companies – which are small companies providing services to different agricultural sectors – revealed equally instrumental framing devices as in the next quotation. Veterinarians working for these companies see animal health as mechanisms to control the management of nutrition and disease prevention independently of their environment **(Inst).** In fact, animals appear as functions detached from their bodies as in 'manage your animals to get to forms of production', At times however, more ecocentric and interrelation vocabulary is found which imply more generic correlations **(Dll),** such as in 'we are dealing with more holistic ways'. However, in the following expressions, animal bodies are represented as functions factoring the equation of animal health as inputs and outputs of concrete performance **(Cr)** as in the quote below.

Relationships with other stakeholders on the other side are apparently invisible and only sensed through the objectified clauses of 'nutrition in the farm', 'management of animals' or 'forms of production' backgrounding the work of farmers and the farming environment. These instrumentalizations **(Inst)** imply that all actors are contained in one of the three actions responding to practices of productivity as functionally inductive mechanisms (**Cr).** The effect of these brings more opacity to the assumption that the interviewee is actually referring to a living being. Because the respondent frames a constant animal production whose overall problem is the efficiency of its management, but not the supply itself, it believes in the generous availability of animals for production, just as Prometheans do (PR) with the fire of God.

Animal Health Company Quotation

1A: Look in the case of animals, what is happening. To get good and efficient production we're dealing in three more holistic ways. Number one is nutrition in the farm to get the better production. Second part is the management so how you manage your animals to get to forms of production in a better way and third is Disease Prevention. Because as you know most of the productivity is being killed by most of the diseases out there that will lead to production loss, so by controlling these 3 things, working on these 3 things we can get better production. So most of our scientists and researchers will address these 3 things, production, management and third is disease prevention for more efficient results.	K	A	ED
	Dll-Cr-N	Inst-N	(E)Pr
	Cr-S	Inst-S	

In the next extract an official national veterinary constantly makes use of logical deductions based on logical principles, such as "the quality of feeding prevents disease" or "good shape is best protection of any disease". In sociosemantics, these 'generalizations' **(Gral)**, or abstract principles do not require more further level of detail to justify an expected outcome. This officer consistently contains the issue by referring to some very general relations such as "good health", "good feed"

that can prevent most diseases. Regarding the relational value of animals, they remain instrumentalized given that animal health is reduced to the functions of feeding: backgrounding other interdependent elements such as animal behaviour or animal farming ecosystems **(Inst).** This interpretation is also confirmed through the framing of the visibility of wild animals. These are not seen as interdependent of the natural farming ecosystem, but rather as an extrinsic element, a burden - as "there is no protection against wild animals here" – against which a control system is believed to have the ability to 'get rid' of such extrinsic risk.

National Public Officer on the private sector Quotation

3E: do you protect the animals from diseases around? V: There are other programs for that. But most important is good quality of feeding that prevents most diseases and good cleaning. And yes then, wild animals is a problem always here, there is no protection you see? But otherwise the best protection is health. E: Do you mean maintaining them in good shape is the best protection? V: Yes, exactly, good shape is the best protection to any disease; good health, good feed, and you can prevent most diseases. That's what the private sector should do for poultry in any case. 3: Also because poultry has more diseases than other sectors, so sheep, diary, etc. E: And why are there more in Poultry? I: Because poultry get diseases easier and private sector has more control on them, Dairy and other animals' disease and management are more controlled by the State. E: Do the poultry sector manage to keep this diseases at the minimum? V: Yes certainly they have been very efficient in the past.	K	A	ED
	Gral-N	Inst N	LG
	Gral S	Inst-S	

Regarding the role of other stakeholders, it is clearly the private sector is framed as responsible for the control of diseases; as it is an area where the Indian State is not taking responsibility. The private sector is again not seen as being in an interdependent relationship with the Indian State. The assumption that the private sector control of diseases is independent of that of the State is what makes this semantic framing instrumentalized **(Inst)** or of low hierarchy**.** It is expected that the sector can self-regulate (as it does through feeding and cleaning) without the need of the state to intervene. Paradoxically, diseases are framed as "happening to the sector", in a passive form, so the private sector is not framed as having a logical strategy in the form of a principle of animal health management; nor an inductive one in the eyes of these senior public veterinarians. This semantic remains at the very general level of descriptive correlations as in "that's what the private sector should do" **(Gral)** and it is consistent with a more powerful agency of nature which surpasses private sector capacities to plan against nature contingencies and at the same time appears to have a 'wisdom' in itself (good shape is the best protection). For these reasons frames of public sector about their relationship with the private sector appear as non-interventionist, relying on self-regulation and nature wisdom - just as Life Style Greens (LG) do- against any possible risk as the best strategy of animal health and food safety.

Finally, the next extract from a veterinary manager, in a poultry processing company, frames animal health management in the following way. He gives instrumental autonomy to the animals by filtering human-animal relation through objectified qualities such as the independent parts and materials constituting an animal body (muscles, carbohydrates, energy, vitamins) **(Inst).** Despite the fact that these factors may be problematized as interdependent in the definition of a software program for animal nutrition, they are still independent of the farming environment and farmers' treatments.

Processor Company Quotation

4-V1:So this feeding product has to be converted to energy and muscle but at the same time.. carbohydrates need to be in a form that can be absorbed inside the stomach and fibre needs to be put in there. E: Is it not a problem for the bird in terms of health? V:Not at all. It is not going to be a problem for the bird. E: Like rotation, do you rotate the (animal) products like in the market? V: Rotation is for antibiotics and antimicrobials Mme. These don't need rotation. E: You have backyard farming as well, how do you proceed, do you go to the farm or.. V: They [farmers] are following the guidelines. There are regulations of what can be used and how much can be used. E: The guidelines of the processor regulate how much feeding the bird becomes? V: Exactly, we have had a lot of problems because of that. E: Problems? What kind of problems? I: Software problems [he shows me]. E: Oh so If I am a small farmer and want to feed my poultry, can I do that? V: You can do that but you have accordingly you have to formulate, how much energy the broiler needs, how much food, how much vitamins they need.. E: And it is at best a veterinary that does that, or is it an inspector, or a consumer association that plays a role? V: Exactly, it is a veterinary nutritionist (from the company).	K Cr-N Cr-S	A Inst-N NT-S	ED Pr PS

The inductive formulation on the other side implicitly frames human-animal relation as an ´input-outcome' mechanism in order to ´obtain the right´ outcome (i.e. "feeding product has to be converted to energy and muscle") **(Cr).** However, the farmers' agency and the management of animal intake are constantly not backgrounded but substituted by a diversity of 'automatic' mechanisms that are implied as if the action itself would have equally occurred. It is regulation and software which calculates the nutrition equilibrium and public health or hygiene guidelines that deal with farmers in the production site, not the veterinary processors in that "farmers are following the guidelines and regulations". In other words, the farmer's agency is not narrowed but literally suppressed, through a non-transactive assumption device to facilitate the resolution of the problem **(NT)**. As it will be later explained, this double framing by these particular stakeholders is explained in relative comparison to other actors and framings.

5.3 Clusters of Regulatory Framings and Expectations to Comply

The exercise of reconstruction or recontextualization (Van Leeuwen, 2008) shows that socio-semantics in language is an important vehicle for the identification of core premises of agentic autonomy and knowledge concern. In this way a reading of pure core premises can already illustrate the deconstructed material of inquiry that questions already the relations of implicit 'normality' among a set of actors and situations. These 'uncovered' distances between actors and their objects' relationships underline the general unwritten openness and closeness of particular norms and values between and across actors. Therefore, they already are an important indicator of the codified relationships that describe certain arrangements.

More generally, when hidden assumptions and strategies of these two topical examples of standards of 'normality' examined[86] were put together on the basis of their general relational qualities, it was possible to picture the contrast of the 'packed version' of the categorizations of actors' core premises. Such version built an articulated narrative of implied rules and expectations through the accounts of the empirical discourses (Van Leeuwen, 2008: 148) and through the critical discourse analysis reconstructions of power relations. The resulting 'software' (Drzyek 2007:9) summarizes the geared core assumptions and translates all informal ´normalising´ understandings into one reconstructed narrative of institutional distances among actors. In this empirical case, when the identified core premises were put together as grasped through the accounts of interviews, as in last sections, and linked back to a recontextualization process, such a 'software' provided with a general 'snapshot' script of governing actors relations (ibid:144). In the case of food safety and animal health actors in animal food production in India, a series of scripts reconstructing social codes and standards of behaviour for different normative arrangements were identified as if read through a direct relator/stakeholder to ´newcomers´ in the following paragraphs. They are then followed by the likely implications of their relational inequalities in the spaces analyzed.

Regarding the script of processors and small (intensive) farmers' hidden arrangements:

> Processors and animal health companies of contract farming distance yourself from 'traditional' farmers and keep close to your own farmers, who require almost daily supervision and monitoring otherwise they do not understand the needs of agricultural change. Demand from them a limited amount of thinking and doing in the farming activities. Small intensive farmers, continue to develop your double implied strategy: one of distancing yourself from any direct negotiation with processors on income or animal welfare day-to-day

[86] See granular discourse analysis in Appendix for a more detailed reconstruction of institutional distances based on the extraction of core premises of interviewees quotations in the corpus sample coded according to research design explained in Chapter Four.

> experience given your very different opinions; and secondly, 'prevent' food risks and animal disease with your own animal health treatments and at your own costs to counterbalance your perceived loss of weight of animals due to excessive antibiotic feeding. The only solution to the increasing imbalance of rising debts given rising electricity and equipment costs and the reduced payment per weight needs to come from the State.

A first recontextualization of core premises like this already helps expose institutional and discursive tensions and understand certain likely implications for animal health in terms of general compliance in contract farming by processors and farmers. In fact, strategies like this are likely to resonate with a 'maximum operant principle' of surveillance[87] which obstructs the internalization of compliance with minimum rearing tasks and intensive farmers barely agreeing to maintain minimum weight conversion rate. Most importantly, the lay learning capacities and motivations of intensive farmers-workers appear viciously ignored until they may in fact disappear. This situation however does not assist to cope with insurmountable debts cycles which are fuelling the desire for more radical economic change. Given the avoidance to direct negotiation with processors by farmers, this situation is expected to be solved through a highly interventionist state. As a consequence, in this system of compliance, the jeopardization of animal health standards and the increasingly visible degradation of the farming environment appear not to matter so long as that kind of system continues to fuel the minimum income benefits that are expected to correct the most tangible effect of the debt vicious cycles at some point.

Regarding public officers and small (intensive) farmers' arrangements:

> Public regulators distance yourselves from small (intensive) farmers and assume them as able to negotiate their income contracts in equal terms with processors. Distance yourselves as well from animal health emerging companies who deal with Indian processors and their small (intensive) farmers. Do not try to convert established intensive processor companies to agro-ecological practices as they will self-regulate at some point in that direction. Keep close to your conventional techno-fixes of breeding innovations and technologies for the traditional poultry farmers for the mixed crop and animal farmers. Acknowledge traditional and mixed farming cultures to a certain extent, but recognize that the only way to change their patterns appears to be the mainly through the top-down techno-fix solutions rather

[87] See Ayres and Braithwaite (1995) minimal sufficiency principle and maximal operant principle refers to extrinsic rewards and punishment techniques that inhibit motivation of actors to comply. Experimental research demonstrates the belief that long term commitment to a certain task varies positively with the size of short-term extrinsic rewards is wrong. The principle of maximal operant based on the continuous motivation of rewards appears to forget that short term compliance might also be counterproductive for long-term internalisation of a desire or motivation to comply. On the other hand, the minimum sufficiency principle refers to reasoning in preference to power-assertions, which prove to better internalize compliance. 'Minimum sufficient principle' and 'positive attribution' of positive intrinsic motivations towards a desired behaviour are better strategies than reward, punishment or non interference for a desired change of behaviour in a certain direction (ibid: 49-50).

> than recognizing their own problem-solving capacity, according to their experience and conditions. Contribute to the perception of continuous ´need of teaching' and need of knowledge capacity of small farmers to handle what extension programs are. Acknowledge inventiveness of intensive farmers to solve problems out of pure necessity (i.e. to cope with minimum meat conversion rate and income).

Such exercise of recontextualization of core frames exposes the discursive tension in the recognition of animal health experience (i.e. the potential in lay management capacities and animal health services) of the different farming systems. In these interactions, the degradation of the agro-environment of this mode of production are implications likely to occur which are contrary to the kind of top-down system that the State expect to exert to protect ´food and farming security´. At such first sight any informal arrangements that could occur out of the disequilibrium of these relationships appears less as the result of an active strategy of 'maximum operant principle' in the provision of knowledge, since no apparent reward or punishment is involved. However, extension programs with the purpose of compliance with technical tasks to ensure food and farming security appear to be set unilaterally by the public institutions with little space to dissent over possible excesses in the exploitation of farming spaces. This implicit lack of recognition of knowledge concerns of farmers, and their consideration as 'recipients' or 'consumers' of techno-fixes may facilitate not only a dependency in knowledge but more importantly a chronic lack of interest to cope with the continuous changing nature of farming challenges. Such a lack of absorption of technical knowledge can become vicious if over long periods of time indigenous knowledge is de-valued of its co-contribution to the resilience of the farming systems.

Regarding the script between traditional farmers and other farming systems' hidden arrangements:

> Traditional farmers distance yourselves from those "other" farming types and their growing common problems (i.e. such as product safety, biosecurity or animal behaviour) or from the idea of cooperatively discussing these issues with other sectors. Attach yourself to the belief in the power of nature and breeding to provide your animals with the necessary immunity resistance against diseases and to the positioning in the life local market according to local taste.

In similar terms with the recontextualization of the script arrangements between traditional farmers and intensive farmers a discursive tension regarding the growing interdependency of the polluted and degrading environment of the small intensive farming and the management of traditional farming resources appears more exposed as a likely implication. An increasing interdependency of common problems among both systems of production does not seem to matter given the profit shares of traditional subsistence from wet and processed market respectively.

Regarding intensive farmers and animal health companies' informal arrangements:

> Finally, emerging local holistic animal health companies, distance yourself from the activities of intensive farmers, other than the trials on animals to support your research models regarding your products. Distance yourself from traditional farmers and their capacity or intention to provide more day-to-day knowledge about when or how to improve animal health services, or prevent diseases. Intensive farmers distance yourselves from local emerging animal health companies' vets that know no better than you and do not share your experience of "preventing" disease and since they are not interested in sharing the economic benefit of trials in your farm with you.

Finally, the recontextualization of core frames of relations between intensive farmers and animal health companies tend to ignore the mutual recognition of how to capitalize on this interaction with important implications. Despite the fact that every stakeholder may remains happy with their own models of income generation, there is a significant potential of the relationship between the experience and knowledge of both stakeholders for the investigation of farming resilience to be developed. None of them is willing to interact or negotiate for the purpose of a wider more ecocentric perspective of the animal farming exploitation of resources.

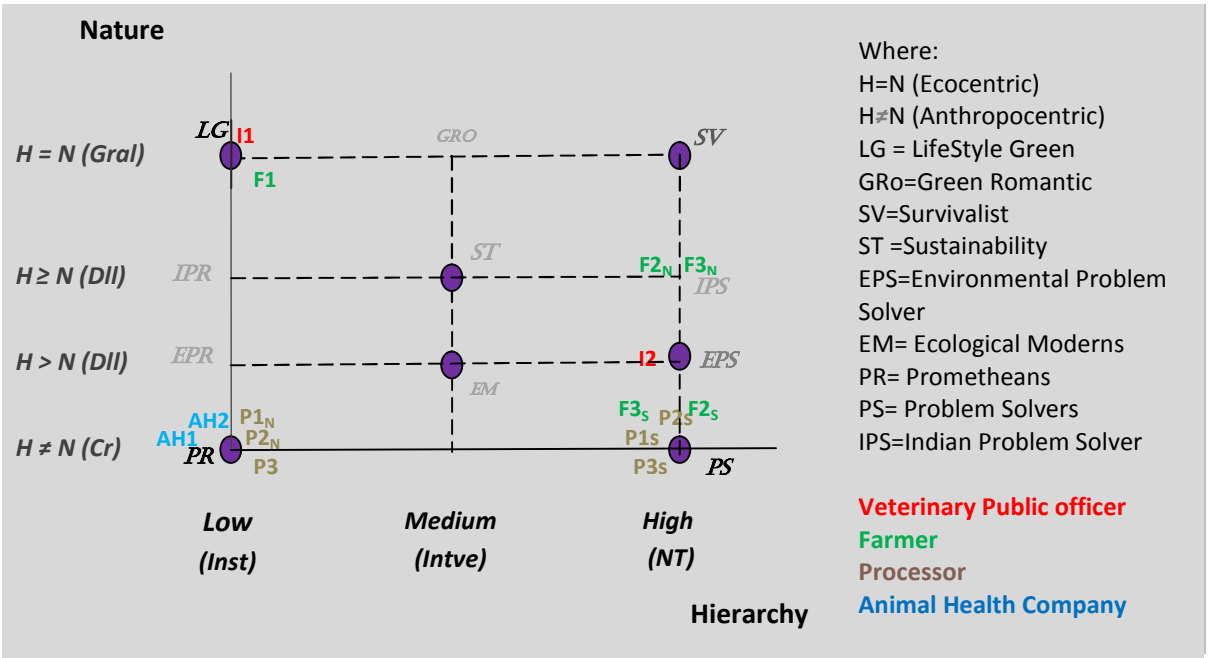
In other words, a first reading of the relational inequalities from core normative assumptions expose some of the tensions among stakeholders from a rather dichotomist perspective for each pair of actors. Despite the clear imbalance in power and knowledge relations that such an illustration of a classical discursive-inquirist approach can provide, there is yet enough room for refinement so that discursive practices grant understanding of legitimate expectations to comply with agri-food regulation. In other words, the additional richness of reconstructing framings according to environmental discourses goes further in that they allow more fine-tuning in the understanding of how levels of agentic autonomy (the extrinsic rewards and threats vs intrinsic agentic preferences; the more market vs more state, etc) but also particular environmental concerns (i.e. anthropocentric vs ecocentric) are embedded in the regulatory framings and regulatory choices. Such an environmental framing perspective would allow a clearer refined distinction of the normative preferences and implicit regulatory mechanisms behind the motivations to comply and thus contributes to a better understanding of the qualities of decentred regulation and their eventual accommodation. In this section, the sharing of same framings according to their discursive consistency are discussed in more detail with relation to the animal farming production regulation – in particular in the space of the animal food product and the animal health farming environment. It is expected that such positioning will reveal more about their relative legitimate expectations in

responding to the first part of the question of this chapter: how do regulatory framings compare? And more specifically, how do expectations to comply with legitimate agri-food rules compare?

5.3.1 Framing the 'Normalities' of Animal Health and Food Safety Practices

When the discourses of interviewees concerned with animal health are mapped, actors were positioned according to the environmental framings as identified in previous chapters. In some cases, results were counterintuitive as in the holistic animal health providers. In the case of animal health a double positioning was framed between intensive farmers (F2, F3) and processors (P1, P2, P3). Processors hold more anthropocentric views of control over animal health than their intensive farmers. Processors then confirm a level of deep understanding of the major implications of their interactions at the level of animal health and human-animal interactions as *Prometheans*. They see animals as separate functions; each one of them with unlimited biophysical generosity; able to cope with different kinds of medicines, digestive formulas for weight, limited space and farming stress, etc. In contrast to processors, intensive farmer frame the practical value of homeopathic remedies to prevent common colds and loss of weight, as economic loss in a discursive position which is referred here as Indian Problem Solvers.

Figure 5.1: Coordinates* of environmental concern (N) and social autonomy (S) premises in AHFS



*Coordinates are taken from the appendix, when environmental concern and social autonomy converge in the same coordinate, the discursive framing is located without 'N' or 'S'.

Regarding their implied relationships in contract farming, processors make the recurrent assumption that a high level of supervision (unilateral framing device) is needed over intensive farmers in order to obtain the outcome expected in terms of animal weight according to *Problem Solvers* (*PS) devices.* For processors, without the high levels of supervision as observed in the quotations, intensive farmers will take profit or cheat in every possible situation. *Intensive farmers* on the other hand, see themselves with the agency required to successfully *solve* their *problems* of weight related animal diseases, especially during changes of seasons which they work out through homeopathic local remedies and in their understanding of the multiple conditions and the management of the necessary provisions of contract farming (feeding, water, heat, etc). Increasingly, interviewed farmers do not always welcome the non-transactive interactions of processors, excessive surveillance, lack of trust in animal health management and control of prices over them, which they recurrently refer to in unilateral framings as having to undergo as the only choice to pay their debts. This lack of choice or deagentialization for intensive farmers appears to be the source of important tensions between these two stakeholders. In terms of animal health however, they suggest to the interviewer that in the beginning of contracting a non excessive level of monitoring is appropriate to a certain extent.

To summarize, a non-written contract of shared expectations was found on animal health promotion between those two stakeholders: prevention of animal disease in these intensive farming activities has to be undertaken by the farmer and at the costs of these in order to maintain the minimum weight of animals with the condition of farmer and farming subsistence. This is higher than the animal health standard of processors and cannot be communicated to the processor given their mistrust in farmers' management capacities. Second there is a belief in the lack of self-negotiation capacities (in knowledge and power) over the processors' terms of the contracts. This is observed more directly through a deep-seated belief in another interventionist actor, the Sate to compensate for economic and social control at a more general level as will be discussed in the next section.

In contrast to processors and intensive farmers, representatives of *holistic animal health companies* (AH1, AH2). Despite their "animal friendly" and "animal welfarist" vocabulary of *Sustainability* (i.e. "body stress reactions, "holistic understanding"), recurrent framings consistently uncovered the more anthropocentric values in line with a *Environmental Promethean (EPR)* positioning. As was observed in the frame analysis, they still defend eco-utilitarian research models

that do not protect animals from their stress environments or pursue a better understanding of the human-agroecological interdependencies. In terms of animal health, this means their priorities of research are more conservative. In fact, they relate only to very concrete body functions and reactions, which from their perspective can be fully measurable, giving a viewpoint of control over the body parts reactions and its substances. In this sense, their moderate focus inclines toward a consumer oriented perspective of the processors (in developing products for body parts and their functions) rather than to truly holistic correlations or sentient distillations (as looking for the root at the core of their agro-environmental connections). These key representatives thus diverge from the more ecocentric content claims their companies try to position themselves in the markets through their holistic brandings (i.e. “traditional knowledge and modern science”).

National public veterinary officials (I1) and traditional farmers (F1) on the other side, share common grounds in terms of their animal health framings. Both stakeholders frame human-nature as a relationship based on implicit values (‘resilience’ of nature and ‘good feeding for good shape’ of animals). Animal health actions for them are justified on the basis of these value-led logical deductions containing the limits of their relationship with animals as well as with other actors in this topic (‘everybody knows that here’). In particular, they frame these relations by the absence of hierarchy or unilateral action. The agency of animals is instrumental but higher than human agency as they know better than humans what to do. It is the “wisdom” imprinted in the agency of nature (‘resilience’) that takes care of itself without the need for more explanation. This framing of compliance thus refers to *a Lifestyle green* discourse that assumes that only some few instrumental actions are required from everyone –since common knowledge of the social actions and properties of nature are already accessible- to keep maintaining this narrative on harmonious levels.

It is this lack of concrete detail or inductive assessment, and lack of unilateral devices, that reveals the Lifestyle green positioning of Public Veterinarians when framing the private regulated poultry farming. This is an interesting and recurrent frame of this senior national veterinary official which reveals that a formal approach to this is not based on concrete evidence or assessment for best protection or the promotion of animal health as many bureaucracies will advocate, but on their deductive and almost idealistic approach to animal health promotion for this industry. The recurrent framing preference of this senior officer in terms of animal health for this industry can be explained by the fact that the informant chose to present this topic to the interviewer as it ‘should be’ rather than as any assessment would suggest (“that is what the private sector should do in any case”). This also suggests that because contract farming (which is only one part of the poultry farming system but the most economically significant) is in private sector hands, an excessive blind spot of

confidence at the level of animal health promotion and prevention of disease might be present as will be discussed later. For now, it remains sufficient to say that the unwritten contract of a *traditional* farmer and a *public official* in terms of autonomy and concern is that if everyone in the poultry sector behaved following principles similar to those of traditional farmers, everyone would benefit from the same positive subsistence strategies as the *Life-style Greens* (LG).

In contrast to national veterinary officials, a regional public senior officer often framed intensive farmers as talented *Problem Solvers*. In this way, given the private development and private regulation of the integrated poultry farming sector, this is a good way to justify their relation to the sector. This again is an interesting framing of the regional public sector representatives who do not see any accumulating social or economic tensions in the contract farming sector, nor the need to intervene. This may suggest rather a strong desire on the part of public officers that these two partners work harmoniously together or a similar deep-seated belief as the processors of the autonomy and concern of farmers. In both cases, and as will be discussed in greater detail below, this might suggest an important institutional void between authorities and stakeholders that requires more discussion.

In these examples, discursive strategies occur in the different combinations and degrees that this chapter has attempted to elucidate and locate. Despite the fact that these results present limitations mainly inherent in a double work of interpretation of agentic autonomy and knowing concerns[88] and the results are admittedly incomplete[89], this exercise has provided an introductory illustration of some of the limits of the legitimate ´contracts´ related to the regulation of animal production.

5.4 Discursive Consistency and Convergence: Limits and voids to implicit Expectations to comply

From the last section one can observe that the variety of implicit expectations and their legitimacy is shaped by the degree of consistency they share with environmental discourses. Some aspects varied in the discourse when moving from the scale of animal health to the scale of the

[88] These as explained in chapter three are valid explorations of the 'ontic challenge' see for instance Sorensen and Torfing (2000), which is the gap from the ontological concepts to the practical applications, that discourse analysis still undergoes in order to answer their theoretical initial question 'how does ideas catch up in public policy?" (Howarth, Norval and Stavrakakis (2000). This research has no explicit discursive theoretical ambition but it is closely guided by its conceptual relevance to study legitimacy and language.

[89] For instance the study could have benefited from a more balanced proportion of interviewers per sector or from a more exhaustive interview control conduction of the main topics.

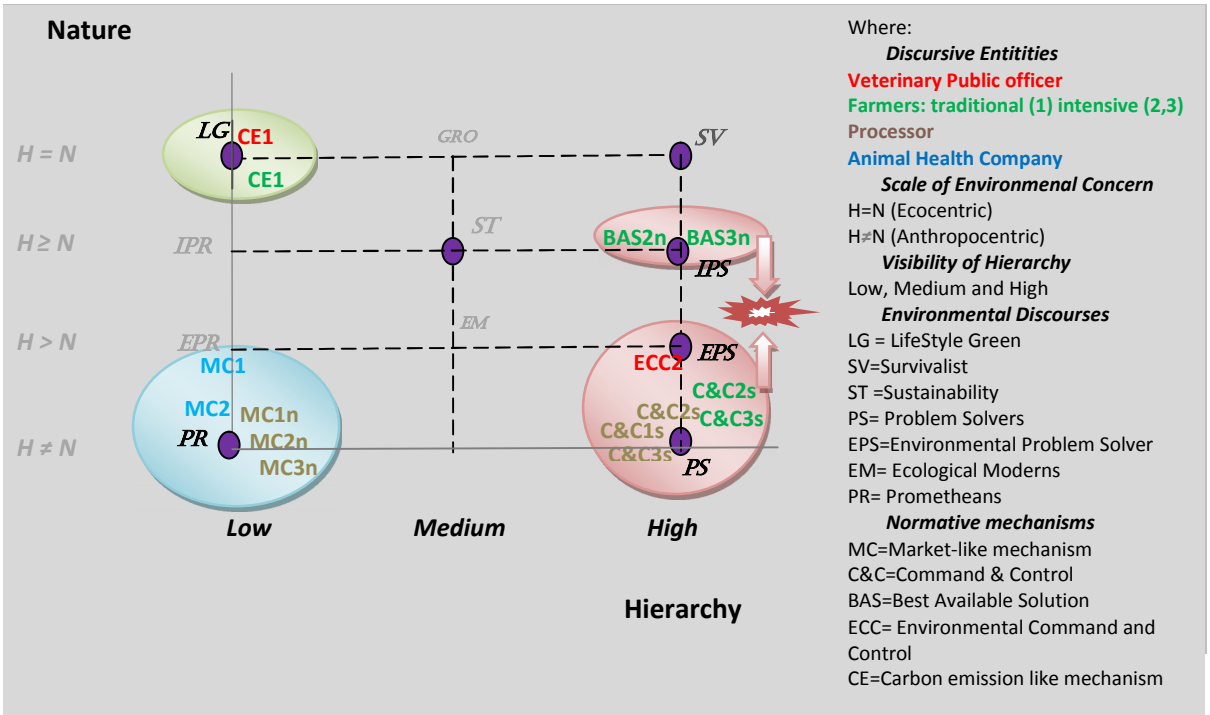
farming environment. One of these is that framing results have observed that in fact, instead of a clear-cut formal regulation between the market and the State, or even with emerging private forms of networked regulation, more subtle combined configurations can be found in this (non western) research case.

First, by looking at the regulatory embedded topics of Animal Health and Food Safety, it is clear that the overall discursive positioning of stakeholders shows a considerable divergence in their implied treatment of each other and nature. However within those, there are also some specific convergences (see Figure 5.2). Whether animal health services companies or processors, they imply treating animals as generous and tolerant, highly functional sectioned metabolisms. Core premises of these actors resonate with the premises of *Prometheans*, for which animal commodities' exploitation do not them as sentient beings or as part of an ecosystem. Prometheans focus is a mechanistic (Dryzek 2007:53) over-rationalizationed human-animal relationship through the scale of the concreteness but generous in repeating those animal isolated functions. Animal health concerns significantly diverge, with processors seeing animals as tolerant metabolisms rather than sentient beings. For small intensive farmers animals' metabolisms do not handle well antibiotic growth promoters and medicines or mycotoxins. They appear more often as sentient beings in need of human ayurvedic remedies than as variables in order to produce more weight for the market of animal commodities (although at times they also do this). For processors, this standard of ordering of the processors-animal health relationship, including uncertainties and risks concerns is recurrent and consistent with the model of poultry contract farming in terms of a market environment.

Regarding the implementation of such contracts, processors, intensive farmers and public officers (opinions about farmer-processor relationship), they perceive each other as *Problem Solvers* towards the outcome of achieving a conversion rate in meat weight terms. Different strategies of these actors have proven these agentic and knowing solving capacities: the prevention of diseases through the 'inventiveness' of farmers (whether coal heating or local homeopathic remedies). These strategies do not have to be explicitly accountable to the processors. In fact most of them happen in spite of the processors banning such holistic animal health popular practices. Explicit is the provision of sufficient instructions, monitoring, and surveillance testing, feeding and vaccines materials so that farmers can only concentrate on the punctual 'rearing' and deliver an acceptable outcome of poultry weight. Implicit is the informal exercise of mutual unilateral actions in line with a highly hierarchical but informal *command and control*-style contract and for which the external formal viewer would

see only a self-regulating contract farming in formal regulatory terms[90]. The reasons why they can engage in contracts to deliver a finished 'product' of such divergent animal health concerns is that both stakeholders share Problem Solving values for social relations.

Figure 5.2: Normative mechanisms on Animal Health and Food Safety (AHFS): Discursive Coordinates



A counterintuitive result is the framing convergence of implicit perceptions of traditional farmers and national public veterinary officers regarding animal health concerns and uncertainties. Adaptation to uncertainties is achieved through general principles of an animal's natural resilience but relatively independent of the rest of the farming systems. This regulatory positioning proper of a *Lifestyle green* shares similarities with the premises of legal principles present in approaches such as the low carbon allowances (see also section 2.4.4) which would prize those behaving in environmentally efficient ways (Stern et al., 2006:, Stallworthy, 2009). Neither farmers nor officers

[90] And for which academics continue to see contract theory, agency theory and transaction costs as the main reference for efficiency Coase (2007) –original in 1937). Most of these studies do observe the main problem of market power in vertical integration over other competitors or players as a market failure in the design of contracts. This thesis does not attempt to demonstrate a full theoretical case for every illustration. The empirical relations demonstrate the existence of alternative rationalities to study agency and transaction costs. Not through a reference of market power, but to different assumptions of agency and the environment that would bring a different kind of basis for the contract to the processors and the farmers. It also suggest the lack of background of legal rules or the role of courts in enforcing contracts, or other legal institutions to perform in particular the assumption that contracts are enforced under 'informed, sophisticate, and low-cost way' (Williamson, 1983).

have actually a formal intention to regulate their behaviour explicitly or only instrumentally as *carbon emissions systems* (CE) to promote animal health management adaptation. In other words, by following concrete elements such as lower contribution to Green House Effects, avoid carbon sequestration or reduce energy, low carbon farming systems can represent core ecocentric and instrumental discourse premises that are already found in traditional farming in India[91]. In other words, farmers' and officials' framings suggest they are already achieving what incentives for a life style green, low carbon footprint implies in western discourses. This is however, more credible for the traditional farmer than for the national public vet officer. In the latter case, it is the ideal portrayed state of the 'ought to be' of his framing and conversation that is reflected in this framing positioning. It remains helpful to understand the relative discursive distance with the animal commodities realities at the sites of poultry contract farming that suggest that this high vet officer position is exaggeratedly idealistic in content and form as regards what the situation of animal resources exploitation in contract farming is.

Finally the Indian Prometean Solution Discourse given its higher ecoentric value and no register of western discourse its mechanism has been called the Best Available Solution (BAS)[92]

[91] There is an increasing amount of literature, in recent years regarding agroecological systems for smallholders farmers as vision of low carbon farming systems. Some of them fall in the category of more sustainable systems prioritizing community participation, empowerment and sovereignty, however utilizing the vocabulary of the market efficiency Altieri, Funes-Monzote and Petersen (2011). Low carbon farming systems on the other side, important studies and models in this direction have observed that despite possible carbon sequestration of organic farming, more generally, given important differentials of (lower) energy inputs from organic farms than from conventional systems, organic farms have the potential of lower Green Gas Emissions (GGE) Kuestermann, Kainz and Huelsbergen (2008). Furthermore, integrated crop and animal farming and decreased use of other external inputs in animal farming and organic elements are considered valuable in these efforts Niggli, Fliessbach, Hepperly and Scialabba (2009), Liu and Ren (2010). Despite little academic literature has been found on these low carbon farming developments in India, most of these elements (except for farming waste and formally certified organic feed) have been found in the observation of the Indian traditional poultry farming in this research case91. As in India Shukla, Dhar and Mahapatra (2008), other developing countries are finding low carbon strategical in their green development and green economies of traditionally based industries Hao and Xiangxiong (2010).

[92] Best Available Solution is here addressed as a non western mechanism close to the Best Available Technique in western terms, more researched in the socio-legal studies. The term 'Best Available Technology' has been used first in the 1990s in the United States as a generic label in various statutory schemes employing different formulations in environmental laws (such as U.S.C. §1311 (b) (1)(A)(1994) 'best practicable control technology'; id §1311 (b)(2)(A) 'best available technology'; U.S.C. §7411 (a)(1)(1994) 'best system of emission reduction'; id. §7479(3) 'best available control technology'). In Europe, it has become better known in recent years through the EU Directive on Integrated Pollution Prevention and Control (IPPC 96/61/EC). From a discursive perspective they address both scales of regulation such as the federal and European level prescribed emission and effluent standards set by reference to the levels that can be achieved through the use of the BAT. Given its similarities with Command & Control instruments, in terms of the minimum levels of toxicity of the technique adopted they are place in the last column in the platform. In comparison to the high level of sophistication of techniquest in the laws and regulations mentioned, in the Indian case, a cause-effect or inductive reasoning is often absent. Instead a more diffuse scope in the framing of the ´solutions´ among Indian informants is often found. Solutions such as with 'common remedies' and 'popular knowledge' as found

5.5 Conclusions

This chapter has demonstrated that disciplinary framings are recognizable in their diversity. In this way the analysis recognized social and environmental embeddedness as an important part of animal farming regulation. However, framings filter the embedded space of interaction into a space of 'normality' where projected standards of power and knowledge through the day to day practices take place. The chapter has given accounts within the animal farming production- of the variety of orderings of actors according to their own accounts (beyond the pure subjected Foucaultian vision of discourse as well as beyond the Classical efficient-seeker rationalist vision of demand-offer economic efficiency) in terms of their framings of compliance with their own validity claims. The validity or consistency of discourses included a combination of narrow framings of rationalistic anthropocentric and wider ecocentric values or attitudinal *knowledge* concerns as well as objectivised, dialogical and even more radical frames of agentic autonomy towards *action* according to the actors own grounded visible experiences and accumulated understandings.

In fact, several divergences and convergences of core premises at this wider scale have been grasped that would have otherwise remained invisible without a regulatory discursive framing given the diversity of arrangements. These are related to the capacity to bring to the surface the growing tensions of implicit expectations of unwritten contracts, as well as the institutional voids they leave. In addition, instead of clear-cut public-private regulations, diverse, more subtle configurations of discursive strategies according to their core premises and values emerge as helpful tools in understanding the qualities of decentred forms of regulation and their eventual accommodation.

This chapter has clearly identified shapes in the diversity of (gaps of) expectations in the space of animal food production in South India. By observing that gap, expectations to comply have been understood as purely expectations to commit towards the 'normality' of the practices analysed in the sector. From a framing positioning perspectives, all positions are legitimate, as al expectations are valid claims of their own 'truths'. However, it is also possible to observe a degree of 'illegitimacy' as the distance between explicit formal claims, and the unwritten core premises that implicitly guides the normative narrative of power and knowledge of actors. It is in that space where regulatory mechanisms have the potential to exacerbate rather than improve existing tensions or present counterproductive effects more generally. It becomes of paramount importance thus to understand that an important part of the success of any intended animal or agri-food regulatory

in the interviews are most common, regardless of the price or time consumptions. They work at the level of correlations that have no clear logic at times but are authoritative and mostly the result of a local habit.

change relies on understanding the gap between that what is asserted achievable, and that that has been informally 'captured'. This chapter has touched less upon the formal signals and regulatory mechanisms and their influence over this space. The next chapter will deepen this discussion by comparing the formal mechanism of international framings, especially those of international food safety and agro-environmental regulations. In particular, it will discuss through relative comparison, the influence of those signals and how these sub-national frames are able to contribute eventually to the assimilation, capture or dilution of such international discourses.

6 How framings of social and legal compliance compare: recontextualizing international regulatory influence on the Indian Animal Farming Production.

> "Thus the social responsibility of regulators, in the end, must be not simply to impose controls, but to activate and draw upon the conscience and the talents of those they seek to regulate'. What we must avoid is accountability mechanisms that cause regulated actors to work defensively to avoid blame, instead of creatively, to seize responsibility for achieving valued outcomes" (Braithwaite, 2008:).

The opening chapters of this thesis identified some of the main policy-regulatory discourses relating to agri-food, as well as some of the sub-national and international influences that shape them. In some cases, such regulations appear triggered by sub-national food, health or environmental crises, in others, by international agendas. International regulatory mechanisms involving agricultural commodities such as trade harmonization and the Dispute Settlement Body (the body for the resolution of conflicts of compliance with these), often tend to be perceived as predominant legal baselines forcing national agricultural deregulation (Young, 2005). Despite their significant influence for an increasing amount of scholars, policy-regulatory solutions like these, still remain reactive to the extent of challenges of public health and (agro-)environmental threats (Lee and Marsden, 2009:, Braithwaite and Drahos, 2000) as well as to the challenges addressing the appropriate (contextual) effective normative change (see Chapter Two). This thesis responds to the double observation that there has been limited empirical research focusing on the nature of regulatory change or accommodation and second on the need of more comprehensive tools to legitimately reflect stakeholders' views on their constructions of more resilient agri-food systems' demands.

The lack of explicit attention paid to how the construction of agri-food regulatory problems compare, both amongst regulators at different scales, and between regulators and users, is significant. It is important to understand why regulatory objectives sought by policy-makers and stakeholders in Geneva, Rome or Brussels at the international levels, fail to materialize in the sub-national agricultural realities they seek to transform, in particular in developing countries (Zwanenberg et al., 2008). How stakeholders of agri-food regulations frame their concerns, from international policy-regulatory arenas to the field may include ´judgments and commitments with core assumptions about the object concern of regulation´ (ibid:8), as well as the expected capacity to

be involved in the new set of institutional relationships. As observed in the literature review, there exist different views of the complexity of agri-food systems and their agri-food mechanisms. Among them, an important number of studies indicate what regulatory practices towards Sustainable Development or Sustainability in agri-food systems should take place. Indeed, many of these studies demonstrate the practical advantages of integrating such principles in public policies more widely, for instance in public procurement mechanisms (Sonnino and Morgan, 2007), or in the understanding of pathways of socio-technical practices towards agro-ecological systems (Thompson and Scoones, 2009). These examples already illustrate some of the embedded complexities when engaging in forms of more resilient exploitation of agricultural resources. Despite the important amount of academic literature in recognizing how *specific* resilient *practices* and some of the progress and challenges of their regulatory mechanisms, this continues to represent in practice the minority of agri-food resource exploitation –those apparently immersed close to this type of discursive-regulatory change.

It was in this context that the thesis set out to investigate how actors, including public decision-makers, semiotically and comparatively construct their legitimate expectations of how their agri-food space should be regulated; among stakeholders in the sub-national space and given the apparent influence of the international trade mechanisms in the regulation of those spaces. As such, and through the additional availability of textual and transcript materials, it was a natural progression to adopt a discourse analysis approach, as this recognizes the architectures of knowledge and power associated with language and legitimacy, as discussed in detail in Chapter Three.

At the practical level, the South Indian case offered an excellent research context. The primary reason was the diversity of socially and culturally embedded poultry production systems. Secondly, the apparent uncontested success of contract farming as a resilient agri-food model of animal health efficiency, food safety and stable rural income, and the apparently "thin" agro-environmental regulatory choices given the influence of international standards such as the Sanitary Standards (SPS), as member of the WTO, also played a role. While focusing on the more detailed construction of the stakeholders' legitimate expectations, including the public sector for the sub-national space, critical attention was paid to their architecture of power and knowledge and how these basic premises responded to already existent western discursive values (as identified by Dryzek), or if they constructed alternative discourses of agricultural production on their own. The work thus responded to the observation that discursive practices of stakeholders can position themselves in 'western', as well as local discourses therefore contributing to expand the spectrum of

legitimate imaginations of agro-environmental production. By tracing the positioning of framings in previous chapters revealed that the discursive practices actively filter modes of 'normality' or 'social compliance'.

In this respect, this thesis so far has provided an in-depth empirical account of the diversity of semiotic framing strategies that validate the exercise of pressures of compliance by developing world stakeholders in sites of animal production[93]. Indeed, illustrating the "pedigree" of day-to-day discursive practices of animal farming production - through a sample of transcribed interviews conducted with key stakeholders – reveals that agro-environmental regulations are being negotiated at different levels of discursive choices and fronts. In this sense, while it is accurate to claim an important role to the economic development as a driver in this sector, there is an equally important range of alternative identifiable pressures providing the conducive environment for regulatory success or regulatory failure. In fact, rather than a clear-cut dynamic of regulatory failure, what the last chapter suggested was a growing cacophony facilitated through exaggerated claims, hidden contracts and (in)consistent or contradictory expectations which in turn supports the potential for regulatory capture, conflation, dilution or amplification of similar or closer semiotic normative preferences. In other words, the setting of those semiotic strategies tends to affect the effective possibilities of agro-environmental regulations. This means that not only formal regulations but also (social or cultural) informal regulations of agro-environmental production can potentially dilute or facilitate some forms of rule-making rather than others by converging or diverging with each other. In this regard, last chapter demonstrated that such normative framings are recognizable in their difference and similarities according to the framed validity (knowledge concern) and framed ability (agentic capacity). This supports the argument that social and cultural pressures co-exist with formal rules to establish standards of food safety and animal health. This suggests that despite the problems and limitations identified (in Chapter Three and Four) with a constructivist perspective on 'normative preferences of compliance' a consideration of these, in contrast to classic or formal regulatory compliance approaches remains an important research avenue that goes well beyond the regulatory enforcement (Helmke and Levitsky, 2006) or the purely legal behaviouralist approaches.

Less has been discussed in terms of the influence of the international *formal* trade mechanisms in the framing of subnational regulatory agri-food problems, and this chapter will attempt to integrate this into the analysis. In particular, it discusses how the signals in WTO agricultural disputes arise, where framing has been so prominent over regulatory sovereignty[94], and

[93] For other examples of stakeholders of agricultural policy-regulatory strategies, see the case in a province in China, see Na, Marsden and Ye (2011)
[94] See literature review for further detail.

depicts architectures of knowledge and power, as have been suggested throughout the thesis. The extent that international framings capture and potentially intervene in setting the discursive spaces of choice and autonomy subnationally appears to contribute to the construction of the legitimate expectations in regulatory matters – and in particular those that take part of broader processes of regulatory harmonization (Zwanenberg et al., 2008:8).

6.1.1 The Research Case for a Comparative Discourse Analysis

As reviewed in Chapter Two, the WTO Sanitary and Phitosanitary Standards encourage governments to harmonize standards, based on international standards such as the Codex Alimentarius set by the FAO and more recently also by the WHO. The Agreement, however, allows members to lay down more stringent standards than those of Codex providing they can be scientifically justified and demonstrate a consistent approach to the level of protection that the government deems appropriate, are proportionate, and are not more trade restrictive than necessary (Marceau and Trachtman, 2002). The construction of this framing however, has led to strong criticism of the WTO, specially from northern NGOs who have highlighted the homogenizing and deregulatory neo-liberal agenda without regard for questions of public health (Braithwaite and Drahos, 2000:, Kouba, 2003c), environmental degradation (Perez, 2004) or participatory democracy (Emily and Steele, 2009:14). As discussed in Chapter Two, the influence of WTO-SPS in regulatory harmonization and their impacts in regulatory autonomy has been widely researched (Wirth, 1997:, Gruszczynski, 2006:, Buthe, 2008:, Koivusalo, 2003:, Bernstein and Hannah, 2008). Developing countries argue in Trade Rounds that upgrading food safety of products according to the Codex Standard represents a difficult task. For many, cost of compliance to engage in a 'race to the top' in terms of the implementation of such public health standards appears not only prohibitive. In fact, if developing countries want to integrate in the international commodities´ trade compliance with international trade and their dispute resolutions among countries tend to leave little regulatory choices in the areas aforementioned specially when their levels of entrance are already very low (Young, 2005).

An example of these in the poultry production are the Codex texts which include guidelines, recommended practices, and maximum levels for residues that specifically reference poultry products, as well as "horizontal" texts that span commodity categories. Regarding guidelines and maximum toxic levels, these constitute the potential hazards to human health from poultry consumption. Consumer health issues include pathogens (i.e. bacteria, fungi, parasites, and viruses);

zoonoses; environmental toxins such as persistent organic pollutants (i.e. dioxin) and metals (i.e. mercury and lead); and animal husbandry practices such as adding low levels of antibiotics to animal feed and the use of veterinary drugs (WHO 2000). The most significant foodborne pathogens associated with poultry products are bacteria –particularly, *Salmonella enteriditis*, *Campylobacter jejuni, Staphylococcus aureus and Listeria monocytogenes* (FSIS, 1996). Horizontal guidelines on the other hand include the General Principles of Food Hygiene which (among other things) establishes a template for a system of process controls (Hazard Analysis and Critical Control Points or HACCP) to minimize contamination by foodborne pathogens. Other relevant texts describe general regulatory procedures for import/export inspection, certification, laboratory accreditation, and other specific processes that support the conditions for the identification of potential hazards.

One of most recurrent subject of tensions in poultry production is the influence of Codex relating to the control in the use of antibiotics and mycotoxins to achieve minimum levels of food safety practices. Mycotoxins are toxic by-products of mold infestations, they affect as much as a quarter of global food and feed crop output (Dohlman, 2003). Consuming foods with very high levels of mycotoxins can be fatal for humans and animals[95]. Increasing antibiotic resistance in humans has also been linked to consumption (Tauxe, 1997). Both mycotoxins and antibiotics are found to be the outcome of growth promoters or disease control efficiency techniques, with antibiotics being one of the most common tools of control of animal disease widely used as feed additives for growth since the beginning of the intensive poultry industry. Since the discovery of mycotoxins in the 1960s, and the effects of food treated with antibiotics in the 1990s, regulatory limits have been established in 77 countries to protect consumers against mycotoxins and from antibiotic in food (Egmond, 2002). In observing such measures, minimum standards have been related to inductive evidence of how limits of such substances work (Dibner and Richards, 2005).

Mycotoxins and antibiotics used to enhance growth have been commonly cited in developing countries as increasingly disruptive to trade and their use has led to import "refusals" with significant economic costs for several developing countries. India and African exporting countries for instance have been estimated as having substantially diminished their trade with Europe and the US because of mycotoxins (Wilson et al., 2001)[96]. Despite such tensions, disputes regarding mycotoxins or antibiotics have not yet escalated into formal trade dispute settlements. A

[95] Animals fed with mycotoxins represent a growing problem in animal health, and long term consumption of foods with lower levels of these being linked to liver cancer in humans (Boutrif, 1997).

[96] This widely cited study argues that persistent aflatoxin problems, a subcategory of mycotoxins that is more common on cereals and nuts is accountable for an estimated of $50 million a year in reduced export revenue for Thailand. India, once an historically significant supplier of peanut meal to the European Union also saw its trade decline sharply in the early 1980s (Otsuki, Wilson and Sewadeh, 2001).

case that illustrates the kind of tensions in animal commodities trade since it has become a long dispute is the Hormones Case. In particular, this dispute is considered as a baseline for comparison and responses of production and trade problems in similar plant and animal farming industries facing the issue of growth promoters (Alter, 2003).

The criteria of validity of such requirements for food safety or animal health in internationally traded commodities are highly contested among member countries of the WTO. In fact, in the first five years under the mandate of the SPS Agreement, nearly 10 percent (131 out of 1,405) of all notification of SPS regulatory decisions affecting trade referenced measures addressing poultry products[97]. Many of these complaints provide evidence of the extent to which new food safety regulation have created barriers to trade and protectionist practices (Roberts and Unnevehr, 2005). However, nearly two-thirds of the SPS notifications on poultry have indicated that an international standard did not exist for the measure(s) at issue. Given the absence of explicit international standards for traded poultry products, it is not surprising that a number of disputes over different SPS policy regimes have emerged in this sector (James, 2000). For instance, in relation to the recurrent outbreaks of communicable diseases such as Avian Influenza and trade, 'regulations were being rewritten, in recognition of the fact that national standards had been developed without an explicit assessment of meat (rather than live animals) as an avian disease vector. To comply with new multilateral obligations, regulations were also modified to allow imports from regions within an exporting country, if animal health authorities could verify that the area was either free or nearly free of quarantine diseases[98]. In other cases, food safety regulations were being changed largely attributed to shifts from an emphasis on ante- and post-mortem inspection to HACCP systems' relating to foodborne pathogens (FAO, 2004). Regulatory voids as these serve to demonstrate how food safety and its harmonization can become particularly complex and how increasingly intertwined with animal disease controls or animal health management systems those regulations are.

It is in respect that the Dispute Settlement Body (DSB) comes into play and where the potential for WTO rules to set the baseline for a ´normative closure´ (Lange, 2006) in regulatory choice of food safety and related agri-food regulations (Emily and Steele, 2009) needs to be re-examined. A research case has been made in this investigation with the recognition that the contestation and increasing illegitimacy of international rules may be the result of a growing

[97] WTO Summaries of the Meetings of the Committee on Sanitary and Phytosanitary Measures, G/SPS/R series until 1995.

[98] Such as for instance after the H5N1 outbreaks through a strategy of 'compartmentalization' infrastructure or zoning programs that appear to isolate in a more visible way, the disease free areas see FAO/OIE report, (2007), available at http://www.oie.int/eng/avian_influenza/Global_Strategy_fulldoc.pdf

misalignment between regulators and regulatees. An hypothesis has been made that a decentred regulation is based on the co-existence between formal and informal standards and norms rather than the exaggerated effect of the sole harmonized standards, or the claims of reduced regulatory choice from international trade defence and dispute mechanisms in sub-national regulatory choices. Such perspective suggests the possibility of understanding 'failures' to comply with existent rules from the study of the nature of their conflicts and tensions as well as from the nature of their normalisation processes. It is through the comprehension of the nature of such normative or 'disciplinary' preferences of compliance (see Chapter Three) that more resilient models of animal health and food safety can be investigated and relatively positioned to each other -as it is discussed in the next section.

In the next section, the regulatory resolutions of the Dispute Settlement Body is put to critical account first by distinguishing the framed core positions of one case of relevant dispute in relation to those of environmental discourses and second, by comparing these with the already analyzed responses of stakeholders in the sector in last chapter. The predictable result of such an analysis is that given the heterogeneous collection of actual discursive practices, regulatory choice will depend on the high or low quality of the resonance that international legal framings find in expectations at the sector level and vice versa. To understand their *semiotic resonance*, the chapter also recontextualizes the DSB specific international 'normative closures' found and compares these to the subnational discursive spaces analysed.

6.2 Illustrative Findings: Framing concern choice and autonomy in the resolution of International Food Safety Disputes

As reviewed in different chapters, international agri-food trade disputes have received in the past extensive political and academic attention. For this reason, their argumentative force will not be covered in this chapter as much as their well documented framing constructions from texts and official reports[99]. For the framing analysis intended as in last chapter, it is important not to fall into the trap of immediately attempt to assign a value content to a performed narrative (i.e. how 'fair', 'effective', 'efficient', 'moral', the arguments framed are, etc). Instead it is necessary to first reconstruct the narrative of revised arguments based on both, their semiotic representation of knowledge and agentic visibility and to understand the setting of those discursive values from a 'second observer' view (Luhmann and Fuchs, 1994) according to what framing devices are included or excluded in their argumentative strategies. If basic normative elements of the conception of the nature-society relationship resonate with perceived nature-society relationships, then those framings have a discursive consistency since they are based on the same core premises of knowledge and agency (as in environmental discourses in Chapter Three). This means that in order for a framing of arguments to be relatively accurate it needs to be based on the same principles of constant inference and comparative exclusion as illustrated in the last chapter. Only then, it is argued, can the ´value´ subtleties of discriminatory framings be distinguished in the variety of their narratives and their convergences or divergences in agri-food regulatory choices discerned.

In the following sections, as in the last chapter legal regulatory spaces are followed -by exposing the semiotic devices of compliance interest in their 'hidden' framings-, regarding international trade disputes in animal commodities flows with respect to the safety of the finished product, and the role of the farming environment in the process of safe production. For the discourse analysis of such regulatory space, an emblematic dispute (namely beef hormones) is revised in its framing devices. These formal framings found are then mapped in the platform of

[99] A note on the uses of quotations needs to be reminded for this chapter as there are different forms they can be used to prove the consistency of discourses. Different to the case of subnational stakeholders where little literature exists, argumentative analysis for trade disputes have been extensive (see Chapter Two). For this reason a granular quotation analysis as the one made in last Chapter in order to demonstrate the presence of discursive framings constituting environmental discourses or a mainstream argument is not considered vital and is not made explicit. However, such analysis of key quotations of Appellate Bodies and Panel Reports for these cases can be found in the Appendix corroborating the point made here of discursive consistency of a Problem Solver discourse. This chapter reviews more extensively the 'manipulation' of framings in the dispute and contrast them with those already analyzed in last chapter, where all (environmental) discourses compare. Finally, as in the last chapter, a number of quotations (different from those of the sample corpus of discourse analysis) are used in order to help recontextualize and insert the discursive frames back into their situated narratives in line with Van Leeuwen recommendations (2008).

discursive values and discussed in their semiotic resonance with the Indian subnational frames. In other words, attention is given to the formal international legal claims versus the experienced social compliance for animal food production regulations all together in the research case. For this, the same framing scale devices for the mapping of core assumptions will be used as in the last chapter.

6.2.1 The Hormones Case

The Hormones Case represents an emblematic case of animal commodities' trade that illustrates at first sight the divide of risk preferences in relation to safe consumption between countries because of the role of scientific standards in the endorsement of 'valid' evidence. For several reasons this dispute did not go smoothly and went on for almost twenty years. It began in 1989, when the United States and Canada complained against a ban imposed by the European Communities (EC) on the importation of meat produced from cattle that had been injected with or fed growth hormones. Complainant countries argued that the measures were contrary to Articles 2,3 and 5 of the SPS Agreement (Charnovitz, 2000). The rules of this international agreement state that Members can establish a higher standard of protection by an SPS measure than that provided in international standards if proved necessary by scientific investigation. The EC had banned the use of six growth hormones in Europe in food exported from those countries under the rationale that the hormones might be carcinogenic. The Appellate Body reached the conclusion that the EC did not adduce sufficient scientific evidence to show that the EC prohibition on hormone treated beef was based on a proper scientific risk assessment as determined in the Codex Alimentarius (Walker, 1998:, Sykes, 2002). The Codex Alimentarius (the embodied WTO-SPS laid down by the World Food Organisation (FAO)) indicated that there was no sign of risk with respect to hormone treated beef as long as the residue of hormones in the beef remained below the level stipulated in the Codex. Almost 10 years later, the Appellate Body ruled against the EC (in 1998) giving it fifteen months for its law to conform to the SPS rules to allow beef imports of those countries. In mid-1999, the United States and Canada imposed trade retaliation against the European Union (EU) for failing to lift the ban against meat produced using growth hormones. EU officials refused to lift the ban on the grounds that 'consumers do not want to eat meat produced with hormones because it may be

unsafe' (Charnovitz, 2000:6-12) and because the EU would have had to pay more than $125 million to the US and Canada[100].

6.2.2 Filtering the Hormones Case through Discursive Framing Devices.

The Hormones Case has been widely analysed. In particular the study of the disciplines of the SPS has tried to observe the lacunas of the EC countries in terms of argumentation of evidence in the case (Pauwelyn, 1999:244-247, Charnovitz, 2000:6-12, James, 2000). Many have cited Dr. George Lucier's testimony, which based on his scientific opinion, claims a one-in-a-million risk correlation between beef meat fed with hormones and breast cancer as a 'lack of soundness' for such evidence (Walker, 1998:, Stokes, 2006:64-67, Charnovitz, 2000:7).

Assessed through the semiotic perspective explored throughout this thesis, the risk assessment provided by the EU communities and rejected by the Dispute Settlement Body was framed too general to assert the potential *concrete* risks of eating hormone-fed animals (in the laboratory as in real life) that the 'Panel' was expecting. Indeed, the degree of concreteness or the exact definitions of the type of correlations used during scientific experiments to provide evidence of an 'ascertainable' risk, were in fact, ambiguously defined in terms of the meaning of its 'actual potential':

> 'Not only risk ascertainable in a science laboratory operating under strictly controlled conditions, but also risk in human societies as they actually exist, in other words, the actual potential for adverse effects on human health in the real world where people live and work and die'[101].

Clearly, the core argument against supporting an anthropocentric risk of feeding an animal with anabolics was not the moral, ethical or animal welfare *general* principle **(Gral)**,[102] , but the lack of a framed degree of actual *concreteness* **(Cr)** (of the risk). The rejection of this general scale of

[100] Proceedings under Art.22 of the DSU (remedies)
http://www.wto.org/english/tratop_e/dispu_e/cases_e/ds26_e.htm

[101] European Communities – Measures Concerning Meat and Meat products (Hormones) WT/DS26/AB/R, WT/DS48, adopted 13 February 1998 at para 187.

[102] As observed in the last chapter, the framing scale of categorization of socio-semantic knowledge along this thesis is based on the generalization (Gral), the distillation (Dll) and the concretization (Cr) whether it is through text or other secondary data as in this case (documents and reports).

representation of knowledge in the argumentation was supported by another rejection to adhere to the precautionary principle as an argument presented by the EC. The precautionary principle positioned in a *midway scale* of representation of knowledge between deduction and induction[103], in fact was not taken into consideration as an additional choice of criteria. A public health risk was in fact not seen as a 'potential' problem, which would have activated a framing of hypothetic *correlations* or distillations (DII), such as the possible toxin or contaminant character of hormones[104]. What was left, was the criteria of the absence of an 'actual' *concrete* risk. Such a framing would have been comparable, for instance, to the similar problem with antibiotic growth enhancers in poultry products with ´potential´ transference of antibiotic resistance to humans banned by FAO in 1990. The EU lost the case because it failed to present studies framed in the scale of *inductive cause-effect* concreteness **(Cr)**, despite the fact that a reference to a 'classified' nomenclature of concreteness was not to be found anywhere in the SPS rules (Stokes, 2006:65). Such a nomenclature would have reduced the ambiguities around a (general vs. concrete, potential vs. actual) framing of hypothetically *distilled correlations* **(DII)** or models of possible adverse effects on human health in the real world[105]**.** In the absence of these, the Panel decided to also ignore other qualitative and generic quantitative risk analyses and instead foregrounded the *absence of the concrete* and (f)actual character of EU quantitative ones only. The Panel decided that it was easier to categorize the framed evidence presented by the EU as a general hypothesis or distilled correlation. Interestingly and according to the mainstream framing scale consistency, in the view of the Dispute Settlement Body, such distillations belonged not to the risk assessments of the product, but to the level of 'risk management' in the implementation of 'good practices' regarding growth enhancers and therefore generic enough and far from the SPS (concrete scale of) regulations of food safety. In other words, absence of a *concrete* nomenclature to classify the quality or uncertainty was validated as evidence of absence (Baum, 2003:, Altman and Bland, 1995), and more specifically, as absence of validity of (non mainstream), principle based-science.

[103] See Smith (2000) in his comprehensive collection of studies, comparisons and applications (i.e. children's environmental health risk, GMOS, endosulfan, etc) of the precautionary principle. In these, the ´precautionary principle approach is a logical extension of the commonsense concept that guides daily life´ (2000:262). It relies on scientific assumptions that "go beyond risk and causality and considering the magnitude of potential harm that one can generally avoid instead of the maximum risk that one can tolerate implied in risk assessments" (p.267). This *midway* scale of representation is also assumed in the shared ontological values between precaution and sustainability, see McKinney and Hill (2000).

[104] Ibid at para 182.

[105] Again, it raised the question of the definition of ´potential or hypothetical modelling´ nature of the correlations or distillations that form the basis of the precautionary principle to identify and account for risks, as well as the differences with principle-science based framing. As set out by Culver (2004) nomenclatures are the basis for a corrective justice facing high levels of uncertainty in the case of genetically modified animal (salmon) farming. Explorations around the possible issues at stake in the definitions of such scales of nomenclatures were not included given that the Panel considered the degree of uncertainty of relevance, despite a growing agenda of ´potential´ risks in animal food trade.

Clearly, the underlying positioning of the discourse took a narrow framing approach based on the absence of existent inductive evidence as well as on two other procedural reasons consistent with the mainstream framing scale in the formulation of the case. First, there was a failure to include an *amicus brief* that would have included public opinion in favour of less narrow quantitative framings, and rather based on principles of the "actual potential for adverse effects on human health in the real world where people live, work and die"[106] – in the same case as the antibiotic ´actual potential´ based ban. Second, there was a lack of acceptability of the precautionary principle, whose inclusion would have also widen up the scales of framing in terms of the complementarity of qualitative *and* quantitative assessments, as well as other correlations in the issue. These could have amplified the discussion beyond the frames of risk management in a production process into those of public health, more in tune with WTO-SPS related regulations. It is thus no surprise that this case raised important interpretative questions of the standards of review applied by the DSB in evaluating scientific adequacy and sufficiency of evidence and risk assessments (Gruszczynski, 2006:158). This aspect has been also pointed out as the lack of consideration of epistemological issues related to the uses of science (Jasanoff, 2003)[107]. From a framing perspective of the semiotic scale of representation of knowledge, these questions also highlight the relevance of rendering explicit the *choices* behind the cause-effect mechanisms used to frame issues of public safety, as well as the need for more explicit systematic treatments – of the rather ontological problem – of the type of nomenclatures required and the classification of scientific evidence missing.

To summarize, two important lessons emerged that are pertinent for the encoded signal in terms of 'validity' or 'normality' of the types of regulatory solutions entailed. The first was the fact that the Dispute Settlement Body appeared to be conceptually open because there was no *a priori* agreement about the interpretations of rules regarding risk assessment. However, it actually limited the scientific interventions to narrow considerations. The connotation of the validity of the arguments adjudged a 'normality' in the resolution of the case attached a 'high' and 'low' status (Valverde, 2003:2-3). By not accepting framings other than the requirements of an *inductive cause-effect* representation of scientific knowledge, a 'high status' of knowledge was adopted exclusive to this. The arguments presented thus discriminated risk preferences through the 'absence of non mainstream validity' other than that within the realm of the 'concreteness' of quantitative risk assessment. This was also confirmed by the fact that less concrete, more general 'good practices of risk management', 'consumer preferences', as well as more generic principle or rule based

[106] Op cit. n. 5.
[107] The epistemological problem is seen by Perez rather as a disciplinary question in which law and politics have been understated in comparison to the use of science and economics

knowledge, were not considered sufficient argument, adjudging them 'low status' knowledge[108]. In this sense, they built the ´normative closure´ ascribed to the prescription of the rule (Lange, 2006)

The second was that the agentic perspective implied in the arguments' content as well as in the applied setting of standards appeared more elusive in relation to the degree of ascribed autonomy capacities. In this respect, the visibility of capacities of States or their vulnerabilities are mainly neutrally mentioned and rarely objectivized in disputes and recommended resolutions. It is rather through other international mechanisms that such gaps in the governance capacities especially for developing countries appear addressed (i.e. Technical Assistance).

Overall, the reconstruction of the dispute of the Hormones Case helps understand the elements that constitute the international pressures in food and farming regulation from a discursive framing perspective. From the sole perspective of the international trade dispute mechanism the case helps to understand why for advocates of developing countries' interests the DSB appears to maintain an important role to build legitimate expectations of safe traded commodities towards a ´race to the top´ or to the ´bottom´. The resolution in fact sends the message that any regulatory choices in terms of standards of public health that are higher than the Codex will be restricted in future disputes, reducing subsequently the choices to accommodate the diversity of social and legal compliances. From this perspective, this would confirm the thesis of the ´normative closure´ ascribed to the setting and prescription of the rule (Lange, 2006) and the fears held by advocates of the public health concerns mentioned above, that the WTO rules and free trade ethos inhibits the development of food safety governance. In the future, the extent to which the DSB is perceived to be used to shield domestic industries from foreign competition, representing unjustifiable discrimination will remain important in framing the nature of this DSB-developing country dichotomic narrative. In particular, it is with respect to national public health rules, that the dispute settlement process comes into play and where there is potential for WTO rules to be perceived as limiting national regulatory choices and autonomy. At the sub-national level, as it will be observed in the next section, the implicit requirements for the reception of global standards, the type of institutional distance or the degree of semiotic dissonance of discourses can play an important role in the legitimate success (or failure) of a regulatory implementation, affecting in turn perceptions of regulatory choice. That is a task that needs to be assessed empirically in more detail, in order to eventually distinguish forms to integrate international 'pressures' whilst facilitating styles of protection of animal or human health that respond to the appropriateness of actions, and the risk and normative preferences of the sector.

[108] See also Appendix of key quotations of the dispute reports in discourse analysis, corroborating this Problem Solver mainstream position.

6.3 Comparing and recontextualizing framings of social and formal compliance

6.3.1 The Subnational response in the space of co-existing Nature (N) concerns

According to the signals sent by the Dispute Settlement Body examined, the Indian National States would be discouraged from engaging in policies of Food Safety beyond the Codex Alimentarius in the poultry industry sector. This would mean that any potential harm such as the presence of antibiotics and mycotoxins would have to align with the strict minimum levels scientifically proven by the Codex that define public health and safety. Under the normative closure observed, measures to protect public health, other than inductive-quantitative ones, will be considered ambiguous and would have to demonstrate that any distortive trade effects are proportionate to the public health benefits (ibid:102).

Such purely quantitative expectations have not been met in the development of Food Safety regulations in India. There, international standards, guidelines, and recommendations since 2006 have incrementally been put together with the intention of guiding domestic as well as international trade. Since 2005, the Directorate General of Health Services in the Ministry of Health and Family Welfare has made proposals to integrate Codex standards into national food laws. Food laws explicitly contain most provisions created on Codex premises in the quantitative aspects, for example, parameters for pesticide residues, antibiotic residues, heavy metals, aflatoxin, pathogens, and other contaminants (Sareen, 2003). Food law sets down the duties to comply with toxicity, pesticides or antibiotics levels for the type of food sector and differentiates among the size of business. In addition, for both domestic and export trade, an important number of recommendations of risk assessment practices, critical points hazards systems, as well as an important display of laboratories and veterinary manpower across India have been set down in recent years to support the private sector (ibid:2).

In addition to the metrics, food laws are converging in the emphasis they are making in the display of institutions for food *quality*. In fact, several different existent laws at the state level for the food sector were submerged to give it a more national character[109], including the recognition of local

[109] The national food safety law replaces the moving from multi-level, multi-departmental control to a single line of command. It incorporates the salient provisions of the Prevention of Food Adulteration Act 1954 and is based on international legislations, instrumentalities and Codex Alimentarius Commission (Codex). (GOI, 2006)

certifications and in some cases organic labelling[110]. Another salient aspect is that in contrast to many trading countries where certifications are followed mainly voluntarily by private actors, in India it has become a public mandatory norm to comply with those of the import country if products want to be exported[111]. In other words, rather than a purely anthropocentric response towards the minimum levels of measurable risks, the State has been more interventionist promoting above-Codex standards, in line with an Environmental Problem Solver discourse. The national export-oriented institutions of the Government of India, such as the Export Inspection Council (EIC) has responded with what can be said a higher than required response, including in some cases organic standards. In sum, this incorporated regulatory definitions and training provisions higher than those of minimum sanitary and animal health standards recommendations.

In comparing the framings in the animal farming sector analysed in previous chapters, the nature of discordance and of similarities between the international and the subnational arenas of animal food sector appear more clearly. In fact, it becomes evident through the framing techniques how actors choose the discursive distance (and approximation) among the *scales* of representation of knowledge concerns.

There exist in the Indian national and international -DBS norm making practices similarities on the scale of the representation of knowledge that were also found as determinants in regulatory resonance (see Figure 6.1). The national safety laws and norms promoted by the Export Inspection Council **(ECC3n) (in purple)**, for instance, are, as mentioned, positioned higher than the WTO-Codex standards minimum recommendations. They are in several fronts supported by a perspective that 'because Codex standards are increasingly used as a benchmark for global trade, India has increased its participation in several Codex committees to ensure that domestic conditions are reflected in the development of international safety standards, thereby facilitating acceptance of Indian products in global markets' (ibid:2).

[110] Interview with Senior Officer of the EIC.

[111] Several reasons can explain this positioning of the Ministry of Commerce all together. A more mature understanding of the role of environmental standards with its main trading partners, such as the EU or the US; a response to the Trade Assistance Program of the EU (the Trade and Investment Development Program – TIDP) that included some efforts to integrate higher food safety standards, such as organic standards through the Agricultural and Processed Food Exports Development Authority (APEDA); or as a response of the recognition of the role of higher standards in the probabilities of success of trade disputes. Furthermore, the accreditation of such certifications such as organic or local certifications, were promoted by the Ministry of Commerce at the national level in an attempt to unify the high variance of local state food laws and requirements into one central accreditation center for those interested in the export market. Despite the important benefits of this idea, it also led to criticisms as the ones observed in this section as well as of lack of transparence and corporativism of accreditations or licenses to the powerful agro-industrial interests - Interview with Senior officer of the EIC-TIP.

Given the scarcity of data actually conducted in developing countries and the relevance of it to frame Codex standards India has proposed in the last years that risk assessment studies be conducted in these countries (Wu, 2004:275) in order to increase their knowledge in international trade matters at Codex meetings. Within India, risk analysis and the setting of national standards are supported by the little data generated at several research institutes (Gupta and Fletcher, 2001). The strategy has been to train more officers in the 'techniques' of international risk analysis (Sareen, 2003:2). In this respect, it can be said that 'high status' knowledge concerned with the requirement of measurable risk assessments is exceeding the expectations of ´automatic´ absorption capacities by countries implied in resolutions concerns of DSB discursive arenas **(C&Cn+s) (in pink)**. In the Indian case, sectoral framed norms of food safety and animal health have placed themselves beyond the discursive positioning of the more traditionally Problem Solver approach from the Green Revolution (GR) that revealed less concern for sanitary and farming health problems (see chapter two). In the case of food safety, the Ministry of Commerce **(ECC3n)(in purple)** programs are promoting the forementioned training capacities for the improvement in the setting of standards of risk assessment as well as in accreditation processes for instance for organic food. In the case of the sub-national public officer counterpart (Veterinary Institute) **(ECC2n+s)(in red)**, this approach beyond but still close to the traditional GR exists. Regarding animal health managements, the framing in this areas constituted by a top-down tradition of measurable quantitative sophistication in line with the GR based on a heritage of veterinary scientists but with enhanced preset concepts of agricultural farming development. For these reasons, it can be argued that both the Ministry of Agriculture and of Commerce informants' discursive practices converge in the scale of their relatively higher than (but still close to) Codex aspirations for food and agro-environmental concerns, both in line with an Environmental Command and Control regulatory mechanism (ECC) (see Figure 6.1).

In the task of contrasting and comparing the sub-national public and sectoral norm-making practices together, clearly, framings of the scale of concern of intensive farmers of the contract farming model of what it has been called the Best Available Solution[112] **(BAS2n, BAS3n) (in green)**, the combination of correlations without cause effect but not quite clearly generalizations in terms of discursive framing do not resonate with traditional farmers principles more in line with aspects of low carbon emissions **(CE1) (in green)**[113] nor with the national food safety laws promoted by the Ministry of Commerce Environmental Command and Control **(ECC3) (in purple)**, nor with the animal health standards followed by the Ministry of Agriculture also Environmental Command and Control **(ECC2) (in red)**. In fact, the superposition with international legal signals such as the case of the

[112]For Best Availabe Solution instrument explanation, see page 137.
[113]For Carbon Emission instrument explanation, see page 136.

Hormones resolutions reminds how discursively they are far from the social and voluntary norm-making practices

Regarding social and voluntary pressures and norm-making in the sector as observed in last chapter, first, the traditional farmer **(CE1n+s) (in green)**, frame animal health problems originated in sentient beings in line with a compliance mechanism of a 'low carbon-emissors' in an abstract and holistic scale**;** second, intensive farmers frame their nature concern as a general risk of disease which can be controlled through a popular homeopathic approach in line with their best available technique **(BAS2n, BAS3n) (in green)**; third, animal health companies **(M1n+s, M2n+s) (in blue)** frame their scale of concerns at the level of the animals' organs through management standards of their nutrition efficiency; and fourth, processors have equally measurable expectations of substances **(M1n, M2n, M3n) (in brown),** through management standards of animal weight efficiency such as the performance metrics of animals' immune and metabolic data.

This Environmental Problem Solver discourse of organization of knowledge **(ECC3n) (in purple)** appears to find resonance with the similar Environmental Problem Solver positioning of state animal health institutions, at least in the framing of knowledge concern **(ECC2n+s) (in red)** as seen in Figure 6.1. This explains why food safety laws appeared to find a consensus in the *definitions* of food safety concerns given that both scales of polities base their framing of knowledge higher than the purely measurable science-based mechanisms of Problem Solvers however still far from the ecocentric principles of radical change of Survivalists. However for the particular case of poultry farming, the distance within the scales of frames between the different public sector ideas, and those of the processors and intensive farmers suggest important discursive divergencies.

In other words, animal food disputes such as the DSB Hormones case, through anthropocentric Command and control mechanisms **(C&C) (in pink)** set indeed an international legal baseline in terms of minimum requirements. As a 'high status' international agreement, it transferred element of knowledge but it was not the only form that incentivized higher than SPS standards in the subnational food safety laws in terms of *knowledge concern*. In the subnational, day-to-day discursive practice of interviews on the other side, animal feeding efficiency and weight concerns of processors **(M1n, M2n, M3n)(in brown)** appeared to have a more prominent influence over the levels of animal health and food safety in line with the anthropocentric knowledge concern of contract farming. Between the export oriented public sector and the processor companies of the private sector thus, a clear disconnection between animal food production values and the efforts of the regulatory framings of national food safety was found.

For the imagined compliance at the international level to take off subnationally (see Figure 6.1), risk assessment for food safety requires to 'naturally' resonate with already existing scales of inductive concreteness (or animal science based studies) intrinsic to Problem Solvers. However in the present contract farming model (the one closer in economic and organisational capacities to enter in the international market through the WTO) this assumption is not yet close from reality.

Discursive framing analysis also expose the complexity behind apparent the binary story of 'high status' frame against the rest 'low status' concerns as often the academic literature regarding the global-local divide conveys. As the discursive frames reveal, even in the animal farming production site, concerns of AHFS are not homogeneous –in this case in the processors and their small intensive farmers who provide the 'farming services' in the contract farming model. Small intensive farmers do reveal a discursive knowledge consistency in projecting higher than minimum food safety and animal health standards which positively 'resist' animal farming values of processors. Despite the fact of not being communicated, nor being always actively conscious, their homeopathic approaches to disease prevention are consistently present as part of their tacit decision-making repertoire. In a way, 'small intensive farmers' reflect 'greener' concerns than the processors, but less green than traditional farmers. For traditional (non intensive) farmers, their model of production is ecocentrically superior to the sole nutrition and animal health efficiency for protein growth -the farming parameters of processors. Traditional farmers also have a conscious aversion to antibiotics and growing weight enhancers. Whether or not this 'low status' AHFS concerns constitutes an essential element in the segmentation strategy of the Indian farming market internationally is another question. But certainly their fine diversities can represent an opportunity in terms of regulatory diversity of trade agreements at the level of design. It is unlikely that the influence to promote those higher animal health standards, such as providing homeopathic care will be translated in internationally binding mechanisms in the near future but rather a growing opportunity of partners with similar 'greener' expectations through voluntary regulations[114]. Recognising rather than dismissing such fine varieties can bring important steps in understanding how fit Indian farming systems are and how legitimacy of sanitary standards may complement or not in this direction.

To summarize, this section has identified and compared the claims of validity of different regulatory stakeholders at the subnational, national and international level of food safety and animal health (AHFS) concerns. It becomes clear that at the national level of policy-regulation, designs of concepts and concerns of AHFS seek to converge towards international 'high status' of

[114] Directive 2004/24/EC of the European Parliament and the Council, OJEU L136/85, 30.4.2004.. Resolution of the EU to ban a variety of homeopathic labellings from the market.

quantitative knowledge. This choice confirms the resonance at the Indian exports council in the belief of a higher status of 'quantitative truths' over qualitative ones and the signals of the binding mechanisms of the DSB representing a 'legal' baseline. However, these baselines are not limiting regulatory choices towards higher standards than the Codex, as some studies point out (Perez). Initiatives to pursue higher than Codex AHFS certainly are not coming from a provision in the SPS Agreement pointing new members towards authoritative knowledge to achieve more sustainable agri-food models or sustainable trade from where they stand. Quality food certifications, organic or ethical labelling, as well as investments in veterinary manpower and laboratories (to help develop animal health or disease control programs) are until now, the by product of either knowledge transfer agendas parallel to strategic trade agreements among nations or the policy-regulatory agenda of inclusive trade of States. In this regard, there exists an important gap in international assistance in traditional poultry food production, as this has not been explored as of strategic interest for international trade. It is this lack of knowledge skills where the framing of international trade contributes to the illegitimacy of the Indian international insertion of agricultural trade. In other words, poultry products safety standards or poultry veterinary services have not so far been involved in international assistance. Despite WTO first aim is clearly not the design of mechanisms of sustainable trade but the facilitation of efficient market access to international trade, the inclusion of these questions continue to resurface in trade negotiations, which they are addressed in a voluntary basis or through national capacities. The recognition of these knowledge gaps thus remain important in the legitimacy of a platform like the WTO to facilitate fair trade negotiations which parallel to trade specialization, often go further minimum efficiency levels. For these reasons, the 'uncovering' and resurfacing of 'low status knowledge' may recognize untapped potentials of convergent framing strategies to influence safer or healthier quality production whilst facilitating efficient trade[115].

6.3.2 Comparing regulatory framings: the subnational response in the space of co-existent agentic (A) autonomy

The particular characteristic of food safety law provision in India has emerged as the interventionist approach of a developing country in an effort by some of the ministries to unify highly decentralized laws, including public health interests and interestingly, increased export

[115] The case of sustainable fisheries within the EU-India Trade Assistance Framework is a case in point where national and international assistance capacities are promoting ideal working conditions and respect for the ecosystem labells among other regulations of the process of products mainly.

controls. In fact, for India as an active WTO member that often engages in trade disputes (as complainant country or panel member), import controls are recognized as imposed by protectionist countries or as part of the rules of the trade game. As a response to those sectors intending to export, the National State introduced *mandatory* certifications to facilitate a more conducive export-led environment. Inspection and certification in India appear to rely on a regulatory basis in the form of the Export (Quality Control and Inspection) Act of 1963. Again, this interventionist style has been promoted more specifically by the Export *Inspection* Council (EIC) which has been the gatekeeper of the national-international trade arena. The EIC was set up under this act to accompany important public investments in infrastructure for testing and certifying products to increase international market access. However this interventionist approach to rule-making contrasts with the capacity of implementing the National Food Safety Law and making recipients comply.

In fact, even if the idea of the emergence of a national food law is an accomplishment in a highly decentralized country, the law has encountered strong and visible resistances to transforming the local realities of the safety of the final product. As the associations of animal health and feed companies (the CFLMA) in a discursive Promethean tone have put it:

> 'Productivity improvements for maximizing output from farm animals and utilizing farm and agro-industrial residues are inevitable to Indian farmers. Feed supplements must therefore be considered by State Government authorities as an essential farm input, and not as an unnecessary luxury for the purpose of sales tax / or any other state legislation (…)State Governments should promote animal husbandry in their respective States by extending the same concession/ exemption to Feed Supplements also, as they have been doing or expected to do to animal feed, in the matter of all State levies; also in view that all these levies ultimately get reflected in the price of end-product i.e. nutritionally balanced animal feed, thereby pushing up the feed cost to farmers, and with chain reaction on prices of food products like milk, egg and meat; thus defeating the purpose of animal husbandry'[116].

Resistance has also been noted in the general agricultural sector. For instance, a well known activist, Vandana Shiva has posited in a more general Survivalist tone:

> 'In England where local economies have been destroyed, pseudo safety laws prevent little old ladies from selling their homemade cakes in churches for charity. In India such laws would criminalise millions of poor people. There is only one system for food safety – locally produced, freshly processed food – of which we have abundance in India (…). Pseudo hygiene and food safety laws that are designed for the disease producing industrial, long distance

[116] CLFMA All-India representative of manufacturers of nutritionally balanced and scientifically compounded feed supplements in a statement on the national new legal requirements.

> convoluted system of getting food from farms to tables will not produce safety. (…) We need laws to protect our diverse local food cultures from the disease causing homogenous, centralized industrial food culture of the west. Our biodiversity and cultural diversity of food have built robust localized food economies. Our skilled and knowledgeable food processes are the future of food. We cannot allow a law manipulated by global food giants, promoted by power hungry bureaucrats to take away our food freedom and food sovereignty. (…) Let the government regulate agribusiness (…) we will regulate ourselves as community and civil society. We will not be ruled through the law for food fascism. We will shape laws for our food freedom. This is our food sovereignty. This is our Anna Swaraj'[117].

Trying to put more stringent standards in animal food production thus appears to be a highly political task. It could also be argued that it has been linked to the trade learning curve of Indian WTO-Membership, which may have influenced the divisions between the Ministry of Commerce and the Ministry of Agriculture[118]. As experts of the WTO consultative processes have pointed out, agriculture in general is considered a state subject, and, therefore, all agreements and legislation are within the exclusive domain of state governments and the Ministry of Agriculture (Priyadarshi, 2009).

In other words, how well (or badly) the government has been able -in spite of strong divisionism among Agricultural **(CE1)** and **(ECC2)(in red)** and Commerce **(GOIs)(in purple)** Ministries, and against all subnational expectations-, to impose National Safety Laws also emerges as a question of framing strategies. In an attempt to turn the law into action for the highly concentrated and economically dominant poultry contract processors in India, in 2006 the Government of India decided to put a ban on the use of antibiotics in poultry for human consumption, framing the issue as a (sudden) 'necessity', in order to tackle the emergence of antibiotic resistance in the humans who eat them. In framing this issue as one of 'public health' [119] instead of 'import rejections' of agricultural and food products at the border customs (Jaffee and Henson, 2004), this construction showed the *Survivalist* framing capacities of the State, as the need of radical action according to an abstract logical principle **(GOIs)(in Purple)**.

As a discursive strategy, the framing of public health resonates with other domestic fear associations related to agricultural commodities for the Indian population. Interestingly, in order to make food laws work for exports, framings for the implementation of food laws 'had to adapt' to

[117] From http://www.countercurrents.org/gl-shiva220205.htm, downloaded October 2010
[118] Senior Public Interviewee, Export Inspection Council, may 2009.
[119] At national newspapers and reprinted in local newspapers: http://www.zootecnicainternational.com/news/news/1125-india-to-regulate-poultry-antibiotics-use.html, downloaded May 2011.

those domestic interests, and also discourses of 'food security' and sovereignty –which are intrinsically *Survivalist*. In this regard, this confirms one of the conclusions in Chapter Two that even though the foundational problems that gave birth to the post-colonial food crises that brought the country to starvation thresholds, and to the rapid implementation of the Green Revolution, are no longer there, the 'food security' agenda continues to be used discursively and semiotically to urge public opinion into action in Indian agricultural policy against a common feared enemy (Randeria, 2003:, Rosset et al., 2000).

Comparing the international baseline with the subnational expectations to comply to stakeholders in the poultry food sector, presented in Figure 6.1, some high and low resonance discourses emerge. Regarding the autonomy to implement the outcome of an international food safety rule, enforcement capacities and access to resources were not a part of the content of the Hormones trade dispute. However, it is clear that as part of the agentic autonomy of the discourse, in order to implement those safety rules a set of State hierarchical (rather than Private, voluntary or non-binding regulations) are expected to be available and used in the implementation of the rule. These *Problem Solver* competences are required **(WTO-SPS) (in pink)** among Member countries, and a taken for granted assumption in this that developing countries will resort to technical and scientific standards, as well as hierarchical formal enforcement resources. These invisible interactions intrinsic to problem solvers rules in the Hormones case are familiar to those of Poultry Processors **(C&C1s, C&C2, C&C3) (in brown),** and contrast with the distance between the export-oriented Ministry **(GOIs)(in purple)** and the state Agricultural Ministry **(CE1)(in red)**. They also explain the room for maneuver of the actors through regulatory extremes between pure interventionism and pure self-regulation.

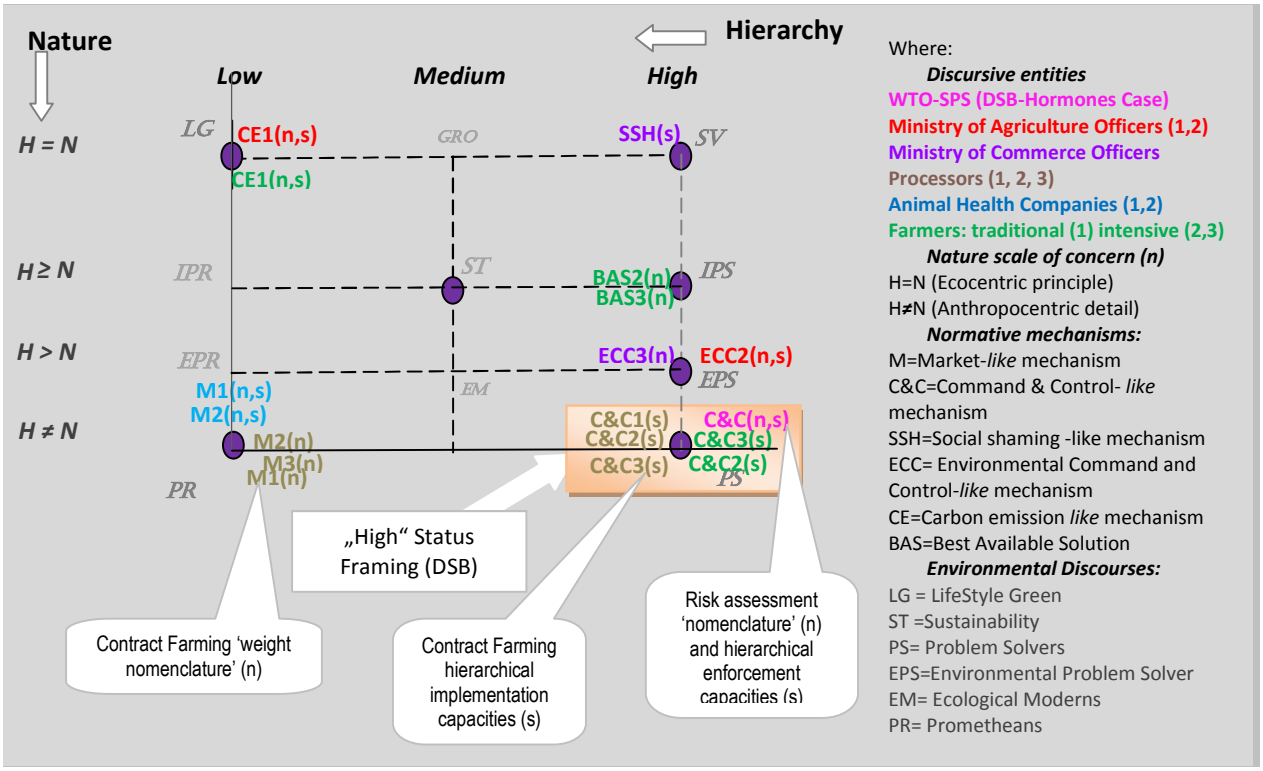
In India, the strong decentralization and competitive populism operating at the state level continues to be one of the main causes of the distance between the 'content' or 'theory' in the design of policies and their actual implementation. In the case of the countries involved, Trade Related Assistance has been used to respond to some of these needs. These mechanisms have, to a certain extent, been effective in improving trade distortions regarding the implementation of food safety capacities (Hoekman and Prowse, 2005:15) but they still remain marginal[120].

One can observe the semiotic distance or lack of resonance between such positions and the 'high' status of the Hormones case framing and in fact any other framing is equally observable. Again, this confirms that a full implementation of the food safety law depends on how far other

[120] For instance as Wu and Thomas (2008) and OECD and WTO (2007), OECD and WTO (2009)reports observe the amount of Trade Related Assistance to Developing Countries has increased by more than 60% in the last few years.

actors can come close to each others' definition and to their semiotic ownership – as has been above illustrated, this is still not the situation given the 'resistance' of other sectors toward the food safety discourse.

Figure 6.1: Normative Mechanisms of Animal Health and Food Safety: Discursive Coordinates



Furthermore, there are growing tensions in the mutual agreement of contract farming between processors **(C&C1s, C&C2, C&C3) (in brown)** and farmers, those of an implicit agreement of high levels of expected control of processors over farmers to ensure minimum payment according to rearing instructions and farmers' strategies of animal weight and disease. In this situation, it is possible that the 'high' status signals of international trade law will eventually exacerbate those growing tensions even more. As the WTO consultative process suggests, the reception of the **(WTO-SPS) (in pink)** by the general population in India has not been favorable thus far. It is rather perceived as pushing a top-down agenda for global economic reform, where agriculture negotiations are a part of this WTO-led reform agenda (Priyadarshi, 2009). For the contract farming model, this means that by resonating with the agentic autonomy of Poultry Processors, international trade actually reinforce the hierarchical status quo of existent social relations with an important potential to exacerbate their tensions in contract farming (see Figure 6.1). In addition, by supporting the

concreteness sophisticated frame in terms of animal health management, farmers appear to equally reinforce farmers' alienation and contribute to their chronic 'need for knowledge' and disempowerment –as is discussed in greater detail in the last chapter.

Therefore, when comparing food safety and animal health in relation to the finished product, it becomes also clear here that the regulatory choices are not reduced by the baseline in the international legal trade sphere. So why did India decide to call for higher standards than the Codex? It appears that the true roots of the framing of the food safety strategies of the Ministry of Commerce are to be found in the nature of the progressive insertion of agri-food products in international trade and the momentum of Indian international issues more generally. However as the findings in this section show, clearly, measures have not been implemented, nor have found resonance among the views of the key actors interviewed. In a context of great divisionism, it appears easier to formally define those areas of insertion at first. This section has identified the discursive framings and the impact of the semiotic distance in both the 'theoretical' definition *and* 'practical' implementation of food safety standards and animal health.

This section proves the value using discursive framings as indicators of the regulatory changes in food safety and animal health. In poultry farming, given the high opposition of the different sectors it is likely that resources for implementation of food safety and animal health measures will not be provided by the legal formal mechanisms of international trade. A discursive divisionism could find a middle ground through the closest discursive options. This includes the discourse of Bioregionalism, able to mediate between the sole market and interventionist state - that requires however stronger interactive capacities among regions or communities or through the Indian Problem Solving of the best available top-down techniques. In addition to the internally politically driven changes –such as a genuine national interest in public health, externally perhaps, packages that allow for the development of autonomy capacities will make progress in this respect. The latter already includes the semiotic resonance of the Trade Related Assistance (TRA) for developing countries (i.e such as the EU-TRA (Hoekman and Prowse, 2005)). Such strategies however have been critized since encompassing mainly commodity sectors of benefit for developed country trade partners. One can only speculate here as to why the conditions for discursive consistency have not been fulfilled. Even though the national State (Government of India –GOI) has capacity to implement the law, it has encountered lack of resonance by other Ministries to implement it in the sectors. Framing analysis here, however, helped us to understand the nature of this 'apparent' institutional void (Hajer, 1997) of implementation which is the difference between the claims and margins of manoeuvre in the sector. It remains difficult for authorities in the sector to impose a ban on antibiotic supplements when powerful command and control-like mechanisms can be effectively

implemented by the poultry industries according to their close purposes. Given the increasing concentration of food producers in India, with some processors becoming the first producers in the world of egg and poultry meat, it is expected that a certain amount of time will pass until these agro-industries will not be providing antibiotic growth promoters in the Indian poultry industry, however encouraged by the international trade legal baselines.

6.4 Conclusions

This chapter has discussed the contrasting notions of what constitutes broaden regulatory practice (regulation and compliance) among stakeholders with safety and animal health farming standards in what is imagined as an (in)appropriate discipline of change. Through secondary data, it was possible to identify the spatial discursive demarcations of regulatory resolutions as well as of subnational preferences for animal farming compliance. Understandings of animal food problems *can* be positioned and compared through different framing configurations. These configurations respond to the diversity of rules hidden in the context. They provide a pertinent look at regulatory dilemmas, their closest spaces of manoeuvre and legitimate claims of choices towards resilient animal farming systems. The spheres of formal and non formal agro-environmental contracts, whether private, voluntary or local, can equally conflate, or be contradictory. This depends first on the relative positionings of disciplinary environmental values and second on how they embed these identities in contextual narratives. These regulatory practices and their internal codes (core assumptions) have been integrated in a single platform of environmental discourses for their mutual discernment.

The demonization of the WTO-SPS and the multinational enterprises community as a cartel against vulnerable small farmers and food security problems is clearly too simplistic as a binary story, or as Young argues it, 'can favour a self-fulfilling prophecy' (2005:3). This thesis argues that the apparent unity of action, much sought after through international harmonization often seems to conjoin in highly misleading problemizations of agri-food regulations. In fact, they can contribute to increase the 'noise' of regulatory environments and regulatory communication, which in turn facilitate the conditions (even without clear intent to) for regulatory capture or stagnation of pro-safety and more resilient standards. Such polarization favours in fact, the rapidly polluting industries in the South willing to hide behind the 'impossibility to meet' environmental standards, much proclaimed by NGOs in the North.

Another ‘apparent' dichotomy found in this chapter was depicted in terms of high status of international recommendations and low status of consumer preferences often found in academic and NGO literature. However, as observed in this case, what is called high status in one discursive space can be actually ignored in other. There is in fact a considerable distance between the actors’ core premises of empowering ideas (knowledge concern) and empowering motion (agency). In this regard, there is enough distance between social and legal regulation, which makes them appear largely different. This has been observed here in terms of the risk preferences of consumers and producers which are not homogeneous; therefore an integration of public opinion of citizen and consumer groups in the WTO-SPS is no guarantee that harmonization attempts will become easier, nor that they will be effectively ‘benchmarking’ safety or environmental standards in an automatic race to the top in sub-national or international trade. Thus, it becomes important to distinguish how actors discursively position themselves not only among actors but also among topics. That actors imagine their agentic autonomy capacities as well as their levels of knowledge concern in ways that can match already existing discourses or be close to those discourses is a task that has brought more discernment to the regulatory process. However, seeking for more discursive consistency also implies that what is conceived as knowledge should also be perceived as applied agentic capacities, in order for a discourse to remain stable.

Regarding the regulatory choices in this case study, it is, thus, not that the promotion of more ecocentric normative concerns has been restricted by the resolutions of the Dispute Settlement Body, but rather that the discursive space to implement them is empty. This discursive void increases the attention toward certain mechanisms (i.e. risk assessment of the Codex in the DBS). To fulfil this space it is important to render explicit the ontological space of choices not taken over those taken. This involves frames of scientific inductive (cause-effect) argumentation to be more systematically applied and explicitly disclosed so the treatment of evidence (i.e. levels of toxicity, safety, etc) is found at the level of finished products or at the level of uses of resource production. This would not only make the evidencing process more transparent, fair and balanced but can eventually elevate the scale of treatment of data towards a more general plane rather than specific, closer to its next discursive choice in the vicinity of the precautionary principle and closer to the framing territory of *Sustainability Discourse*.

A new aspect in the findings has been the positioning of the local regulatory practices in relation to western discourses. One recurrent discursive framing encountered is what has been named here as the Indian problem solver, given the lack of denomination from Dryzek’s classification. The Indian problem solver in fact do not provide specific evidence but is guided on a

sense of correlational pragmatic principles, which are never too cause-effect with a sense of a determined authority that guides that process. In this respect, it can be said that it is not different from the features of a western policy-regulatory framing of the "Best Available Technique (BAT)" that has been discussed in other studies of discourse (Lange, 2006). The BAT is close in its level of qualitative and quantitative correlational knowledge to the Precautionary principle (i.e. best practices, responsible practices, guidelines practices) but is more hierarchical and unilaterally discussed than the ecosystemic or sustainable character of the science-based precautionary principle, which otherwise is closer to the confines of sustainability discourse.

In other words, the relevance of the combination of environmental discourse and framing analysis is that it helps uncover and locate the architecture of knowledge concern and autonomy assumptions which are common in the differential application of social and legal regulations. This 'environmental disciplinary values' have also helped to understand how 'fit' the animal farming systems explored in India are for international sanitary standards of market access. In other words, while this exploration has taken place in the context of a particular production sector and its social and legal regime, its framing methodology and conclusions –in particular, the critique of the public/private or even communitarian regulatory models of enforcement (that do not explicitly consider the legitimate choices of environmental knowledge concerns but only the degrees of autonomy) should be relevant to other environmental compliance dilemmas taking place in the agricultural production or the supply chain production in general.

6.4.1 Sustained by environmental disciplinary preferences: framing access to safer and more resilient choices in poultry farming

It appears that the more problems have arisen in the appellate body, the more they have helped to elucidate the weaknesses and strengths of each system as natural ontological problems (or problems of regulatory choices). As the FDA puts it "levels of traceback capabilities may not be representative of other industries who have not yet faced food safety problems, even though traceback capability is an integral part of Good Agricultural Practices". (Mathews et al., 2003:90-91)[121] These have also brought to light the usefulness of Trade Assistance Programs in terms of knowledge transfer instruments that are much more present nowadays.

[121] Instead of focusing on testing, FDA has concentrated much of its efforts on education in foreign countries. All efforts to solve food safety problems abroad reduce the burden on the consuming public and on the FDA

Eventhough with the comparative framing presented, the investigation cannot confirm the thesis of a 'cunning state' (Randeria, 2003) the possibility of competitive populism (Jha, 2005:, Ray, 2006) and the atomization of decision-making among policy and regulatory ministries and departments do not seem to contribute to more consistent regulatory practices. Indian regulators and decision-makers in agricultural matters continue to battle to integrate in practical terms their regulations and policies and following a more contingent decision making. They are however leaving important regulatory voids such as the agro-ecological regulations of small traditional farmers that are already and naturally following the path towards a low-carbon economy as well as the agro-ecological regulation of intensive farmers who have the agentic authority to potentially implement these and would find other more willing intensive farmers and animal health holistic providers to collaborate according to their core higher ecocentric premises.

After testing the styles of compliance (or the enacting of normative preferences by animal farming production stakeholders) and testing its consistency in India it was observed that the animal farming production in India is diverse and do not fail in only one of the agri-food models of compliance of the literature review. Even more so, one animal farming system in India is not fully consistent with a particular model, except with a Lifestyle green for traditional farming, as well as for the Promethean for Animal Health Services' companies in the south of India. The rest of the systems, such as intensive farming (or contract farming system) is a consistently fragmented or mixed discourse with the farmer 'best available solution' discourse. This confirms that farmers are not legitimately complying with the model of contract farming in India, neither with their safety and sanitary measures but it what is available so they agree to disagree. Not only this confirms that such poultry systems are not fit for international sanitary standards, but they explain the degree and origins of illegitimacy of their commercial functioning.

In many ways the investigation confirms that the dichotomic thesis of the demonization of the WTO (Young, 2005) can be self-professing of the perpetuation of a regulatory void (and where paradoxically there is enough room for manoeuvre to fulfil it) in the shadow of the science (risk assessments) of the North. In other words, while there are important ambiguities in the capacities of knowledge and serious limitations in the claims of logics of validity (i.e. the impossibility of absence of evidence in risk assessments) this also suggests that trade defence disputes may only be exposing

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and CDC, which investigate outbreaks. In 1997, FDA spent 6,274 hours investigating the Cyclosporine-contaminated raspberries (U.S. GAO, 1999).When invited by a foreign government, FDA will visit individual farms associated with contamination problems and identify practices that are not consistent with GAPs. Findings compiled from these visits are used to identify trends for future training and guidance development. FDA, in association with the University of Maryland, teaches food safety practices in the United States and abroad through the Joint Institute of Food Safety and Applied Nutrition (ibid:91).

the regulatory voids in the national regulatory frameworks at the environmental, public health and social levels and distracting from the significance of private and informal populist expectations at home, instead of building on existent expectations of resilient and more autonomous agri-food systems.

Finally, as Franklin and Lee (2007) observe regulation requires a more accommodative basis rather than the classical intervening in the design of policies. In discursive terms this means getting closer to the idea of recognizing and steering the empowerment that actors in the agri-food sector are able to take on board and the available forms of control of uncertainty and intended action that will consistently steer them *in the direction* to the regulatory discourse intended, (i.e. Sustainability Discourse). This does not mean to impose again another form of contained practice far from actors' legitimate expectations in the name of Sustainability but to understand their discursive positioning in order to move gradually into the next framing of mechanisms closer in scale to the sustainability positions of knowledge and power. It is otherwise naïve to believe in quick fix mechanisms without counterproductive and rebounding effects when the need for tailoring of policies and the procedural responsiveness of all the actors involved needs to be considered. However different it is from a non-directional process, deliberation can make the mistake of thinking that ideas have no polity in themselves and so giving more attention to the visibility of noisy practices rather than the natural potentials in the direction of the intended regulation.

In this way, the thesis found that there is important potential for regulatory change based on the regulatory framings of their stakeholders to accommodate the closest regulatory choice in the direction of intended change in a more effective way than present regulatory designs and models. In other words, overall legitimacy of regulatory change in a nutshell is assumed to be ultimately an expression of the (consistency of the) semiotic framings between normalisation practices (social compliance and legal regulation). This consistency tends to be messed up by the combination of contradictory or exaggerated claims (of what can be achieved for the agro-environment and social life through models) as well as by the inherent contingency in the assimilation of the magma of experience and ideas. These elements tend to create 'noise' or 'cacophony' between the conception and the implementation of legitimate regulatory practices. It is always, however, possible to deconstruct those discursive practices to distinguish the common traps of ordering and discrimination in the construction of legitimacy, more known as 'capture', 'conflation' or the differences in rhythms of assimilation.

7 Conclusions: Toward safer and more resilient implementations of global animal farming regulations in India

The motivation for this thesis arose from a growing interest in exploring the difficulties of implementing global standards locally and the role that legitimacy plays on it. The thesis departed from the recognition of the dissonance between global legal regulations and sub-national sectorial implementations, taking the example of the agri-food (the poultry farming) sector and international standards affecting farming production. Despite the growing need for the responsible participation of emerging countries in global environmental and economic affairs, a number of factors have all deeply eroded the legitimacy of complying with international standards in the developing world. Among these factors in animal farming activities one can find the growing perceptions of economic and agro-environmental vulnerability through international standards such as the reduction of regulatory choices in the agri-food world; the emerging diseases, weak disease prevention and controls in internationally trading farms; the lack of credibility in upgrading capacities into international standards according to local farming needs; the contradictory claims of food security through trade, and the overall ambiguity of safe and resilient aspects of animal resources farming through international standards. In this regard, the study of framing techniques came across as the most flexible and yet most integrative tool to explore the potential to legitimately "accommodate" the regulation of such contested expectations including, but going beyond, the purely legal and non-legal definitions. The thesis has insisted on surpassing the dichotomy of legally-non legally binding perspective and instead in emphasising the value of the discursive consistency of a variety of normalization practices in farming environments. Through the discursive framing techniques developed here, it has become more evident that rule-making is a practice that extends beyond the legal practice in the public sector. Voluntary, informal or social norms coexist and evolve together with legally binding regulations. The production of norms does not necessarily remain in public, private or civic clear-cut arenas but can travel across morphing into a variety of forms as they are chosen and endorsed through different actors. This thesis demonstrates that the choice of rule instruments in a site of argumentative production is a discursive practice that ultimately depends on the site´s "normalisation" artefacts. Overall, it is argued that the consistency of those artefacts will contribute to determining the normative values that will respond to settings and reproduction of such artefacts depending on the consistency of such artefacts and how social or local entities ´appropriate´ them, which as a result can transcend legal practices or coexist with them.

Instead of looking at discursive practices using metaphors' or rhetorical devices´ literature, the thesis developed and used a discursive framing lens to understand the nature of difference and similarity in a number of discursive arenas of practices, such as the global and the local-sectoral. Discursive frames such as the techniques tested in this thesis on the basis of 'scale and visibility' proved useful on two fronts. Firstly, it helped uncover and locate value conventions and normative beliefs. Second, it exposed normative practices and disciplinary orders further unveiling their relative levels of convergence and divergence. The method then supported the analysis and revealed how and to what extent they can contribute to strategizing legal regulation and compliance. Finally the discursive lens helped us understand crucial differences and similarities in the assumptions and normative preferences underpinning local regulatory practices (emphasising contract and control farming, hygienic shaming, traditional low carbon farming, best available solution) for the case study from western regulatory practices and others recommended by global regulatory standards (sanitary standards, risk assessments, labelling, certifications, public-private partnerships, consumer associations, etc). The discernment of more representative normative taxonomies helped test the consistency of the regulatory agreements and mechanisms among orders of discursive practices in the case study. This helped not only discern likely implications in terms of regulatory capture and conflation but also in terms of potential accommodation (reception and adjustment) of global standards.

The development of this analysis unfolded through different chapters throughout the thesis. After reflecting on the main tensions between the global and the local regulatory spaces of standards and their often dichotomist narratives in Chapter Two, it was understood that effective legal regulatory change is one that does not apply one-size-fits-all enforcement often targeting areas where enforcement is not required or the style of enforcement inappropriate. Thus, the thesis started by recognizing that the reception of global standards through regulatory ´accommodation´ of normative preferences rather than implantation of harmonization of norms constitutes a relevant perspective worth researching. The thesis thus recognized as a starting point that effectiveness of regulation (such as food safety in the farming environment) may depend less on regulatory models and designs and more on the integration of legitimate change needs according to stakeholders' potential to move towards safer and more resilient agri-food systems.

Chapter Two continued the discussion of agri-food regulatory tensions at the global level further exploring how those tensions manifested themselves in India. The chapter then discussed in more detail how the legal regulatory narratives at the international and at the Indian level barely recognize the value of the diversity of agri-food strategies of compliance other than the State and

market in the implementation of global standards. Chapter Two began with an account of the literature researching (formal and non formal) mechanisms of regulation in agri-food environments. It went on to argue that agri-food regulations have evolved from reactive regulations in the event of agro-environmental, public health threats and international regulations to increasingly voluntary initiatives that shape the spectrum of agri-food governance. Parallel to the purely formalistic regulatory view of agri-food systems (from sanitary standards to consumer labelling regulation) of the finished product, the chapter reviewed a set of embedded norms on the processes of production. The diversity of normative strategies found in agri-food literature was classified into three types: first, the classical command and control strategies as well as the carrot and stick approach towards levels of hygiene and low carbon models; second, strategies that assumed a utilitarian point of view as profit maximiser entities through contracts, information flows, pro-market regulations and third part certifications; third, more socially and culturally embedded normative strategies of exploitation of agri-food resources through education, social shunning and ecological lifestyle. It emerged however, that the lack of recognition of the variability of such embedded normative or regulatory mechanisms could remain at the core of the counterproductive impacts of legal regulations. In contrast, at the international level, few mechanisms through which actors could account for their embedded normative preferences were found. Legitimate worldviews or values which may not be necessarily linked to an immediate economic outcome (as the reviewed literature of social and economic embeddedness suggests) find little regulatory space for expression. In this regard, the chapter identified a gap in the literature in terms of how to account for the variety of discursive normative values in animal food production and the value-added of such diversity for the accommodation of global standards. Thus the thesis set out to answer specific questions contributing to fill such a gap. How can compliance with food safety and animal health regulations benefit from the recognition of such normative preferences and values? How can compliance of animal farming stakeholders be compared to legal regulations in the landscape of normative values? To what extent can this landscape help understand the accommodation of animal farming regulation? What is the role of framing in the representation or constitution of such animal farming norms? In sum, this thesis formulated its research question in a reverse order to a classical problem-solution approach of regulatory design. Instead of searching for the best regulatory solution, it asked how effective regulation in farming production can be sustained by a diversity of discursively consistent and legitimate normative values.

Following this, it was observed that if the constitution of regulatory preferences was understood then it would be possible to make progress in the setting of orderings of decentred norms and eventually in the effective discursive accommodation of such normative choices. Along

the same line, the diversity of styles of enforcement and compliance in the agro-food literature and the levels of their agro-environmental concerns appeared to be linked. This suggested the need to further investigate this relation. For this, Chapter Three addressed the similarities in the discussion between 'environmental concern' and 'regulatory choices' observed in agri-food literature and the discursive constitution of 'normative or disciplinary' values. This led to further reviews of two theoretical constructs produced by the literature on discourse; first, the Foucaultian conceptualization of knowledge and power (the pastoral and panoptical disciplines); second, Dryzeks' discernment of the existence of a variety of environmental discourses, each embedded within a particular configuration of normative values and with a particular treatment of the environment. Given the environmental nature of animal farming production, the study of the construction of environmental discourses was a natural progression towards the understanding of the variety of normative of disciplinary strategies and their basic components in such contexts. In this way, our study of the configuration of discourses was expected to reveal more about why certain forms of environmental compliance with certain environmental regulations were preferred whilst others were clearly disregarded regardless of their level of formality.

Furthermore, for the purpose of identifying those components in our research case, framing strategies representing a combination of 'scale' and 'visibility' (Van Leeuwen) were recognized and unpacked for every discourse (Chapter Four). This served to picture the landscape of discursive framing combinations and normative values out of Dryzek´s environmental discourses. From here, it was possible to empirically unpack, map and compare the personal discursive framings of the animal farming stakeholders (Chapter Five) as well as those of formal international regulatory recommendations involving animal farming production (Chapter Six) namely those from the Dispute Settlement Body. This comparison and superposition of normalisation practices revealed the disciplinary values found in Indian agri-food regulations in contrast to those present in international (WTO-DBS) ones. This helped understand the relative coherence of the existing local and global regulatory agreements according to the values behind the social and formal regulatory mechanisms. It was the more specific combined role of knowledge and agency (as core components of discursive normative values) that helped elucidate such coherence in the landscape of possibilities of environmental discourses.

Finally a second contribution of this exercise was revealed in terms of discursive practices and the ´philosophical´ polity behind the normalisation values linked to language and semantics. In particular, it remains significant that without a discourse-framing approach bridging normative values to regulatory practices, a comparative and more integrative illustration of shape, form and

contrast of the embedded dimensions of agri-food regulatory models would not have been possible. This remains important given that the scale and visibility of concepts and actions as identified in texts and transcripts in this thesis helped identify the boundaries of normalisation or disciplinary preferences and their environmental discourses which in turn proved to be of potential value for accommodative regulation. The relative comparison of such preferences and boundaries also helped identify veiled spaces, and increase discernment for potential regulatory manoeuvre.

7.1 Contribution to Studies of Compliance with Global Standards in Developing Countries.

The assumptions that in developed countries, there are clear standards for food preparation that obey more explicit formal mechanisms and requirements whilst in less developed countries those mechanisms appear to be 'absent' or compliance with them 'poor', is a proposition that has been challenged in this thesis. Furthermore, rather than searching for an optimal regulatory convergence of rationalities between regulators and regulatees (driving for instance, behaviour in theoretical games, such as between homoeconomicus or homosociologicus (Ayres and Braithwaite (1992:51)), regulation in this thesis considers a bigger universe in the variety of disciplinary rationalities and practices, which may or not be contained on only those two rationalities or values. In understanding the construction of 'normality' and normative practices and the character of the gaps between them, legitimacy can play an important role in elucidating the variety of those disciplinary values. In particular, this thesis suggests that the perception of value of compliance choices is heavily influenced by the discursive consistency (the coherence between conceived vs. perceived disciplinary practices) underpinning the narratives of regulatory diversity. For a more conclusive strategy informing in the direction of regulatory *manoeuvre* of formal and informal mechanisms, norms and normalisation processes still need to be worked out and compared empirically. However, the thesis demonstrates that there is an academic capacity and the need for such analysis to be made in a comparative fashion given the diversity of existing worldviews guiding regulations and the similarities in the framing of its components despite the apparent international/western vs. local discourses dichotomies suggested by some as irreconcilable differences.

This thesis contributes to empirically illustrate that regulatory diversity surpasses the classical divisions of western public and private regulation and even the voluntary (western)

regulatory conceptions (i.e. consumer labelling, certificates or public-private arrangements). In fact, as observed in this non western environment, regulatory diversity can travel across public, private or social arenas in search of their discursive consistency. It is proposed that discursive inconsistency is one of the main causes of normative cacophony in regulatory practices and an important reason for counterproductive regulatory effects. Cacophony and dissonance of regulatory practices were demonstrated for this research case at different levels and suggested to be one of the main symptoms of discursive failure of the government, the market, and other social mechanisms of regulation.

The next section discusses the discursive consistency of the regulatory strategies at the discursive levels analysed for the animal farming production in India and internationally. It is argued that wider and more integrative taxonomies can help discern the fine distinctions able to elucidate significant regulatory choices in agri-food models. They are divided into consistent and inconsistent agro-food regulatory discourses and are intended to provide a clearer understanding of the nuances in normative preferences that make the difference in comparison with their western and international regulatory taxonomies. The following classification also intends to highlight the value of the local styles of enforcement and compliance in the reception of global standards. Such a discernment exercise, it will be argued, represents a vital step in the understanding of an eventual process of accommodation (reception and adjustment) of local versions of global standards, for which this thesis has provided a first step in this direction.

7.1.1 Discursively inconsistent and 'captured' regulatory mechanisms

a) Contract Farming vs. Contract & Control

One of the first growing models of agri-food regulation in animal food production in India (in particular in poultry food farming) is Contract Farming or the vertical integration between small farmers and food processors (as observed in Chapter Five). As regards this research case, the thesis has exposed how some agri-food regulatory models are inconsistent in that conceived knowledge is not perceived as the applied agentic capacities. In contract farming this inconsistency manifests itself in at least two ways. First, despite the fact that a competitive price might have been the first incentive for the actors to engage in *efficient* contract farming, actually in its implementation the actors appear less willing to cooperate with a highly hierarchical organisation under a 'maximum operant principle' (see p. 122) (Ayres and Braithwaite, 1992:49-50) of high surveillance and control

such as that of processors. Instead, they comply with the very minimum behavioural requirements for the contract to take place triggering less efficient animal health, farming management and increasing transaction costs. For this reason, a contract farming model based in high informal levels of command-and-control, does not contribute to the efficacy of disease control given that the governed actors find their own strategies (own lay knowledge) of animal health and disease control more effective and appropriate. An important trait of the intensive farmer's accounts analyzed is that despite the fact that farmers have agreed to comply with a level of anthropocentric managerial control in formal terms, a number of normative disciplines has taken place informally. More ecocentric but hidden concerns for animal farming -based on farmers' lay knowledge (homeopathic know-how for common human and animal diseases) are considered of more value than the anthropocentric techno-health concerns proposed by the management system of the processors' intensive contract farming.

This brings us to the second, more imbricate consequence. Despite such an apparently illegitimate anthropocentric perspective, intensive farmers´ accounts also converge with highly hierarchical views of social regulation. In other words, in contract farming intensive small farmers and processors have informally agreed to disagree. Traditionally small farmers expect more powerful actors to impose practices over them but accept to 'conflate' informally in the awareness that they can also win a part in the play or make their farming systems more resilient in expected particular ways. In this sense there is nothing unlikely in the apparent contradiction between intensive farmers and processors who only meet their mutual disciplinary values of customary *status* expectations in a regulatory (contractual) agreement. Nonetheless such disciplinary conventions become increasingly problematic among farmers, not because of the control of farmers' agentic capacities overturned to processors (as shown in Chapter Five) but because of the significant divergences of ecocentric vs anthropocentric concerns as integrative solutions to improve their economic income. Even though ecocentric concerns of intensive farmers are not close to those of traditional farmers they are definitely higher than those of processors, and have a tacit sense of farming resilience. In other words, if processors were more ecocentric, highly hierarchical contract farming practices would be more likely to work more effectively under such informal arrangements and the farming environment would win in resonance with proximate discourses such as quality food markets (Sonnino, 2007), animal resources resilience and food security .

The current situation is not only problematic in terms of socio-economic development in rural areas but as in the case of poultry farming, counterproductive in terms of disease control under the current agri-food regulations. In fact, animal health management problems in India have

worsened in the last few years, among the most acute being the important rise of Avian Influenza culling as well as the scarcity of animal and agro-environmental resources for food security in the long term. Given India's consideration of no-vaccination for international trade in the poultry sector, important indigenous kits in this matter have been abandoned. In terms of health management standards if this inconsistency of formal agreements continues, it will play an important role in the regulatory failure of this intended mechanism and in the resilience of this system of agricultural production.

From this perspective the aggravation of agri-food problems in India appears as a more a self created problem than an externally induced one as many stakeholders attempt to frame. As shown in Chapter Five, contract farming implies a semiotic strategy of self-regulation through self-empowerment as the principle of conduct and self-awareness as the principle of rationality for the purpose of efficiency in transactions costs. Efficiency, largely an economic value and requisite of allocation is different from other types of embedded values in framings. Implying *efficiency* as the dominant normative frame when the context inertially responds to other customary disciplinary values (i.e. such as *status value)* may again be asking from a particular dominant mode of agri-food regulation, something that it is not designed for or a change of attitudes or values that stakeholders are not yet concerned with or suggesting a set of choices for an expected behavioural change that is not yet available.

b) Food Safety Command and Control vs Sanitary Shaming in Food Production

A second agri-food mechanism attempted by the Government of India was the design and implementation of national food safety laws above Codex standards. Food Safety laws dealing with the control of levels of toxicity and hygiene imply a semiotic value of *efficacy*, a hierarchical or non-transactive implementation led by the State and accompanied by above the minimum standards of food production. Since this regulatory strategy promoted levels of control above the minimum international requirements, this regulatory strategy discursively represents an Environmental Command and Control[122]. In discursive consistent terms this implied having permission to legitimately enforce such new expected levels of food safety given that such an interventionist change is conceived as necessary or expected. Different to purely Command and Control mechanisms, Environmental Command and Control accept higher than purely anthropocentric concerns but are less ecocentric than Survivalists with the same levels of expected control over

[122] For motivations of the Indian State in higher than Codex Standards see page 151

regulatees. Such permission also accepts ignoring other customary or social concerns for a preferred degree of sophistication in knowledge that endows the State with the authority to act upon regulatees. A first reading in the discursive inconsistencies showed that In India the 'legitimate' authority responsible for raising the standards of food safety was absent at the domestic level and only applicable to a few export oriented counterparts at the time of the study. Instead, important contestations regarding implementation and compliance with food laws appear to increase transaction costs which in turn complicated the original intent of efficacy value of food regulation.

To cover the lack of support for the regulatory change the ministries also agreed to disagree in informal arrangements. The Ministry of Commerce after the relatively aggressive (by past Indian standards) vision of a national food safety law was soon confronted with vested interest among the food chain and the predominant so called 'competitive populism' (Singh, 1994) prevalent in India as well as inside Indian institutions themselves. As the WTO puts it, government stakeholders do not have a unified voice in India, especially if they concern agriculture, which in turn for all agreements and legislations has a state status rather than a national status[123]. Therefore a highly domestically oriented agenda of the Ministry of Agriculture often has encountered some divisionism regarding the implications of the Indian WTO membership. Subramanian also posits in a WTO report: 'in most states, the WTO and its rule are regarded as a distant entity without any immediate consequences for the state government, and perceived as a largely esoteric subject' (ibid).

In order for the Indian State to meet its obligations internationally, the Government of India recognized the need to converge in the formal regulation. For this reason, both the Ministry of Agriculture and of Commerce converge in the content of food standards, but dissent in the form of implementation. The Ministry of Commerce thus decided to use informal ´insistent´ strategies rather than formal ´ binding and controlling' strategies as stipulated in the formal discourse and converged in the level of agri-food concern on paper. In other words, ´shaming hygienic food conditions´ in the form of media discourses instead of imposed command and control was the implementation strategy developed by the Indian Ministry of Commerce. This confirmed the local unwillingness to surpass the paper levels or regulation and confirmed some divisionism at the core of Indian institutions. As observed in Chapter Five, a variety of Indian regional States and communities' food tradition positions reflected back a disapproval of the need for higher food production sanitary levels. As a result, food traditions in India appear to have made Indian society more susceptible to food laws and their safety parameters.

[123] At online document downloaded Decision-Making in India: the Case of Agriculture Negotiations, at WTO webpage www.wto.org/english/res_e/books_e/casestudies_e/case15e_.htm#perception

Through frames of normative values a considerable discursive distance was observed between what was finely conceptualized as the idea of food safety in India and its perceived application throughout Indian institutions nationally. In this sense, implementation of national food safety laws risks remains as other laws in India: highly detailed on paper but irrelevant in reality (Harriss-White, 2003b:, Harris-white, 1996). This inconsistency between conceived knowledge and applied perceived agency is an important aspect, particularly relevant for developing countries in need of international credibility and where international paper agreements usually become implemented actions

From a perspective of discursive preference, regulatory change has been promoted through the normative value of shame, guilt and urgency to change present *status* on the basis of a Survivalist discourse through the media of ´urgent need to change´ rather than a willingness to upgrade sanitary standards by commanding through State interests. Additional problems with this type of regulation have been the high transaction costs, as the result of a double and sometimes contradictory discourse (in framing public health rather than economic interest as the main driver for the higher than Codex national food standards). In particular this lack of consistency can have important effects on the medium or long term credibility of this developing country as regards their commitment capacity in the international arena. For all these reasons, this agri-food regulatory mechanism is failing to deliver the expected outcome. Given the mixed messages sent to society it is no surprise that activists have reacted against these WTO oriented institutions claiming a lack of legitimacy. The discretionary aspect of such laws applying only to those exporting companies rather than to the domestic ones has in itself reduced the effect of food safety on the resilience of regulatory choices of animal food production systems in the medium and long term.

7.1.2 Discursively consistent and rhetorically absent national regulatory options

a) Low Carbon Incentives Models vs Low Carbon Traditional Farming

Another regulatory model that was present despite its lower focus of attention for most stakeholders was the Traditional (and Low Carbon) Farming. This regulatory model belongs to the environmental discourse of the Life Style Greens and implies a semiotic strategy of interdependent regulation but responding first to general guiding principles of conduct. This framing is dominated by the value of aesthetics to which Green Romantics belong. This agri-food model recognizes the value of ecocentric principles when applied at the individual level. For this reason knowledge is framed as

principles to be interiorized and agency as the expected optimal response triggered by such principles or incentives.

In the empirical exercise observed for India this regulatory model appeared discursively consistent: what is conceived as knowledge is also perceived as applied agentic capacities. The majority of backyard and traditional farmers' accounts under this discourse reflect that having their own methods of rearing and production created good standards of food safety and animal health. For this reason, traditional farmers interviewed and also some respondents in the Ministry of Agriculture imagine this farming system to be one of legitimate compliance based on ecocentric concerns for nature and very low levels of hierarchy (see Figure 5.2) as regulatory mechanisms. For this reason, despite its less developed aspects in waste management and resource use efficiency, this regulatory model posses elements of ecological resilience of farming production at low cost in India. The intrinsic sense that general animal care depends on instrumental actions of the farmers *within* the farm represents a life style with potential to integrate other 'normal' management practices in the interest of traditional farming. In this respect, traditional farmers were guided by more generic conceptions of food safety (validated by traditional methods such as dehydration and natural hygienic processes) and animals' health (validated by vitality) that were seen however as independent characteristics from each other. This agri-food model resonated with a *lifestyle green* discourse given the partitioned activities under a same general principle of optimization triggering the motivation of farmers to act accordingly. In the same way as low carbon schemes, in farmers' accounts they also partitioned certain ecosystem activities in the search for an optimum principle of action to achieve their consistent narrative whilst reducing uncertainty. In other words principles of low carbon and traditional farmer shared a strong semiotic resonance in regulatory terms. However such mechanisms have not yet been capitalized by more concrete forms of low carbon schemes at the international level or by the setting of international standards.

In other words, consideration of disciplinary preferences is important for regulatory implementation. Endorsement of agri-food models based on regulatory mechanisms such as food safety and animal health top-down controls that ignore the weight of social or customary norms may have counterproductive tangible effects (Béné, 2008). Mainstream scientific frames for instance, can often reproduce discursive inconsistencies when blaming exclusively a lack of (right focus on) tangible or measurable indicators to complete the uniformity of their discourse. For instance national practice of disease controls against emerging epidemics such as avian influenza, increasingly bases their expert literature on the lack of (concrete focus on) the ´pathogenic interactions between species and actors in the animal farming space´ (Randy et al., 2009:12). Along the same formal

problem solving discourse, practices that frame food safety on 'risk assessments' exclusively on (concrete levels of) toxicity and pathogenic terms, also forget the likely disciplinary *choices* that engendered the social regulation of the agro-food spaces in the first place. In those cases, not only the scale of focus of the normative preferences may differ from customary preferences but by suggesting such scale as the *main* problem to be solved, such affirmations may promote exaggerated claims adding inconsistencies to the discursive practice. In this sense, they are problematic not only for the cacophony they inject in to disciplinary and regulatory choices of mechanisms, but also since this cacophony facilitates the reproduction of pre-existing constraining structures (Friedman and Wand, 1984:, Wendt, 1987:, Whittington, 1988:, Cerny, 1990). By disconnecting and reducing the re-articulation of future discursive choices, legitimate 'resilient' regulatory versions of animal farming production appear increasingly and irremediably jeopardized.

In this sense, the reduction of choices of risk such as emerging diseases coming from animal farming could relate more to a mixture of exaggerated and hidden claims of impacts and effects in the different regulatory spaces. Such ´cacophony´ of claims can in fact be more problematic than the inconsistency of discourses itself for its potential to render even relatively 'convergent', ´appropriate´ regulatory designs a likely to fail issue. Against this opacity, clearer taxonomies such as the ones discussed in this thesis (i.e. 'contract and control´, hygienic social shaming´, ´low carbon traditional farming´, etc) can enhance our understanding of the manipulations of knowledge as well as agentic imaginations in regulatory models and their expected regulatory outcomes. In this way, by adjusting on one side regulatory models to perceived practice and on the other adjusting expected regulatory outcomes, less ´noise´ (in terms of Luhmann's (1988) regulatory communication) is generated and in this case agro-environmental regulations such as food safety, and animal health standards could be improved. In other words, Contract Farming is only appropriate for those agentic capacities able to self-regulate within the disciplinary boundaries of the market.

7.1.3 Discursively consistent and rhetorically captured international regulatory mechanisms

a) International Market Minimum Efficiency Standards vs Safeguards against Market Power

The setting of an international standard rarely includes evidence of the standard setting in the sector that elucidates the process of 'illegitimate' implementation and the alternative choices to increase its legitimacy. At times, non apparent international-sector resonances or 'passive' coalitions of standard setting and implementations can appear without clear contract of arrangements.

However, when claims of standards are expected to cover areas that they are not designed to cover they can be instrumentalized in this direction by actors that find it more convenient, creating important cacophonies which then can feed the process of regulatory failure. This is a likely situation in the instrumentalization of international standards such as the SPS by sub-national interests, in particular those that seek to underline the top-down style of enforcement that is expected in the SPS as the Command and Control, instead of the claim of the scope of its content.

International standards and sectorial agro-environments arrangements can remain taken-for-granted for important periods of time and still accumulate alleged inputs for regulatory failure. This appears to be the case for the agentic convergence of the present instrumentalization of mechanisms such as the WTO-SPS standards. In fact these are minimum requirements of safety and market efficiency of animal food products and do not search to defend against the excesses of the concentration of market power of actors and even less against the excesses of Command and Control implementation of contracts in the sub-national farming sites. It is when different inconsistencies of discourses can serve as a platform to eventually facilitate regulatory failure even before the actual regulation takes place. This explains why some traditional hierarchical conventions among farmers converge with the controls by the State and with the intergovernmental expectations of the Dispute Resolution recommendations of global standards. However, in the sector case, the main unilateral, non-transactive actor in this case is not the State but the processors´ exaggerated hierarchical controls.

This cacophony is here problematic for two reasons. First, despite the a priori, lack of any ideological value of the Codex, the convergence of such pre-existent vertical regulatory setting makes the discourse of the Codex appear already ideologically ´invested´ (Fairclough, 1992:67). This means that efforts to make farmers comply with more ecocentric regulations, such as improved versions of food safety or animal health as observed in the food safety laws can easily end up being captured by ongoing forms of authority (in this case by civil society organizations, local organizations and even in some cases by the State itself, as in the case of India during trade disputes) as mentioned in the thesis as dichotomist tensions of the perceived imposition of regulatory choice. The Codex discourse becomes a taken-for-granted imposition in how it will also close the range of choices for farmers. This explains why some traditional hierarchical conventions among farmers converge with the controls by the State, the intergovernmental expectations of the Dispute Resolution recommendations of global standards and the command conventions of processors. These rejoin the already illegitimate anthropocentric practices of both global standards of SPS risk assessments and of OIE animal health managements in the field adding new elements to the existing

exacerbation in those controlled farms and distorting the original message of market efficiency of such institutions rather than a practice against market controls. Given this cacophony, the legitimacy of the WTO in general is being affected. It is *expected* that this intergovernmental organization works as a sole entity in favour of the public good rather than market efficiency. Discourses of this organization, however, are consistent with a Problem Solver Discourse fixing problems of market efficiency of their members. It is rather the internal inconsistencies at the domestic level that capture an external discourse in order to fill the gap of their own discursive consistencies' demands often in line with a Survivalist need for a radical change of discourse. It is in this respect that non written arrangements in line with 'shaming' strategies against the intervention of international institutions can take place on one side, however ignoring the 'shaming' of excessive intervention of domestic institutions in the Indian case. The recognition of discursive inconsistencies has helped in the identification of fragmented normative values in discourses that may facilitate the success or failure of such discursive arrangements. However, they also help us understand the qualities and the diversity of characteristics of normative values or normalisation processes, which make those values diverge or converge.

7.1.4 Discursively absent and rhetorically active international-sectoral regulatory mechanisms

a) Voluntary labelling and certifications vs Centralized and obligatory certificates

Another of the advantages of the use of discursive framing tools in relation to agri-food regulations for this research case was the possibility to expose the relatively close regulatory choices that were not yet considered in the sectoral narrative nor formally or informally, yet are present and actively promoted in the international arena. Despite their success in the developed world, the underlying assumptions guiding the normative preferences that are close to the Ecological Modernization discourses, such as certificates, eco-labelling, public-private partnerships, fair-trade, etc., are definitively not present as mature choices of normative practices in the highly organized poultry sector in India. Informal and social regulations and even some community regulations in animal farming production (especially in traditional farming in neighbour dairy activities) reflect some cultural values that can serve as social labelling such as the religious value of cows or some social events with special breeds for segmentations of the market. However in poultry farming, the systems most present in the South of India did not reflect such normative formal preferences. Nevertheless, Trade related assistance programs of international donors, Northern epistemic

communities and other transnational actors further back in the commodity chains (in particular demand country retailers) insist on the implementation of those 'private' regulatory mechanisms, with self-regulation or horizontal private arrangements to be implemented in the developing world. For the void in the semiotic choices that these mechanisms entail, intended developments in these directions are likely to be 'captured' by social Indian hierarchical norms, similar to 'contract' farming or formally adapted by national institutions. This latter for instance was the dilemma at the time of the interviews which the EIC –Export Inspection Council had in terms of training to companies about certificates for exports vs. training independent trainers to issue a third-party industry's certificates in order for them to be 'voluntary'. This poses a problem not only in terms of impartiality towards firms - which contributes to the continuation of particularistic managements. It also emphasizes the role planned by the EIC in terms of a more interventionist 'broker' of information of all certifications around the world (see pages 151-153) to 'help' companies export rather than the less interventionist State in the west leaving information flow matters to the private sector associations. This led to many criticisms of organizations given the need for a third-party certification system is the case of those certifying companies wanting to export, as one of the many contradictions with the formalities of the role assigned to the private sector in the enhancement of Food Safety capacities (seeTable 5.3).

7.2 Contribution of the role of framing to global standards of food safety and livestock health.

Contributions of discursive framing to regulatory accommodation could be distinguished in two main aspects. First, framing can be appreciated as a tool for the better discernment of the nature of differences and similarities of formal and non formal normalisation processes. Normalization processes are discursive practices constituted by language, knowledge and agency (see Chapter Three). Language works as the first socializing discriminatory tool that functions both as the expression of values, attitudes and beliefs and as the organising principle of those practices and experiences in day-to-day life (Bernstein, 2003:, Haiman, 1994). The work of Van Leeuwen helped to extract the framing devices of knowledge and agency embedded in environmental discourses. This is the compatibility of knowledge and agency capacities among two sorts of social practices: those of nature and those of the social realm of stakeholders. When social practice and environmental concern –or the disciplinary environmental values- converged for a type of actor and among actors, they formed indeed a legitimate discourse. This helped not only understand the

consistency of norms in paper as well as in action but also when recontextualized in their embedded narratives of social practices to understand how dominant discourses conflate or contravene themselves by which actors and in which shape or form.

A second contribution regards the facilitation of frames as a tool to map choices in the vicinity of the preference of compliance in more consistent ways and across empirical discursive spaces allowing for regulatory translations from other regulatory arenas. In other words, when legal requirements are disconnected from customary rules and expectations, frames can provide the link to reconnect them and accommodate them accordingly or even to distance those more, exacerbating existent contradictory expectations and aggravating legitimacy problems. Where dispute resolutions refer to regulatory decisions, they often find those regulatory decisions to be based on dominant existing frames. Where dispute resolutions defer to mainstream standards of science such as 'risk assessment', it is also through emerging frames that the social institutions for the production of new expertise are provided. If frames of disciplinary agricultural practices and legal expectations converge in their essential discursive devices, such as in the scale of representation of knowledge (content of compliance) and in the form of agentialization (the form of compliance) it is more likely that such a particular discursive framing will become stable or dominant. The convergence or divergence of such frames however, is not necessarily a fully aware or visible process, since it is mobilized at the level of implicit assumptions of normalisation processes wherein actors are usually not conscious about. It is rather the task of the social researcher to incrementally bring to the surface those implicit assumptions and contracts.

At the level of the construction of a trade system that works in favour of sustainable development, there are a number of debates to which this thesis contributes to. Assuming sanitary instruments at the national and intergovernmental level on one side, and consumer oversight regulation on the other, as the only way to prevent 'market failure' in the provision of safety and sanitary standards through the State is an incomplete statement. It is an important step to recognize the styles of enforcement expected and the limitations of the consumer´s choice regime through the imposition of a pre-given rationality of consumer (Hilson, 2005). This goes hand in hand with a minimum recognition of the variety of values and patterns of social interdependence for legitimate regulatory transformation. Such a meta-paradigm illustrates how, as experience irremediably expands through relations and interrelations, new systems of *consistent* beliefs and expected actions are required to cope legitimately with the new negotiations and defined challenges (Commons in Ramstad (1990). In other words, this requires an understanding that with particular interpersonal values (i.e. Status, Pragmatism, Efficiency, Efficacy, Fairness, Aesthetics, etc –see table 3.2) a

particular style of enforcement is attached (authoritative, insistent or persuasive). The combination of these discursive practices creates consistent implicit expectations that when unmet, regardless of their claims, create important gaps in the apparent 'legitimacy' of formal regulations. In fact, these are based on the accumulated inconsistencies of informal or unwritten agreements complicating the efficacy of institutional arrangements. Claims that consumer information regimes can replace citizens´ own treatment of uncertainty or claims that efficacy (rather than pure efficiency) (Sagoff, 2008) can be better gained through market mechanisms (such as in the case of disease controls through private services or distributive effects through contract farming), are claims that distort the fine but constant line between ideas and expected actions and facilitate capture.

7.3 Contribution of Discursive Framings applied in Agri-Food research to Environmental Discourses

The study of discursive framings has demonstrated to be a rich tool to the study of how legitimacy is constructed, not only by confirming the presence and relevance of contestations in compliance and regulation but also engaging in the nature of those contestations. In this thesis, it helped recreate the normative preferences of regulations in paper and in action and understand their role in the nature of illegitimacy.

In this regard, the main research question of this thesis has been answered, namely how compliance with international standards can benefit from the recognition of stakeholders' environmental normative preferences? It was demonstrated that (i)legitimacy is created through the partial misalignment of disciplinary practices or 'normal styles of compliance' of day to day life with the designed policy-regulatory models. In Discursive terms, this means that in order for legitimacy to ocurr perceived actions in models and intended actions in practice, this is, the versions of the pastoral and panopticon powers elaborated in Foucaultian discourse also need to resonate. (see section 3.2.2.). What Dryzek did some decades later was to observe that those pastoral models and panopticons of intended practice constructed very consistent correlated premises which formed the basis of a good number of storylines across environmental case studies beyond a dichotomic narrative. He also confirmed the influence of the environment and the existence of environmental disciplinary core values to deal with the relationship society-environment.

Empirically speaking, this thesis demonstrates three things in relation to Dryzeks' environmental discourses. The first is the identification of 'new Indian' discourses with their respective regulatory interventions and styles of compliance, which were not in the original nomenclature of Dryzek. The most notorious is the 'Indian Problem Solver' based on mechanisms of 'intervention' such as the 'Best Available Technique/Solution' when making reference to the legitimate 'homeopathy' technique of the small intensive farmers of the contract farming model. This agro-food model is based on the environmental concern of compliance of uses of alternative norms of animal health using a different framing from that of pure 'command and control' or pure 'shaming' and for this reason it represents a new finding in terms of framing and environmental discourse. It was here named after a similar discursive framing found in environmental regulation literature as a relative hierarchical and 'traditional' technique of disease prevention and disease control for small intensive farmers[124].

The second related to recognition of fragmented environmental discourses in the sector. This means that not all values of compliance are consistent with the paradigms presented by Dryzek, which is the reason for the illegitimacy of the implicit contracts in the sector in the first place. Given pre-existent subnational normative preferences and consistent fragmentation of discourses, likely unintended effects can exacerbate the already illegitimate trade-animal farming health divide such as the ones discussed in this chapter: capture, cooptation, substitution or dilution of potential implementation of standards. For the sample of actors analysed, only normative preferences of animal health companies and integrators of contract farming were already in the vicinity of those of international standards. Traditional farming systems on the other side, neither small farmers working for intensive processors/integrators prove to have the abilities to engage or comply with international markets minimum sanitary requirements. The reason for this reflects a rather higher 'agro-environmental normality' rather than the lower sanitary or poor self-governance basis. Processors and the international dispute settlements on the other hand complement in their agentic capacities and concerns for sanitary issues as a Promethean (market like) and Problem Solving (Command and Control like) Discourse and not to other discourses -- given the concrete and tangible scale of framing of the safety and sanitary problem. As mentioned, other models do not frame food safety in terms only of concrete sanitary issues but understand it intrinsically embedded into higher scale animal and agro-environmental health, as in terms of the Best Available Solution (i.e.

[124] See Chapter Five, The BAT is close in its level of qualitative and quantitative correlational knowledge to the Precautionary principle (i.e. best practices, responsible practices, guidelines practices) but is more hierarchical and unilaterally discussed than the ecosystemic or sustainable character of the science-based precautionary principle, which otherwise is closer to the confines of sustainability discourse. In this respect it is also an Indian discourse, the 'Indian Problem Solver' distinctive from those of Dryzek.

homeopathy). In other words, forcing some regulations for international trade standards that are not yet in the vicinity of a Promethean or Problem Solver Discourse can have important unintended effects. For this reason, the addition of the 'environmental normality' as formed by levels of anthropocentrism or ecocentrism can help in the discernment that very often hinders the recognition of green practice from *wishful* green or sustainable thinking in agro-environmental models.

Discursive framings thus, not only confirm the existence of resistances to apply in practice effective international measures of food safety and sanitary standards. They also inform about the complementarities of discursive voids for such resistances and potential 'green' niches to take forward. This is particularly the case of the active presence of the precautionary principles of Sustainability of northern consumers and small farmers in the South; or the knowledge gaps of inductive carbon emissions for traditional farming systems of Lifestyle Greens; or the gap in the study of the philosophical principles of environmental associationism for Bioregionalism in this comparative case study.

The third contribution to the studies of environmental discourse In addition, is the mapping of a *continuum* of possibilities of autonomy and environmental concern, supplied with the room for the variety of discursive positions. This helped to compare discursive framings, regardless of their context, regardless of their formal, non-formal, voluntary, customary or social norms, and also regardless of the western or non-western character. In this way, narratives could be depicted and located in positions and patterns in the apparent disorder. The thesis has looked to distinguish within the embeddedness and complexity of meanings and contexts a more 'universal or essentialist' grid of environmental norms and values of compliance as proposed by Dryzek. Matching regulators and regulatees normative practices, through their values of compliance has been an important element in the construction of legitimate relations. However, discursive framings cannot exist without a careful re-contextualization and re-immersion of the values in the local narratives and contextual configurations. The contexts are in fact the decisive factor in order to understand the degree of regulatory accommodation and in this respect this method is complementary to an understanding of how those values fit in the dynamics of place or space. Nevertheless, for all these reasons, discursive framing as applied and analysed in this thesis, as a spatial grid of 'universal' normative values (of hierarchy and environmental concern) and sustained by their contextual reframing is more than discourse analysis. The complementarities between a continuum of discursive values and their contextual narrative can help in the progression of more explanatory analyses of the *why and how* certain regulatory choices are made over others also before the

choices are made and with what likely consequences. In this case, this refers to the *fitness* of sanitary regulations or agri-food models *before* a Free Trade Agreement or a Trade Related Assistance Program is made. The application of harmonisation agreements without an understanding of the fitness of agri-food systems (animal farming in this case) will continue to define the problems of legitimacy of international forums such as the WTO, if such fitness is not provided by national capacities or recognized. Ensuring the quality of participation through negotiation in Codex or OIE committees or provision of technical assistance in accordance with countries needs, rather than strategic needs of those possessing the knowledge resources constitute a fair recognition of the differing skills and legitimate entitled capacities to negotiate.

Finally, environmental disciplinary framings do not imply the need for static convergence or divergence but help us to recognize the discordance or resonance in the perceptual dynamics that initiated an illegitimate process. Discursive framing thus brings an understanding as to how regulatory problems interrelate and compare, through the construction of environmental regulatory choices and the production of normative preferences. This thesis has only begun to recognize this complexity.

7.4 Limitations

The accommodation of the formal, social, voluntary and informal norms depends on the convergences or divergences of the normative framings. This research has demonstrated that in order to bring forward a research agenda that has an understanding of normalization as general practices of rule making regardless of its formality, normalization will tend to be more analytically linked to its reconstructed narratives to discover in which cases normalization of social or voluntary norms may work together or against each other or complement or act as a substitute for each other. In any case this is more a comparative task of preferences than an isolated one. Norms or rules need to be examined empirically and comparatively across social practices and contexts in order to place those hypotheses in different discursive arenas such as institutional, legal frameworks, or more recurrent cases of capture or corruption. However there exist important theoretical gaps to consider and these are related to the role of normalization in the legal or non legal regulation. This thesis has only taken the first steps in this direction in order to improve that research agenda given space limitations.

For these reasons, room to manoeuvre and regulatory accommodation in this thesis were only briefly elaborated. However, this thesis has provided the landscape of disciplinary values each of which positioned itself in relation to western disciplinary values or in the 'continuum' space between values, close to which regulatory change can be steered and paved. In this respect, it has achieved its purpose of providing tools to account for the difference and commonality of styles of regulation. This proves helpful not only for understanding how likely it is that global standards will be applied and how they will be applied locally or in the production sector, but also the nature of the regulatory distance. Nevertheless, an important point in this work of discernment remains the hybridity of discourses in terms of the embeddedness of topics. In this case, the thesis brought together topics such as food safety and animal health environment knowing conceptually and analytically that they are often correlated. However for specific purposes of the improvement of more tailored assessments of regulatory topics, the data collection and the according analysis need more attention when a discourse enters a different topic. As has been observed in the case of the travelling of international standards or recommendations to sub-national farming production sites, this topical embeddedness is important. The results showed that if those embeddedness are not considered from the beginning of the research design those subjects can add complexity in the interpretation of discourses and influences of subdiscourses and therefore they need careful attention (i.e. animal health management, disease control, resource uses in farming, slaughtering, and transportation). Given mutual influences and sub-discourses, this interpretative work requires thus a more balanced and systematic approach of questions identified from the beginning in order to avoid as in this case, unnecessary time consuming transcripts of issues far away from social or legal regulation of the topics of interest. This was the case for instance of National and local decision makers and regulators, where more data could have been generated in terms of the hidden arrangements for the analysis) and which could not be fully re-contextualized. A possible solution can involve making better efforts to detect the boundaries of embedded topics with the help for instance of complementary methods of data collection, such as questionnaires, story-line surveys, etc, instead of purely open ended interviews.

Finally, despite important advantages of qualitative discourse analysis in particular in understanding hidden narratives and arrangements one of its main limitations is its time consuming character in terms of data collection, as well as in the analysis. This is particularly the case when conducted as a granular and relative comparison and mutual exclusion of a variety of frames (such as in the case of stakeholders´ day-to-day accounts) and instead of a purely dichotomic narrative. The belief was that this will nuance the debate of regulatory choices despite the lack of empirical data in existence.

7.5 Future Research

The thesis has examined normalization of a disciplinary practice in a general sense. It has, however, left open the conceptual spaces of formal legal regulation and informal regulation. The thesis recognized that normalization is a practice that pervades all sectors of society. These sectors are changing rapidly in the density of social interactions and with this change, its modes of apprehension have become quicker and mutual influences are happening more often. According to the platform of regulatory choice presented in this thesis thus, it is not so much that new forms of regulation are appearing (Smith and Fischlein, 2010) in terms of 'new' agentic capacities or 'new' knowledges rather than new combinations, including a growing recognition of the value of informal regulatory practices, analytically, politically or practically. It can also mean that these recognitions can add simply more cacophony by accumulating new inconsistencies through exaggerated claims. Those 'new forms of decentred regulations' or shifts in power (from the rule-making powers to those subjects to power and then back to re-regulation in different fronts and shapes) are becoming more dense but not necessarily changing radically from the classical discursive grid. This does not necessarily imply chaos, but only that the need for a more aware and rapid integration of environmental concerns and degrees of decentred autonomy as well among legal and social practices will appear key in fulfilling the speed of the 'gap' of constructing legitimate choices, in this case in the resilience and safety of agro-environmental exploitations.

The thesis has addressed the aforementioned contributions. It has, however, not examined in depth the interrelations of such semiotic strategies or regulatory framings in terms of harmonization. More specifically as homogeneity is not a real possibility in terms of compliance, conflicts of harmonisation at the intergovernmental levels will continue to appear and with it threats to the legitimacy of the WTO as a neutral arena able to ensure the resilience of the agri-food spaces. Instead of ignoring any responsibility in the constitution of dominant discourses, WTO could improve its own legitimacy by giving space to address the state of awareness of emerging (il)legitimate discourses of compliance. This thesis has brought to light the lack of systematic consideration in the 'amicus brief' element in the dispute settlement. Acknowledging that practices of consumer preferences in developed countries and traditional farmers in developing countries share the same framings of ecocentric concern and levels of autonomy - and appear to work at the level of general principles as standards of conduct, could be a starting point in this direction. With it, the possibility of cooperation between ´lower status´ framings of actors, research and research funding in these directions could be more fairly and systematically improved. This would also be the case for the creation of platforms for awareness of emerging practices and their normative values and discursive

distance or consistency with Sustainability. It would be then potentially a step in moving towards a middle range framing of hypothesis through which stakeholders' knowledge preferences could construct arguments of protection principles of public goods, identify the gaps and point towards the accumulation of the basis of scientific knowledge in this direction alongside the international standard setting process. Other possibilities include the recognition of advantages or disadvantages of frameworks to 'capitalize' the already existent traditional farmers´ low carbon mechanisms or the sector demand for more interventionist mechanisms such as the need for partial industry regulations as observed in this research case.

International organizations would not be called on to supply the platform for purely formal legislations that will only complicate the different regulatory ideas but to recognize the growing influence and awareness that emerging countries' different autonomy capacities have over the recommended mechanisms. Even though at the formal level those mechanisms may be followed to ensure some degree of flow in the institutional arrangements (i.e. legal resolutions) the gaps in legitimacy ultimately accumulate translating into minimum levels of compliance, rising transaction costs and into insufficient or counterproductive effectiveness of the original intended regulation.

This thesis represents only a first step in this direction but it has departed from the need to recognize that a more important definition of the relationships between formal, voluntary and social norms and the variety of relationships needs to be addressed in the future.

A final aspect in terms of the future in discursive research, is to keep comprehensive 'snapshots' tools of discourse analysis and to study their empirical discursive consistency, mainly between knowledge and agency as well as beyond them. Future research should undertake more longitudinal analysis in order to understand the degree of the discursive inertia or resistance to change or the influence of place and discursive hybridity in the remaking of regulatory change. This would soften the very practical regulatory and political expectations of radical change where they are not to be found and instead lead to an understanding of the pace of accommodation according to the diversity and proportions of intended change. For such alternative effective and legitimate pathways the study of how to increase the room to manoeuvre should be increased- for the same regulatory objectives of resilience of and within the commodity chain. Further research will have to analyse in greater depth the integration and concrete accommodation of the different semiotic practices analysed for normative purposes, for instance how to steer more concretely these frames in the vicinity of Sustainability.

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9 Appendix

9.1 List of Interviewees, including pilot study[125]

Interview and Post	Actor in Framework	Place	Type of interview
GTZ-TIDP and EIC Public Officers (2)	Public Sector, international	Delhi	Formal, semi-structured, in person
VIV- Indian international Firm (1)	Vet- Science (animal health provider)	Delhi	Informal, semi-structured, in person
VIV-Indian Poultry Firm Vet (1)	Vet- Science (animal health provider)	Delhi	Informal, semi-structured, in person
VIV-Indian Poultry Feed Additives Firm (1)	Vet- Science (animal health provider)	Delhi	Informal, semi-structured, in person
VIV-US Free Cage NGO Activist (1)	Vet-Alternative (NGO)	Delhi	Informal, semi-structured, in person
ICAR Directors (2)	Public Sector Federal (Domestic Market) and Processor/Integrator	Delhi	Formal, semi-structured, in person
Processor Manager (1)	Processor/Integrator	Coimbatore	Formal, semi-structured, in person
EIC (1)	Public Sector Federal (Exports Market)	Delhi	Formal, semi-structured, in person
Public Officer and Director (ICAR) (3)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
IAH Toxicology Technician (1)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
IAH Technician (1)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
IAH Technicians Avian Flu Laboratory (4)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
IAH Public Officer and Director FMD (1)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
IAH Public Officer and Director of Diagnosis (1)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
IAH Public Officer and Director of Laboratories (2)	Vet-Public Sector Local/Regional	Bangalore	Formal, semi-structured, in person
Semi Intensive Farmer (2)	Processor/Farmer	Rural Coimbatore	Informal, semi-structured, in person

[125] This list includes not only the material utilized for the sample corpus for the quotation analysis of the Chapter Five, but also for the recontextualization of frames and literature review when appropriate.

Intensive Farmer (1)	Processor/Farmer	Rural Coimbatore	Informal, semi-structured, in person
Intensive Farmer (4)	Processor/Farmer	Rural Coimbatore	Informal, semi-structured, in person
Semi Intensive Farmer (1)	Farmer	Rural Coimbatore	Informal, semi-structured, in person
Retailer (2)	Retailer	Coimbatore city	Formal, semi-structured, in person
Animal Health Company (2)	Vet-Alternative Holistic	Delhi	Formal, semi-structured, in person
EIA-Director and Poultry Officer (2)	Public Sector Decision maker regional	Chennai	Formal, semi-structured, in person
EIC-Director (1)	Public Sector Decision maker Federal	Delhi	Formal, semi-structured, in person
Training Farmer Institute (2)	Vet-Sound Science	Rural Bangalore	Formal, semi-structured, in person
TFI-Intensive-Extensive Farm (1)	Farmer	Rural Bangalore	Formal, semi-structured, in person
TFI-Intensive Woman Farm (2)	Farmer	Rural Bangalaore	Formal, semi-structured, in person
Intensive Farmer (1)	Processor	Bangalore	Formal, semi-structured, in person.

9.2 Synthesis of DF Coordinates in transcribed interviews and formal resolutions explicitly relating to sanitary standards, food safety and animal health.

Sector		Environmental Discursive Framings (All Coordinates)																				Environmental Discourse
		Human-Nature Discipline (n) (Y)										Individual-Social Discipline (s) (X)										
		EPR	**PR**	**PS**	**EPS**	**IPS**	**IPR**	**SV**	**Breg**	**LG**	**EM**	**EPR**	**PR**	**PS**	**EPS**	**IPS**	**IPR**	**SV**	**Breg**	**LG**	**EM**	Coordinates **(majority)**
Farmers	*Traditional Farmer*								2	**4**								1	1	**4**		(LG, LG)
	Small Intensive (Contract) Farmer		2	2		**8**								**6**		2		4[126]				(IPS, PS)
	Small Intensive (Contract) Farmer					4								4								(IPS, PS)
Contract Integrators	*Processors-Integrator 1*	**1**	**2**				1						1	**2**								(PR, PS)
	Processor-Integrator 2		**9**			**1**[127]							**2**	**5**								(PR, PS)
	Processor-Integrator 3		**7**											**9**								(PR, PS)
Ministry of Agriculture	*Ministry of Agriculture Officer 1(National)*									**5**										**5**		(LG, LG)
	Ministry of Agriculture Officer 2 (Regional)			1	**10**			3[128]						2	**10**			3[129]				(EPS, EPS)
Animal Health Services	*Animal Health Company Specialist 1*	**10**	1									**11**	1[130]								1[131]	(EPR, EPR)
	Animal Health Company Specialist 2	**4**	1[5]										**8**	2	3[132]							(EPR, PR)
Ministry of Commerce[133]	*Export Inspection Council Officer 1*				**5**										1			**4**				(EPS, SV)

[126] In relation to the Government Support (2) or when talking about Animal Health Companies (2)
[127] Regarding Biosecurity
[128] In relation to Water and Electricity
[129] In relation to Water and Electricity
[130] In relation to manufacturing certification GMP
[131] In relation to Trade Standards
[132] In relation to global demand and rising feed prices
[133] Trade Ministry interviews were transcribed but explicitly demanded confidentiality, for this reason only the results are included.

WTO Resolution	*Dispute Settlement- Hormones Case Resolution*			**5**				3[134]						**5**				3				(PS, PS)

[134] Response to the EU criticism perspective

9.3 Sample Corpus and Framing Analysis

(a) Nature Ideational Scale (Choice of Representation of Knowledge): How is the concern of Nature framed in this quote/paragraph? What is the rationale of Nature represented? Is the rationale towards Nature framed as a general deductive logic, general principles or assessments (i.e. a *value*) **(Gral)**; is the rationale framed as a pre-given cause-effect mechanism with *concrete* **(Cr)** *connexions* of facts and evidence (i.e. rationalistic argumentation)?**;** or does the rationale appear as a correlation of qualities, as a claim of *distilled correlations* **(Dll)** or attitudes with no triggering action itself, nor a deductive principle?

(b) Experienced Agency of Nature (Visibility of (non-) interactions): How is agency of nature revealed in this quote/paragraph? Does agency of nature appears *visible* only through its object-like or *instrumental qualities* **(Inst);** through its more human-like more *interactive or interdependent qualities* **(Intve);** or does it appears as *non-transactive* **(NT),** unilateral, authoritative and hierarchical, implementing and demanding equally radical actions over its counterparts as the only visible solution to bring the situation "back under control"?

(c) Social Ideational Scale (Choice of Knowledge): How is the concern for other Stakeholders framed in this quote/paragraph? What is the *rationale* for other Stakeholders to part taking? Is the rationale towards other Stakeholders framed as general principles or general deductive assessments **(Gral)** requiring no more explanations; is the stakeholders´ rationale framed like pre-given facts and problems with expected *concrete* **(Cr)** *cause-effect* mechanisms (i.e. rationalistic argumentation); or does the rationale of the part taking of stakeholders appears justified as correlated qualities, as claims of *distilled correlations* **(Dll)** or attitudes with no triggering action itself, nor a deductive principle?

(d) Experienced Social Agency (Visibility of (non) interactions): How is social agency of Stakeholders revealed in this quote/paragraph? Is social agency visible only through its instrumental object-like qualities **(Inst)**; through its more human-like more complex interactions **(Intve)** with selected levels of agency fore-grounded and visible? Or is social agency of Stakeholders rather non-transactive **(NT)** and unilateral, therefore hierarchical, implementing and demanding equally radical actions over their counterparts as the only visible solution to bring the situation "back under control"?

Sector	Topics (Axial codes) relating to food safety and animal health in farming environment processes ↓	Normalisation practices → (Axes X, Y) relating to Environmental and Social Disciplines Political Philosophy level → (a, c) Scale of knowledge concern (b, d) Visibility of agentic autonomy Socio- Semantic Devices → (Frames of Scales and of Visibility of Interactions) Number of subtopic quotes ↓	Human-Nature Discipline (Y) Nature Concern Representation (a) Framing *Scale* of human-nature rationale/concern **(Gral, Dll, Cr)**	Human-Nature Discipline (Y) Expected Nature Agency (b) Framing *Visibility* in human-nature interaction **(Inst, Intve, NT)**	Individual-Social Discipline (X) Social Concern Representation (c) Framing *Scale* of social rationale/concern **(Gral, Dll, Cr)**	Individual-Social Discipline (X) Expected Social Agency (d) Framing *Visibility* of social interactions **(Inst, Intve, NT)**	Combined Disciplines Environ-mental Discourse Discursive Framing
Farmers	Food Safety Processes + Animal Health and Farming Environment	1-1E How do you manage the diseases when they get ill? I: They don´t get easily ill, because they can be grown in all the places, they resist different environments, you know. E: Oh I see what kind of environments? I: Their immune system is very resistant ma'am, everybody knows that here. You can give these animals different feed and leave them in different environments, they usually have no problems E: No other diseases? I: They are used to all common problems ma´am, these animals are used to that. *Traditional Farmer*	**Gral–** No need to "prove" knowledge or to go in any more detail in any concrete way, animal health awareness framed like a general principle where exposure equals immunity resilience.	**Inst–** Human-animal health relations framed through object-like reference such as animals´ 'resistance'. Animals appear as beings independent from humans 'you can leave them' anywhere.	**Gral** Principle that self or other farmers do not need to act in different ways given ´common´ knowledge of problems in different environments.	**Inst** Social transactions with other farmers filtered through the object-like references such as ´places where animals can be grown'. No interdependent relations.	LG
		2-1E: But ask him, how does he control diseases at all, what happens if there is an outbreak for example? I: Something that they do whenever an outbreak happens, he says that they will take the dead ones to the veterinary hospital, because those are the ones causing the disease and they will cut it and find the problem and the disease, they will give you the medicine for all the diseases. *Small Intensive Farmer*	**Dll-** Sense of knowing of animal disease coming from dead animals (effect) but no rationale or a priori value justifying this is framed.	**NT-** No human- animal interaction. Suppression of agency through dead animals. No agency given to pathogens causing disease, animal symptoms or to ecosystem.	**Cr-** It is believed that the cause of the disease relies on the contagion of those viruses left by dead animals.	**NT-** Self de-agentialization in unilateral action: They will take, they will cut, and they will give the medicine. The self or others do not need to interact in any way; others have control of the situation.	IPS (N) PS (S)
		3 -1E: So there's a veterinary hospital. I: And there's one more medicine, this medicine is very well known and can be given to all the birds, you know it's like (…) medicine. He says it's very common ma'am, it's like polio that is given to the babies you know, it can be given to everybody and it's very common to protect from diseases. So the problem is solved. And no side effects, he says. *Small Intensive Farmer*	**Gral-Dll-** Analogy of how common vaccine protects from other diseases but no clear cause-effect mechanism despite possible different nature.	**NT-** Human-animal disease relationships replaced by vaccine. No agency given to pathogens causing disease but unilateral agency to 'protect' from disease.	**Cr-** Those given the medicines will be protected from diseases (cause-effect mechanism).	**NT-** It is given to babies (or entities with little and dependent agency), unilateral action.	IPS (N) PS (S)
		4 -1F E:: Ask him if it´s important to prevent the disease or not I: Yes, very important, and the farmer comes here to check, but they [animals] don´t get sick often, because they grow slowly. E: So If it´s not disease, what could be improved so animals keep always healthy? I: He says that no problem Mme [healthy], animals are always healthy, only problem is wild animals. he has to build fences quite often and some homeopathy that's all. *Traditional Farmer*	**Gral-Dll-** Attitude that animals don't get sick because of slow growth, abstract in a sense but with observable correlations.	**Intve-** Management of human-animal health relations filtered through holistic homeopathy – opening to complexity of that relationship, just as humans.	**Gral-** Under the principle of slow growth, the farmer does not need to justify more action towards the animals.	**Intve-** Farmer comes to monitor but his actions do not appear hierarchical or instrumental, since animal care of themselves is 'always healthy'.	Breg

		5 -32F I: The farmer knows that the feeding habits also change ma'am, according to the [weather] changes. So first they start by giving the food before 12 o clock, and at the end the feed will be starting at 4 o'clock. That depends on the [weather] changes. He says, only loss will be suffered if both of them happen you know, this person and the bird are not able to [the feeding action]. They can´t get a backup) if there is a power cut… for the energy, you know. *Small Intensive Farmer*	**Dll-** Relations are habits rather than cause-effects relations. Changes in feeding are known to be triggering and regulated concrete mechanisms.	**NT-** Human-animal relations as systems have clock qualities.	**Cr-** If a person is not able to feed the bird, the effect will be a concrete loss.	**Inst-** Farmer agency is represented through a function of the body's feeding schedule	IPS (N) PS (S)
		6 -E: So it's not a huge loss, isn't it? It might be a loss when it's a very big thing or illness, like bird flu or other diseases, or how does it work? 32FI: They will see if diseased animals are not 500 hundred. In one train [transport] from the 8000, if 500 are dead, then the doctor will come and he will check all the problems and eh, they will cut the meat, to check it completely, he says... to know what kind of disease has affected them. So they will rectify their problem, so it does not go beyond 500... If it goes beyond 500 then it is a problem. *Small Intensive Farmer*	**Cr-** Animal is a meat concrete concern.	**NT-** Unilateral knowing: animals as passive numbers. They are 'affected' by disease, not hosting, Incubating it, fighting it, etc. No agency given to pathogens causing disease, only monitoring.	**Cr-** Actions represented by mechanisms of monitoring on numbers (mathematical proportion appears explaining the cause or spread of disease).	**NT-** Unilateral actions, Doctor will check, cut and rectify the problem, not need to test it or to make further inquiry. The self or others do not need to act in anyway.	PS
		7-32 F E: So what is the biggest problem like the weather or disease? I: He says both are the reasons for that, both and even though chicken might have some problems inside its body, you know like liver problems... These kind of ... liver problems, and the problems that happen inside its bodies… diseases, it comes around to 20 per 8000 birds. They need to be controlled with medicine. E: for traditional poultry also? I: There are different options, they have other options.. *Small Intensive Farmer*	**Dll-Cr-** Knowing represented by evident actions such as liver problems as the cause of dead birds. However these problems are plurals not concrete causes.	**NT-** De-agentialized animals. Relation with animals is non transactive, they are bodies that need to be controlled.	**X**	**X**	IPS
		8 -1E: So this poultry goes to the live market… and how do you control the diseases, through vaccines? and who apply these to the animals? I: Gender mecin, Mme. Gender mecin is the vaccine. It is available in the hospitals Mme. It's available in medical centres and costs thousand rupees. Only once has to be applied. E: And how does it work? I: Gender mecin Mme. Everybody knows about it. If all follow it, there is no problem Mme. E: For all kind of symptoms? I: This is why they bring the animal to the [veterinary] hospitals and they know Mme. *Small Intensive Farmer*	**Dll-Cr-** Knowing that vaccine is available is enough to explain the origin of diseases, no clear relationship on the cause or principle.	**NT-** No pathogenic or animal sentient agency is needed. Animal disease is solved by vaccine intervention since uncertainty is considerable.	**Dll-Cr-** Social actions contained in the 'availability' and immediacy. Social input is to assume that general and abstract 'common knowledge' is there.	**NT-** No agency to the farmer, and over agentializing medicine ´availability´ The self and all others only need to act this way.	IPS
		9 -1 E: These animals are very active I: Very active, yes. Is food intake Mme. This is not like the other ma'am. Because if it becomes inactive, they [other intensive farmers] put medicines, so they [animals] keep moving and it's in the intake. But this one is very active like that because it's the original one. It doesn't need to growth that much [as suggesting that this doesn't 'need' any extra thing to keep moving and grow disproportionally]. *Traditional Farmer*	**Gral-** Gral principle that local breeds are the original ones and all the rest is artificial	**Inst-** Food intake is the tangible problem. It causes animals to become too active since its not in their genes	**Gral-** There is a general principle of differentiation in comparison to other farmers´ knowledge. Proportional grow is a better principle of differentiation.	**Inst-** Relation to other farmers (and proportional grow) is encapsulated on putting or not the medicine to the animal.	LG
		1-1FI: This is a very special meat, very vigorous, like the one suspended on the wall. E: Special Meat, why is that? I: It will be just there to hang on the wall E: Hang on the wall, what do you mean? I: Yes because it's for meat you know Madame, because it's very tasteful (dehydrated meat). Because obviously the legs and the meat are much more tasteful. This is different ma'am There's	**Gral-** No medicines, no side effects, better recipes for Biriyani. No correlation between medicine and taste or type of breed	**Inst-** Animal is substituted by tangibles like dehydration, taste, weight and ultimately meat.	**Gral-** Good business in organic farms is typically the result of a general principle of good weight and good taste.	**Inst-** Farming is still ultimately measured through a business model. Farmers seen only through the lens of the	LG

		no medicine and no side effects for the people who eat this you see. The reason why this is a business is… E: The price? I: No Ma´am, the weight of the bird. A: So would you call this is organic? I: Yes, organic. E: And where does it go from here? I: it goes to Bangalore live markets, where people can buy it directly, they can choose it, you know and they know they will get good taste for Biriyani [recipe] E: Do people make the difference? Do they ask where does it comes from? I: Everybody knows that for Biriyani chicken needs to be tasteful.. E: I see.. do intensive farmers dehydrate the meat too? I: Some of them.. *Traditional Farmer*	causality though but a comparative reasoning.		Consumers can choose but no correlation done on how to identify the differences on they can choose according to the precedence of the product.	dehydration of meat.	
		11-31E: Has he thought to suggest ideas for things he might be interested in? I: Ideas like what? He means, he does not need any ideas, but he does need the support of the government. E: Ah well, there are many things that could be better researched? I don't know, you know strategies to reduce waste, avoid reduce weight, manage resources, diminish all diseases...things like that. I: He's saying something about the climate changes. He says that this is ultimately a very simple work... and... he and the animals can sense the climate changes... so... they can react according to what they know. He uses a mix of herbs like turmeric, long pepper, and red sage mixing. He says it is common knowledge Mme. You put some natural plants to prevent colds, which are all he says… E: (A big silence) Well, so we have to work on ideas for him then... (Laughs). *Small Intensive Farmer*	**Dll** The work is simple, they can react according to common knowledge of concrete remedies for which no concrete evidence is given but correlations are done.	**NT-** Farmer-Animal Health relationship is filtered through concrete herbs but no control of results is given or more interdependency of research.	**Cr-** Farmer does not need any further ideas at all. They need a more concrete tangible.	**NT-** Government appears only as the actor giving support to farmers, farmers imply they 'need' the Government.	IPS (N) PS (S)
		1-1E: So ask them if they [these animals] grow fast (…)? I: The other grows faster than this ma-am, because medicines are given to them and also in the birds 'eyes. The veterinary puts medicines also in the eyes [to the animals in intensive farming], these ones are different. 1I: He says that they are mixing a lot of medicines. Because in the others they give 'medicine' 24 hours: in food, in water, etc. so they grow faster in the other and it reflects in the body ma'am of the people who are eating that. E: And that makes him different? What about other things, does it tastes- better? I: [with the head saying yes], and he sells well in the market for the local recipes. *Traditional Farmer*	**Gral-** No medicines, no side effects, better recipes for local recipes. No correlation between medicine and taste or type of breed or causality though but a comparative reasoning.	**Inst-** Relation with animals´ health is filtered through the physicality of the animal and through particular positioning on the market such as taste.	**Gral-** Medicine given by Veterinarians in eyes contributes to fast growing.Differentiation of this knowledge in relation to other farmers appears important.	**Inst-** Relation to other farmers in terms of medicines given to animals and local recipes	LG
		2-31F E: So how he organises the rearing activities? I: it depends on the conversion rate. Around 15 000 kg per month, so after 42 or 45 days when they come for the animals they pay. E: So how many kilos would that be? I: The profit varies according to the weight ma'am. So 15000 kg per 3 so 45000 should be the win, but it always varies depending on the weight. E: So what would he do to have more weight? I: He gives the feeding and other additives that provide the contractor, E: Do they decide on the feeding, the rearing or the prices? I: No, they [processors] control the manure, the prices, everything. E: Is that all? How do animals react? Does he notice any changes? I: Some are very nervous so he has to check if everything is there, you know, water, etc, or for other animals [predators] you know. E: Ok, everything... I see. Is it a fair process?	**Dll** Days of rearing translate into calculated growth that varies, but no explanation why. Animals security is framed in a distilled way too ("he has to check for animals not to get "nervous") but no tangible process on how to do it is established.	**NT-** Animals are actively recognized as sentient beings that become nervous. Despite this, relation to Animals Feeding is non transactive and based on conversion rate of animal products and kg only.	**Cr-** Concrete rather than abstract, relationships to others are defined mainly in terms of numbers of animals and tangible provisions, such as profit share, debt cycle, etc.	**NT-** Social interactions are suppressed; farmers feel the pressure of control of manures and inequality in the sharing of margins. "He has no choice but to keep doing it", the farmer has to pay his debts.. The others control everyghing.	IPS (N) PS (S)

		I: No Madame, processors are not interested in sharing a fair profit with them. E: So why does he keep doing it? I: He has no other choice Mme; he says he has to pay his debts. *Small Intensive Farmer*					
		3-2F- 21FE: ask him what´s the main risk for the animals then to control disease I:, he says that fences and Homeopathy E: Homeopathy? To control or prevent [disease]? I: Yes, yes, to prevent the cold and recovery, but that´s all, Homeopathy is good because no side-effects mum. E: Has he worked for any other farm, maybe big integrators? How does he think they manage diseases? I: He hasn´t but he has heard animals there are very ill. He hasn´t worked there because they pay less than here and here he can take poultry for him. *Traditional Farmer*	**Gral-** Principle that Homeopathy is good because no side-effects.	**Intve-** Human-Animals interaction is of prevention and recovery. Agency of animals is higher than its body parts weight.	**Gral-** Farms with ill animals also pay less and can´t take animals with him.	**NT-** Actions of other actors [integrators] are contained in 'animals there', unilaterally.	Breg (N) SV (S)
		4-1F And the reason for the price he says is the chicken are taken from here, so it is ready to cut and all the feathers will be taken off. So the weight automatically will [be a] loss. So that is the reason for heightening the prices you know, because they'll need some profit. If prices are already low from here. E: But all the transport and so on. I: So they can compensate that loss too, through the weight loss. E: So can they negotiate the price? I: […] it's a good profit [for processors]. The price goes to 40-43 rupees per kg in the market. They need to select to sell to some other prices. *Small Intensive Farmer*	**Cr-** Visible cause-effect mechanism: feathers are taken off and weight automatically will diminish.	**Inst-** Animal is viewed through weight only, no interactive agency.	**Cr-** Price is already low with feathers, given very controlled price; profit is good for processors in the market.	**NT-** Unilateral actions contained in the price mechanism, which is not negotiable, market is controlled.	PR (N) PS (S)
		5-31E: So they [processors] are controlling the market..? I: Yes, very big, they are. E: What would be the solution to this [against the controlling of prices], the help sort of needed, does he need the State to help him, like loans or is it more like the research on nutrition and health? I: He says, that current data, so, he has to pay 5 rupees per unit, that can be reused you know, that can be done by the government, by reusing the electricity expenses. It can come to 1.5 rupees per unit [of electricity] and also, the government has to intervene and renegotiate with these people [the processors]. *Small Intensive Farmer in relation to the Government*	**Cr-** Knowing of Farming Energy uses represented by electricity.	**Inst-** Human-farming resources filtered in terms of expenses and costs.	**Gral-** Principle of inequality in social transactions (in relation to processors, they are very big controlling the market).	**NT-** Agency of farmers disappears and unilateral action from the State is required (subsidies in energy use) and renegotiation of State with Processors is expected.	PR (N) SV (S)
		6-31F I: Because once in a month, people like you, 2 members or 3 members they will come here. E: Really? From Universities? Very far away? I: 60 km from here. They all do, when they're discovering a new medicine or product like that, they are asking above all on the procedures of rearing, medicines and all that. Or on what causes the diseases. But they are not interested in giving them some ideas back E: Ok. *Small Intensive Farmer in relation to Animal Health Companies*	**Dll-** When farming discoveries are done, a new medicine or product is developed for animals	**NT-** Nature has secrets that need to be discovered, Animals themselves don't know either.	**Gral-** Farmer does not know his contribution to new knowledge happens, but he knows he is part of the sample.	**NT** Unilateral (in) action. Scientists don't want to share with them any ideas but. De-agentialization of their capacity to change this.	IPS (N) SV (S)
		7-32 I: Because we're not gaining anything. It's their project. E: So do you mean it's different than interacting and looking forward to give some ideas for him, right? I: They'll come as they come they'll go. They'll bring these cameras on farming processes and they will make some photos, he says	**Dll-** When farming discoveries are done, a new medicine or product is developed for animals	**NT-** Nature has secrets that need to be discovered, Animals themselves don't know either.	**Gral-** Farmer does not know his contribution to new knowledge happens, but he knows he is part of the	**NT-** Unilateral action: They´ll come as they go no transaction or gaining anything from the	IPS (N) SV

		E: Well, we're doing that, we're trying to understand the conditions, but maybe from a neutral perspective. I: In relation to these people no, they get the knowledge for them, to discover and sell a product you know... *Small Intensive Farmer in relation to Animal Health Companies*			filmed sample	project, Principle of unfairness, scientists will get the knowledge and the profit of it not us.	(S)
		8-31I: Our government is not good he says. It's not administrating. E: Because there is a lot of potential. I: Even if they get the support, you know, it's always the rich people, you know who get the big shots, you know, they just get all the support for them and in this case with medicines too. *Small Intensive Farmer in relation to Government and others*	**X**	**X**	**Gral-** Rich people get the support.	**NT-** Unilateral action. The others get all support from government.	SV (S)
		9-1F E: So If it´s not disease, what could be improved so animals keep always healthy? I: He says that no problem Mme [health], animals are always healthy, only problem is wild animals, he has to build fences quite often and some homeopathy and that's all. These are the main solutions of the problem. *Small Intensive Farmer*	**Dll-** Attitude that wild animals are a constant issue.	**NT-** Human-Farming risks replaced by fences. No agency given to wild animals in this case.	**Cr-** Actions are self-contained and are the solutions to the problem	**NT-** Social transactions replaced through checks of the farmer (boss) surveillance.	IPS (N) PS (S)
		10-32F I: Because he is here in this place. And he says this is the time when the climate changes. So when it is cold, he uses his medicine, by just mixing turmeric, keppo and chilli powder, mixing, putting all together and feeding them with it. E: There are so many natural things..! Do they always work? I: If you put the right mix, it works very well. E: Is he using it regularly? I: Everytime he can, since processors control all activities. E: so processors don't know? I: No, they don't. *Small Intensive Farmer*	**Dll-Cr-** By mixing herbs all together the outcome will be there (cause-effect).	**NT-** Animals react to climate changes and to farmers' remedies.	**Cr-** Inductive principle that farmer knowledge of remedies has a positive effect in animals (cause-effect framing).	**NT-** Farmer deagentializes himself from the responsibility of controlling diseases.	IPS (N) PS (S)
		11-32F I: This problem if not settled you know, the cold problems...it's not solved quickly only medicines will do. Again is about climate changes. E: If he starts this natural healing, who pays for that? I: It comes out of his pocket. Mme, It seems, medicines are plus strong over natural medicines. Weight loss would be the result. Loss of weight would be the result. *Small Intensive Farmer*	**Dll-** The problem has not a concrete cause (cause-effect) with a quick solution, since causes are varied (changes)	**NT-** Animal seen in terms of kg and organs, independent from human agency.	**Cr-** Strategy of farmer feeding them with natural remedies to compensate weight loss and liver damage.	**NT-** Unilateral payment is expected from Integrator as well as control of weight.	IPS (N) PS (S)
Processors	Food Safety Process + Animal Health and Farming Environment	PST1-E: How do they feed, them what is the food you give them? I: Maize will be boiled, that will be given to those chicks E: And to these ones? I: These ones also, they can put maize, plus corn, or soya beans. this is mixed E: Also fish as well? I: No, no fish. only broilers eat small fish so they can gain more weight. E: So their body is strong, and they don't need to eat the fish. I: If they take more food, they will grow. So they can't meet the supply and demand of food and chickens. so E: I understand. ok I: the weight should be from 2kg to 200 grams for females and up to 2950 for males. And they don't need any powder. They growth "naturally". [this poultry is known as layers-for egg only] E: Yes "naturally". I: Those chickens are different because of they grow different. Chickens here belong to the same age; the next house is older than these. Is this good brand, good quality, because of the food it needs. E: Who provides the feeding?	**Cr-** Feeding is a concrete mechanism made of particular ingredients to fulfil their genetic function (layers are different than broilers which need other ingredients for their weight).	**Inst-** Transactions with animals are in terms of their body parts (weight, supply and demand of food, etc).	**Cr-** Carers understand their role in the chicken meeting the supply and demand of food.	**NT-** Transaction with other stakeholders is often delayed or question avoided.	PR (N) PS (S)

		I: You can ask the main vet Mme.					
		2V2I: The broilers will be taken to the local place, from the 23rd week. But you where asking about exporting right? E: Yes. I: They are also exporting to Kuwait. E: Right. Ok. I: In the 65 week it will be transported to Kuwait, and will be sold to most of the hotels. E: To omelettes as well (laughs). No, no. to chicken..! but they don't have any problem with the climate changes, or any other type of risks, or a particular disease..? I: No, they say they just put the medicine at once.	**Cr-** One medicine will prevent disease.	**Inst-** Animal is treated in term of its costs.	**Cr-** Relation with farmers is based on costs mechanisms.	**Inst-** Export country is (not known for quality, but) functional to the selling of adult layers (parents).	PR
		3-V1I: Most of the raw materials or ingredients of feeding are being produced here in India. Amino acids those are not here, and for those kinds of products we are dependent on Europe. Otherwise most of the ingredients they are all here. E: That is an advantage. V: The problem is that the most important ingredient of feeding is maize. This means it is now competing with canola or biodiesel. Animal sector (maize) and biodiesel sector are competing. What that means that this is a challenge for the industry. The problem is that we can't buy it from another country. E: Well there is here biotechnology. V: There are these problems of feeding with maize. It is very interesting because then it makes this not that expensive, depending on the feeding. All local activities make it less expensive. E: What could make it less expensive? V: Well, we have to make it. See what happens, If maize is not available we have to use other raw materials unconventionally ingredients such as sorghum, 'millex', you know millex/millet/. (20:10). It is a product from Germany, millex. This can be used but has some limitations, since it cannot be digested and it has a very high content of carbohydrates and cannot be absorbed so we have to add a kind of engine. This kind of biotechnological product.	**Cr-** Mechanisms of absorption of ingredients in the body explained.	**Inst-** Animal body represented as an 'engine'. We need to add a kind of engine for the product to be absorbed.	**Cr-** Price mechanism explained through differential of inputs, mechanisms of competition between feeding and biodiesel explains suboptimal .	**NT-** Local activities are represented as costs and actors attached to them, deagentialized.	Pr (N) PS (S)
		4-V1: So this feeding product has to be converted to energy and muscle but at the same time. Carbohydrates need to be in a form that can be absorbed inside the stomach and fibre needs to be put in there. E: Is it not a problem for the bird? V: Not at all. It is not going to be a problem for the bird. E: Like rotation, you rotate the products in the market V: Rotation is for antibiotics and antimicrovirals so these don't need rotation. E: You have backyard farming as well, how do you proceed, do you go to the farm or... V: They are following the guidelines. There are regulations of what can be used and how much can be used. E: The guidelines of the processor regulate how much feeding the bird becomes? V: Exactly, we have had a lot of problems because of that. E: Problems? Ah Software problems? (he is showing me). Oh so If I am a small farmer and want to feed my poultry, can I do that? V: You can do that but you have accordingly you have to formulate, how much energy the broiler needs, how much food, how much vitamins they need. E: And it is at best a veterinary that does that, or is it an inspector, or a consumer association that plays a role? V: Exactly, it is a veterinary nutritionist (from the company).	**Cr-** Mechanisms of energy conversion/intake explained.	**Inst-** Exact intake is not a problem for the bird, agency only through formulas, intakes and software.	**Cr-** Mechanism of implementation of intake explained through the need in following the software guidelines (by the farmers) .	**NT-** It is the regulation that deals with the farmers – in the production site-, not us.	PR (N) PS (S)
		5-PHT1-E: Ok. Well that's interesting: it comes from Netherlands and they don't give any of them, you know to be grown by the farmers, you know, so the farmers rear them. I: No madam. That is broiler ma'am, meat, low cost meat madam. This is very expensive, coming from Netherlands. P: It's giving a baby, which will become another baby. If we give to the farmer, it will be weak,	**Cr-** Expensive animal represents.	**Inst-** Animal is treated in terms of its costs.	**Cr-** Relation with farmers is based on costs mechanisms.	**NT-** Farmers deagentialization, they are not able to rear a foreign breed, otherwise	PR (N) PS

		automatically not good Mme. E: Yeah. I: Their investment is expensive to produce cheap meat, Mme. So they don't give it to the farmers. They give 2.20 cents per kg to the farmer. What we saw in the morning madam; this is the procedure, they are taking the control over Mme.				it will be low quality	(S)
		6-PHT2--V2I: Yeah, but it's not the same race. It's not the same type of poultry. I wonder. They were very small in the morning, brown or no feathers (these are big white feathered birds) I: Because the farmer has put already a lot of medicines madam [in the broiler]. That was a low quality, this is a higher quality…and also use less medicines E: So which race is this? I: The broiler will be 45 days old; this [layer one for eggs] is 65 weeks old. E: Yes, it is a different bird. I: The difference is that they control feed. E: Yes because it's expensive to buy. A: Why do you need the males for? The females are enough. I: For artificial insemination. E: They take some embryos from males, right? I: Artificially they need the embryos to sell them and those then become broiler. That's why they talk about grand-parent, parent and broiler. E: How much time are they here then, here in this room?	**Cr-** Concrete mechanisms of control need to be put in place to control feed, space and medicines. Animal is a function of productivity .	**Inst-** Rel with chickens is based on their [grandparents/layers/broilers] condition to produce meat or egg.	**Cr-** Concrete efficient mechanisms are put in place by workers. Those actions and actors are an integral part of the process.	**Inst-** Workers in the farm are backgrounded part of animal productivity (between 45 days and 65 weeks) functions (de-agentialized).	Pr
		7-M1W-E: What do you by mean technical Support? W: Our supervisors will visit the farm every day to provide medications and a veterinarian will be visiting them frequently. If they notice something (wrong) they will have to inform us immediately. (to provide) medications, vaccinations. Because if we put everything we put on the layers, they won't become ill.	**Cr-** If human provide animals with everything, they won't become sick (cause-effect)	**Inst-** Medicines and vaccinations substitute human animals relationship.	**Cr-** Supervisors will see when something is wrong in the farm (they will see the 'cause')	**NT-** De-agentialization of farmers framed passively, they are practically invisible.	PR (N) PS (S)
		8-5E: but who would have to take the first step, the initiative you know, to prevent the outbreaks and problems coming with it? W: The integrator, definitely the integrator. Yeah, we should not leave that to the farmers or those providing the birds, yeah, yeah, we should not leave this function to them, because hygienic conditions are important for the end-user.	**X**	**NT-** Birds have no agency at all, they are only provided.	**Cr-** Hygiene conditions are important for end-user	**NT-** We should not leave prevention to the farmers, they are incapable.	PS (S)
		9M2: How does it work actually indeed, the cycles? Is it like you have different farmers in different times or at the same time or...? P: One particular farm if they make an agreement with the company, they will stick to the company. Unless otherwise the company is not happy with them, or he is not happy with the performance of the company. Generally they will stay with the company. The rate of change of the farmer people with the company is low with us. E: Really? So the farmer will stay with you. Can they break the contract? P: It is something atypical (if they change). So yearly we are giving some 6 budgets, six posts they use to pick. E: Who is picking the posts? P: the company decides the new posts so farmers can work with us.	**X**	**X**	**Cr-** Agreement depends on performance (cause-effect).	**NT-** Farmers rarely break the contract but companies decide the new posts.	PS (S)
		10-E: So you would be as well aware of the movements of the animals all the time basically? P: Yes, our field representative every day they will visit the farms, (to see) how much feed it gets consumed and so on. E: Well, you have veterinary services, as well, don't you? So if some kind of farmer will come with a diseased chicken, what kind of procedure you will follow? P: We, simply take the birds to our laboratory and testing. Testing. it's an important part of the control. E: All right. But for example I mean in terms of control, for example, with BSE disease in the UK right. It is another sector but also an animal disease so in the UK it could be very policy oriented. Like trying to control using epidemiologist and looking at how to avoid the contact from one farm	**Cr-** Nature is cooperative in all stages of the process. If not humans skip that farm.	**Inst-** Human-animal interactions filtered through how much it consumes. Animal in terms of feed consumption, testing, skipping outbreaks, no animal agency.	**Cr-** Knowledge comes from inductive process (in a lab, presence of outbreak there).	**NT-** Technology and Supervision replaces responsibility, no other social interaction needed with farmers. Farmers don't move only animals.	PR (N) PS (S)

		to the other and maybe more in the sense of following animal movements, how would disease control look like here?. P: Generally our people are not moving very informally. Suppose if formally a farmer starts raising chicken, he will not go to the big farm so only our representative will go there, Only thing, before going if there is any outbreak, they simply skip that farm.					
		11-V2- P: Let me explain Mme. These women are regarding the size and the weight, according to the weight. All these eggs here, they will have the same weight. E: So how do you weight them? A: The heaviest eggs come to the left if is big enough they go to the left if not it goes to the right, so you can always actually see the.. E: All right. (I'm amazed by the mechanical technology they use) P: It is from 40 to 45 grams here. We can hear in the background the machine and the women talking. E: Right. I see…so how many eggs per day, you reject? P: 2% E: And in total? P: 2000 E: And how many do you sort and accept? P: 15 000 per day. P: Can you see this room is 20 degrees. This is the room like putting the eggs on the fridge, to stop the process of the eggs becoming layers! Ah ok... and make eggs become layers right? E: Exactly. A: And the others [those rejected] go to omelettes to the hotels for a good price. (laughs) E: Amazing isn't it. The change of temperature. Are all these rejected? [showing me] Because they didn't become "eggs"? P: Some are rejected and some become embryos you see. these are white eggs. E: What is that, why is the difference on the colour? P: The feathers P: This one [white embryo], it will costs 7 rupees	**Cr-** Temperature mechanisms stop life process.	**Inst-** Women only see the weight qualities of the eggs. No other animal agency. Technology and quantification substitutes for human-animal relations.	**Cr-** Price mechanisms explain the incentive to purchase broken or non-functional eggs by consumer clients (in hotels).	**NT-** Women workers have only one passive agency: regarding the sizes and regarding (literally) the weight.	PR (N) PS (S)
		12-V2E: We need to go through water disinfection and then, disinfection...These are biosecurity measures. P: Yes, but that is water, this is detoll. Ah ok. Are we going to walk there? P: Yes. E: [So we have to do it also when going out!] The cleaning process. Is this also cleaning liquid? P: Yes cleaning liquid. *Regarding disease control and biosecurity*	**Dll-** Disinfection equals biosecurity but no clear explanation of cause-effect mechanism.	**NT-** Agency of the possible risk is absent and substituted by a cleansing liquid.	**X**	**X**	IPR (N)
		13-V2E: Right. After 60 weeks, are they not too old to be eaten? Because of the taste, if it's better when they're younger, or not? I: At the 60 week it will lose taste. It won't be tasteful so it will be sold at a very low price Ma'am. But the broilers are very tasteful, in comparison to these ones. E: Ok I: Aah so like we saw in the morning madam. So the chicks of these parents, they will be grown till 45 days, with medicines to earn some money, just like the farm of today in the morning ma'am. E: I see. But about the taste of the parents, they are not tasty right? I: Yes, and that time the bird will weigh around 4 kilos and it will be sold up to 15 rupees and the broiler kg they will be sold at 30 rupees per kg at least..	**Cr-** The older the chick the cheapest because it has no taste. .	**Inst-** Human-animal interaction through number of days lived and prices.	**X**	**X**	PR (N)

		V2E: And the electricity, water, feeding everything will be centrally managed, right? I: If exposed to brightness it will mature very quickly madam, that's why there is no light over here. The day light is enough. And for broilers, it's different, they need more heat. E: Ok. I: And for the feeding they take 65 grams each bird only and if they eat more they'll grow more and eat more. So they can't be taken for laying, they can stop laying after the 23rd week, that's why they're not giving them much food. They're just growing them slowly ma'am. E: Yeah, because they're looking for food, they're looking for food. Look'em… here...	**Cr-** More brightness affects layers growth, contrary to broilers that need more heat to grow.	**Inst-** Human-animal relationship framed in terms of heat, growth, low agency to control their qualities.	**X**	**X**	PR (N)
		V2E: Alright. And why do they have red here and not those... P: Males E: So they are not for eggs or what is he saying? These are males and they'll be only for meat then? P: Yeah. I: Males are these ones! E: Ah ok! Are there any reasons why you have 2 here and 3 there? I: Males cannot come together because they're bigger.	**Cr-** Bigger animals can't come together in 1 cage given their size.	**Inst-** Size matters in such human-animal relationship.	**X**	**X**	PR (N)
		V2: I: For instance they stay here 10 weeks, and they are already 6 weeks so in 4 weeks they'll go, but once in three months they will come from Netherlands. Everything rotates you see? E: Right. And the mature one was after 65 weeks. Alright, finally I understood! We walk through the next ones. We enter the chicks' house; it's a relief because it's very quiet in comparison!! E: Yes these are basically the same. Look, but just smaller. I: They grow on day light. If not they will mature very fast. E: Layers need slow growth and broilers need fast growth. I: 40 days E: And that's why layers do not need heavy medicine. So kleine wie Steine! And why Netherlands? I: Because of the quality of the breed Mme.	**Cr-** Animals grow on day light.	**Inst-** Human-animals relationship framed in terms of production cycles.	**Cr-** There is a given rhythm of animal movements that determines workers activities.	**Inst-** Relation to other stakeholders such as Netherlands' plant in terms of time.	PR
		V1V: For nutrition it requires everything. In terms of the market it requires everything. As India is urbanizing the market grows. E: But in this industry it could be quite the availability. V: The farmer has to give the medicine, the food and (…) then after one and a half months, in 42 days, it will be on the market, the poultry has to be in the farm from 41 g to 2 kilos. E: Is that a standard? V: That is an approved standard for rearing and marketing. E: So this is an economic standard? V: Yes but also what comes from the nutrition program. E: How difficult is for you to integrate that in the chain? V: Everything is supplied from one company to the farmer, through integrators. Integrators supply all to the farmers, medicines, vaccines, feed and technical support. They buy everything to the farmers. Farmers only go for the bird and take physical care of the bird for the company and after when the poultry is ready; the company is re-buying that to the farmers. This is called contract farmers but also integrator farming. E: Ok.	**Cr-** 42 days since that is a "standard", based on ´facts´ and ´cause-effect´ mechanism and a rational attitude of vertical integration towards a compliance with an economic ´standard´.	**Inst-** In the rearing, processes appear like independent parts for integration of a function but no human interrelation on the parts is assumed (i.e. ´physical care´, ´standard of weight´, etc).	**Cr-** Farmers are not supposed to think too much but expected to be rational to deliver weight, according to a program, Relationships with stakeholders is based in delivering the tasks of shelter and physical care of animals.	**NT-** Supply producers narrow agency of farmers unilaterally, they "only" have to get the bird and have it ready for the company to rebuy it. From them automatically, no more agency, or worries from the farmer to the processor are expected. Farmers' agency can be substituted by that of workers.	PR (N) PS (S)
		V1V: 50% of the market is integrated in all India. South India 90% is integrated; all together in India has 50% or 40% is integrated. The most important in 5 years that most farmers are on contract farm. This is the contract farming. Right now interestingly, some retailers are producing and some of the producers are becoming retailers. E: I see better now.	**X**	**X**	**Cr-** Farmers should integrate but no reason why this is good for them.	**NT-** Farmers are small in relation to the big ones, the producers, farmers agree to do the work for them.	PS (S)

		V: The producer is the big one, which is a global club of farmers. These farmers are contract farms of the producers and this model is called integration. Farmers usually are small and agree to do the work of rearing of chicks.					
		M1W: This is contract farming, the industry has been ehhmm concentrated among small-small farmers. Now there is no such (a thing as) small-small farmers (that are organized around the demand), there is no small farmers, only big size integrators that supply Bangalore that will have the grandparent and will get chicks for them and the farmers, the small-small farmers, they will grow the chicks on behalf of the integrators. Therefore they're doing the job for us. They are growing chicks on their homes but they grow our chicks on behalf of us. We supply the chicks, we supply to eat (for the chicks), we supply the medicine, and we take day to day technical (veterinary) experts, and also if something is going wrong, we take (the animals) sometimes to vets and we pay the going charges (travelling charges) for that. E: So the farmer owns the land and resources? W: Yes, basic infrastructure will be all ready by the farmers: land, hatchery shed/shelter (2:40), lighting/ light and electricity, water and labour. Everything is supplied by one. And the integrator will supply for all the chicks: Medicine, Vaccine, Feed and Technical Support. E: So the farmer is like a provider of services of rearing? W:.. Yes, that is the agreement.,	**Cr-** Animals nature is cooperative because we supply all materials, including the chicks bodies	**Inst-** Human-animal relationship based on animals physical needs	**Cr-** Because we processors provide all materials,and some costs to control diseases and farmers provide all services and infrastructure, or their homes this is contract farming .	**NT-** Farmers de-agentialized. And framed passively.	PR (N) PS (S)
		M1 E: What do you mean by growing? W: Yes the farmers have to give service to us... E: Aah, yes of course. Labour so 5 rupees per bird. W: Usually this will be known as "2.50 ruppes per kg of labour". 2.50 per kg of labour. So we use to leave to birds make 1.28 to 2 kg rupees labour rate for… marketing purposes. So that comes to 5 rupees per bird. But otherwise it will be 1 to 2 rupees depending on the capacity of the integrator to handle the project. E: Do you mean their skills? W: Mainly their infrastructure	**Cr-** If all factors are included conversion rate can be achieved	**Inst-** Animals are kg.and rupees	**Cr-** If farmers have good insfrastructure they can handle more animals	**NT-** Capacities deagentialized.(animal health management, etc)	PR (N) PS (NT)
		M2: About the relationship between Biosecurity and Productivity (before starting to record.) E: Yes, so you were saying, what is the relationship? P: Honestly, it depends on the available practices. We have actions of vertical integration, notably to tackle animal disease but simultaneously this is to improve the basic immunity of the chicken and to deal with the optimal performance. However the immunity of the chicken in India right now is very low. E: So when you say that the, erm.. the immunity of the chicken is very low, what do you mean by that? P: It something to do with all the diseases. It is important to know that there is a challenge to know where does it comes from and the frequency, because there are so many areas, so many poultry farmers around and every area just looks like that, otherwise is different from the others. So one area is (something) then other area is (something else. So yeah, Variations in the geographical areas, this makes the performance very different from the initial.	**Dll-Cr-** Uncertainty of disease emergence is a challenge, causes of effects not defined.	**Inst-** Human animal relationships in terms of frequency, possible provenance of risk and performance.	**Cr-** Farmers look the same, no principle or cause-effect to define their relationship with farmers.	**NT-** Farmers actions are substituted by areas, de-agentialized.	Pr (N) PS (S)
		Ok… the variations. It is interesting in that every area has different concerns on how the environment plays a role actually. So would you say that, what would be role in each area? G: Particularly in some areas the challenge will be there and in others it won't be there. If the chickens are not well protected, it won't work (the vaccine). If they are not well protected, it won't work. E: But it is certainly not easy because as you say with the environment. So what would be the main issue as to deal with (biosecurity) and with vaccination. P: Yes it depends in the policy of the government, and the OIE and the European Union and whatsoever regulations that can be different background and governing bodies.	**Cr-** If chicken is not protected, vaccine won't work (cause-effect)	**Inst-** Animals have no agency to protect themselves, they need vaccines and fences and biosecurity to be protected.	**Cr-** Principle that one has to follow international regulations.	**NT-** Whatever rule application, we have to follow (non-transactive), decision depends on them..	PR (N) PS (S)

		M2 E: Yes, but in the field, you know as an integrator or as farmer, etc. you know what would be the necessary things to administrate, you know, the role of management in it for example, if it was alright to regulate. P: It is, it is, if you see we're very much concerned in biosecurity. We are having about more than 3000 integration farmers. So we give different chicks and they rear the chicken and they would give it to us. So in those areas what we´re doing at present, we´re actually keen since it´s part of our philosophy. We used to go around everyday at least 10-20-30 times to the farms, the maximum they could. They used to play a role. Generally the farmers they used to do it (vaccination?), but apart from that, now as a company we're now very much on the testing too So we are very strong, we´re very strong in biosecurity. *In relation to Farming Risk Control*	**Cr-** Nature is cooperative in every stage of the process.	**Inst-** Human animal relationships- is filtered thorugh biosecurity	**Cr-** Because we test farmers as much as we can, we can regulate as we want.	**NT-** Farmers used to paly a role but now we are in charge of the testing, which make us stronger	PS (N) PS (S)
Inspectors	Food Safety Process + Animal Health and Farming Environment	8 V: The problem farmers sometimes cannot make difference between diseases, say Newcastle and a normal viral infection, and do not know how to apply a vaccine. So you have farmers applying [the] wrong vaccine to the chicks. *Regional officer In relation to farmers*	**Dll-** Different visible symptoms follow different diseases and require different vaccines but no cause-effect relationship,	**NT-** Symptoms between diseases are visible but causes are rarely easily revealed by nature.	**Dll-** Ignorant farmers can affect the result but how exactly?	**NT-** Farmers are subjected to their Ignorance which makes them apply wrong vaccine.	EPS
		3E: But, is there anything erm, how do you protect the animals from so many diseases around? V: There are other programs for that. But most important is good quality of feeding that prevents most diseases and good cleaning. And yes then, wild animals is a problem always here, there is no protection you see? But otherwise the best protection is health. E: Do you mean maintaining them in good shape is the best protection? V: Yes, good shape is the best protection to any disease; good health, good feed, and you can prevent most diseases. That's what the private sector should do for poultry in any case. *Regional Officer in relation to Processors*	**Dll-Cr** Quality of feeding, cleaning, good shape prevents disease.	**NT-** Agency of animals is unilateral, they are vulnerable to wild animals (no interdependency with farming ecosystem)	**Dll-** Principle that good health, good feed and you can prevent most diseases.	**NT-** Processors' actions self-contained in health and protection, independent of farmer participation, or State interventions.	EPS
		3V: Also because poultry has more diseases than other sectors, so sheep, dairy, etc. E: And why are there more in poultry? V: Because poultry get diseases easier and private sector has more control on them, Dairy and other animals' disease and management are more controlled by the State. E: Right, and why is there more disease in poultry? V:It always has been like that, there are some endemic diseases like Newcastle disease. E: How do they manage those issues? V: They manage to keep the numbers to a minimum, yes certainly they have been very efficient in the past. *National Officer in relation to Processors*	**Gral-** Principle that chickens are more vulnerable than dairy, always.	**Inst-** Agency of animal visible only through their frequency of disease catch	**Gral-** Principle of distribution of controls per sector. Intensive Poultry is a more complicated sector that only the efficient private sector manages to the minimum.	**Inst-** Poultry sector framed with partial and instrumental agency, only in relation to the numbers of disease.	LG
		4-2 E: What is the role of the program of extension that you have here? V: In our district, from the University, I'll tell you what, there is no much programs, since, well... now it's not timeline madam, so only when it's our timeline our people come from here around.. E: Is it driven by your agenda or by farmers'? V: Farmers can also make their demands and then we consider their needs if possible and our people come in timeline. *Regional officer*	**Dll-Cr** Consideration of problem will bring effective solution? Inductive problem	**NT-** Agency of animal or the environment invisible	**Dll-** Actions function and are guided and by correlation to timeline., no cause-effects	**NT-** Inspector and extension to set contents of agenda, not farmers.	EPS
		2K: Yes, contract farming is more integrated, and is giving us more imports and growth to the agricultural sector. We are also importing with SPF E: Importing SPF? K: Yes… that is to follow. But in that case there are too many relations already regarded so that	**Dll-Cr** Pathogen free standards and integrated farms are interrelated.	**Inst-** Agency of animals only visible through growth of agricultural sector	**Dll-** It seems important to know the importance of a pathogen free standard (SPF) since there are too	**NT-** Agency of farmers and processors is filtered through growth of agricultural sector and	LG

		is to follow … E: Why is that so important? K: because of the importance of SPF. Exporting to other countries that are more cautious than us, that is to follow *National Officer on relation with Processors*			many relationships, but why?	SPF	
		5-2V: -But what happens now is that now there're [people from] big hatcheries, the workers grow how you call the... V: the chicks, one day old chicks. Farmers grow the broilers of these companies too; they [animals] grow and develop well there. E: Do they have many problems of animal health? V: From what we know, they are doing very well. E: Does your people visit them occasionally? V: Sometimes E: How does the inspection works? V: We have a very broad network, you can read in the report. They report to us, every week. You can see the meetings. E: I see, are farmers fine working for those processors? V: The farmers?Yes, yes, they do, there is no problem working in the process at all, they will tell us if anything [bad would happen] *National Officer on relations with Processors*	**Gral-** Nature is cooperative in all the processes of production.	**Inst-** Chicks agency identified only for the measurable age in day-olds.	**Gral-** A minimum of detail o the ongoing complex relationships in the farming activities and a maximum of flow.	**Inst-** Big hatcheries interact with farmers through the rearing only, Farmers agency only visible through production process for public officer.	LG
		2E: I see, but how do they keep animals healthy? I: Contractors provide everything. E: How do they keep them strong? I: They bring all the medicines and they inject the animals or the farmer inject the animals, E: Do they catch many diseases? I: sometimes they have too many ill animals sometimes. It depends also on the weather or the Monsoon times. Farmers are very dependent on that, and it depends on the contractor. It also depends on the disease, but yes they have to apply the vaccines on the usual diseases, but not in the less common madam. E: And how important is that to fight the diseases? I: Very important, This is part of the payment, so the contractor doesn't pay for dead animals, they have to check every day and she has managed to keep dead animals to a minimum. *Regional Officer on relation to processors*	**Cr-** Animals framed as live or dead animals, as numbers of diseased concrete bodies.	**NT-** Animals are also framed as "happen to be often very ill and which they have to apply the vaccines".	**Cr-** When farmers are able to come with very concrete ideas for animals' prevention of disease i.e. "a coal firing for the chicks that keeps the heating for the whole night".	**NT-** Framing recurrently recognize the role of intensive farmers as passive in "having to deal with animals", "contractors provide everything", "they just do the feeding and care work".	PS
		E: What do they do to control the diseases? V: They have to keep dead animals them for revision. The contractor counts the animals. E: What does she does to prevent deaths in animals? V: She follows what the integrator says. They give them a lot of instructions and teach them how to do it .They come here very often. E: Does she prepare maybe some local remedies for them? V: Mm yes, that they do many but only when the weather changes, you know for a cold or something like that. Because integrators don't like that and they test some residues. *Regional Officer on relation to processors*	**Dll-Cr** Prevention is a series of correlations (local remedies, weather changes)	**NT-** Agency of animals visible only through dead animals, as numbers of diseased bodies	**Dll-** The more often instructions given to the farmers, the more they will be applied	**NT-** Intensive farmers "are passive and deagentialized, they are receivers of knowledge, control of processors over residues test.	EPS

		E: I see, so who should care for the poultry health more the processor or her? V: Oh yes, yes, no they [farmers] do many things for the health of the poultry. Come here madam. Look [an old metal box with some ashes inside and some small wholes] V: This is a good thing, very ingenious, you see? E: What is this? W: [Tamil: Very easy, my daughter and husband did it, you put here the coal, and here this, this too for keeping a slow fire, and it last the whole night] V: This keeps the heating for the whole night, so especially small chicks don't have problems with cold. You know here we have many power cuts and it's a problem for the poultry too. She has built this and the problem is fixed. People here are very ingenious you see. So you have this and people care about the animals because they [the integrators] only pay for the kg. *Regional Officer in relation to farmers*	**Dll-Cr-** a coal firing for the chicks keeps the heating for the whole night. Inductive reasoning	**NT-** Agency of animals as vulnerable, they depend completely on extrinsic care	**Dll-Cr-** Since integrators only pay for the kg then alternative solutions have to be found in animal health management and given lack of infrastructure. Very concrete ideas are needed for animals' prevention of disease and farmer payment.	**NT-** Farmer agency is activated only in to the emergency of the problem [power cuts]	EPS
		6-1FBut [to respond to your question] only when there's a project here, the project people are coming to teach them, because there's a continuous lack of water and electricity and sometimes, depending on the farmer or the program, we also teach them how to include new indigenous chicks (local). E: How often do you come? F: Depending on the project but they need constant extension, so it is a continuous process. *Regional Officer In relation to Water and Electricity Resources*	**Gral-** Principle Nature-Human relations are based on lack and scarcity.	**NT-** No visible agency given to nature.	**Gral-** Principle that people apply what they learn.	**NT-** Lack of autonomy, they come and teach them-extension to farmers.	SV
		6-2F-Yes hatcheries, they all work in the same way. They (processors) provide these one-day-old chicks and the farmer's family and workers] monitor everything, they [processors] send them to vaccinate them regularly and once they're grown, they give a fixed price [processors] and then these persons [farmer's family] they get a margin. In this way all get their part you see. *National Officer*	**Gral-** Principle human-nature based on the general cooperation of nature with model.	**Inst-** Farmer-Animals relationships are filtered through their day-olds measurable tangibility.	**Gral-Dll** A principle of fair flow among all stakeholders. With a minimum of detail	**Inst-** Family and workers' agency is visible and functions on their monitoring and margin instrumental capacities.	LG
		7-2F-Everything is provided, they [farmers] only have to take care of very simple things. That's for the broilers, after 5 months of staying here they go to the hatcheries. The layers are different, they stay here for 1 year, they grow with basic care, you see. Farmers here get very inventive with the equipment. E: What is this for? F: they do this by themselves you see, to keep the animals warm, they get very inventive. E: I've seen the same thing on the other farm '[the coal firing] F: Yes they all do it, it's very simple, to keep animals warm. E: Yes especially for the young chicks, right? F: Exactly. *Regional Officer on Farmer and processors*	**Dll-Cr-** a coal firing for the chicks keeps the heating for the whole night. Inductive reasoning	**NT-** Agency of animals as vulnerable, they depend completely on extrinsic care and processors care is very basic	**Dll-Cr-** Since integrators only pay for the kg then alternative solutions have to be found in animal health management and given lack of infrastructure. Very concrete ideas are needed for animals' prevention of disease and farmer payment.	**NT-** Farmer agency is activated only in to the emergency of the problem [power cuts]	EPS
		10-2F With resources it depends but we come and help them with different projects to recycle or to construct solar panels for them. E: How do you decide who to help with those projects? 2F: We assess the situation E: Do they ask for them? 2F: Our people assess the situation and then they see if the need is high and what are the favourable conditions. *Regional Officer In relation to the resources and energy*	**Dll-Cr** Assessment but no cause-effect,nor a principle	**NT-** Unilaterally, need is decided for the animal	**Dll-** Recycling and solar constructions tangible but only correlated to extension of animals	**NT-** Farmers need help and knowledge from extension).	EPS
		1E E: So what type of extension do you do in these farms then? V: It depends, Madame, our project people come here to help them [with] irrigation, they have	**Gral-**	**NT-**	**Gral-**	**NT-**	SV

		also no continual supply of power, so when there's power, the underwater pumps in and they're able to supply. E: So the water comes from where? V: From under [the earth], or from channels of irrigation. But here they pump it by themselves [he points toward a 'structure', I suppose he refers to the pump] (About farmers-nature relationship-on how Prometheans farmers are) *Regional Officer In relation to Water and Power supply resources*	Principle Nature-Human relations are based on lack and scarcity.	Agency to nature is denied, we only know that no continual supply of power happens.	If they do it by themselves they will take care about the water. Otherwise farmers don't take care about water problems.	Extension people help and show farmers how to do it (no exchange).	
		2EV: No. they do it by themselves or with the project people. Both, yes, so because they have to get the water by themselves, they have to care about it, because it is scarce you know. So that's why our people come here to teach them *Regional Officer In relation to Water and Power supply resources*	**Gral-** Principle that if they do it by themselves they will learn about the value of natural resources.	**NT-** Resources are scarce and need to be protected.	**Gral-** Principle that if they do it by themselves they will take care of resources [responsibility].	**NT-** Extension people help and show farmers how to do it (no exchange).	SV
		E: But for example with Avian flu, I mean you don't have anything here yet, but why do you think it has been progressing? V: That is in the North of India madam. We haven't had any in the south, but integrators will tell you. It is difficult since we don't have yet a vaccine against bird flu. They will come with one but now there's nothing. When it's there then it is applied and that's it you see. But then you have to see, if processors apply it ok, but farmers you have to teach them, they cannot tell the difference *National officer In relation to farmers and to processors*	**Gral-** Principle that it is far away and that vaccine will bring the cure	**Inst-** Vaccine substitutes agency of animal disease immunity	**Gral-** Principle that processors have some of the best good practice	**Inst-** A vaccine sophistication substitutes agency of farmer	LG
AH Services-	Food Safety Process + Animal Health and Farming Environment	E: So what are the measures to prevent, because as you know just as the European regulations are very strict, so what could be the areas to prevent the incidence? P: Do you mean help? On chemicals, myotoxins, etc? E: Yes, for example. P: I suppose that the EU says it doesn't want to lose its standards in the world. Is there any chemical that they don't want like, they have some strict distinction, but on the other side, New Zealand and England they have minimum requisites for Indian products. Where Indian products have a very regular praxis. India has always used praxis. Because there are so many epidemics, so many antibiotics, and because we're in the export, we need to take care a lot. In an export company you have to do that, like SK. They are exporting this erm, egg powder, they export that to Paris. E: Egg powder?	**Dll--** Nature is not very cooperative in the whole process so we need to use antibiotics with so many epidemics.	**Inst-** Human-animal relations are filtered through substances and epidemics.	**Dll-** In order to deal with different minimum requisites, India uses praxis, but no explanation how it works	**Inst-** Different countries have different regulations so social transactions are diverse and filtered through regulations.	EPR
		G: Yes. They are very much conscious about the animal health, animal feed and so on. So in order to export we'll need to be sure that we are rearing the animal in very good conditions.	**Dll-** More and more conscious but no more justification found.	**Inst-** Human-animal relations filtered through health.	**X**	**X**	EPr
		E: If things continue then obviously you will have to see how you too in the end can deliver? P: It has to do with the origin of the product; it goes from person through person. All the supporting communication system, you have to try it. Automatically. We can come to that then you need to know the origin to the product. That can be easily done. All your supportive data, all your supportive communication systems through internet we're making. Even in our driver system we are well connected online for the communication system. E: So is all that for monitoring? How does it work? P: Well you can code the product. So from which properties is coming like that, so you can code the product to see the properties of the product. E: Ah, so you're doing that? P: In the future, now we are not doing but in the future it is possible.	**Dll-** Technical support can be easily and automatically done, no justification framed for that.	**Inst-** Animal Human relationships filtered through monitoring and coding information of properties of product.	**Dll-** Exporting process is being monitored more and more, no justification framed for that.	**Inst-** Social transactions with farmers are filters through automatization and costs.	EPr

		P: Sometimes like, it will depend on the exporting (process), then will use the special colour formal colour, like it is for Arab countries. Those are things that can be done, what cannot be done in our industry at present moment are the very high raw material costs. We won't be able to compete with the international suppliers that are superior in all those things.	**Dll-** Technical support can be easily and automatically done, no more justification needed for action	**Inst-** Animal Human relationships filtered through monitoring and coding information of properties of product.	**Dll-** Exporting process is increasingly being monitored, no justification framed for that.	**Inst-** Agency of stakeholders only relating to the use of colours.	EPr (N) EPS (N)
		P: We won't be able to compete with the international suppliers that are superior in all those things. E: Yes, but there are the transport costs aren't there?? Like in Brazil. P: Very, very cheap there, all these South American countries and Mexico, Brazil, Bolivia is very very cheap there. E: In Brazil? P: It is very, very low. Especially in Brazil and Bolivia. The maize is there cheap and if you take soya bean there the people are taking only 9 rupees to produce in those countries. Here it is 60 to 70 rupees. So the cost of production in all these countries is very, very low. E: But you have land and availability. P: Yes availability is there but our population is very different. Our Government, being a farmer friendly Government, mean they have to have some good prices for the farmers, but they are a lot in the exports. (The funny thing) is now what you think that we are self-sufficient (nevertheless) because of the government policy, we need to import, even to compete.	**Cr-** Inputs are cheap and cost of production is low but too many people in India (cause of no low cost in India).	**Inst-** Human animal relations filtered through feeding and raw materials.	**Dll-** Friendly Government has good prices (subsidies).	**NT-** Superior suppliers make it difficult to compete for structural reasons (they have more agency than themselves).	EPR (N) IPS (S)
		Ah kilometre of area. But in the future you'll see. So the future is coming to us. It can take a long time, so because so many proteins in the wet market. Even if you take the case in the very south, if you are a chicken producer locally you will get a very good demand. E: All right. However, you know, for economically important diseases, do you think export can have the potential to hinder diseases or do you think exports won't be important for that? P: Do you mean for the market? E: I mean if the integration is a driver to control diseases, or hygiene, or… P: Certainly, if you see, our system is not organized, but we are covering all the diseases. But the system is technically not organized. It's so disorganized that the producer cannot fix the price per weight. Only the traders, the sellers. If you see, But it's not a good system. If you see we are taking the resources very close to the customer. On the other side, totally the market is up to the middle man, they are fixing the price, this are the brokers in the wet market. E: In the wet market? P: Yes in the wet market. If we're selling this you need to sell the product to the call seller. Sometimes they will sell to another seller and then maybe to another seller and this to the retailer, so consumers will get the poultry product only from the retailers. So customer comes where the company is, where it sells or to some outlet mean, The sellers they can also earn very good money. Customer can also be very, very…	**Dll-** Protein demand is coming to us but no mechanism explained why so many proteins in the wet market?	**Inst-** Human animal relationships and with their diseases filtered through the market.	**Cr-Dll-** Integration is a driver for disease control, since too disorganized system, too many intermediaries or middle man.	**Inst-** Social relationships filtered through fixation of prices and consumer choice. No price fixation equals technical disorganization, reduction of intermediaries equals better consumer choices.	EPR
		So what would be then the most relevant strategy in order to increase the immune system of the chicken? P: Biotechnology for chicken products, some neutraceuticals products. E: Neutraceuticals? P: Yes those are now very popular in our country. E: Right but like what, like feed additives or? P: Yes, now we're importing these amino-acids from Germany and Japan, like those countries only. Suppose that the situation comes where we should not use antibiotic products anymore, then we need to use a state of biotechnological products, as well as neutraceutical products. By those only we can be able overcome the adverse effects of diseases.	**Dll-** Agency of animals reduced to reception of imported neutraceuticals but no cause effect on how they overcome diseases.	**Inst -** Immune system in terms of biotechnologies and neutraceuticals.	**Dll-** Standards on feed additives coming from Germany and Japan only way to overcome adverse effects, no concrete mechanism framed.	**Inst-** Social transactions with these countries only through substances (amino-acids, antibiotics)	EPR

		E: The adverse effect of diseases? P: Only two options we're having one is biosecurity and this type of products. E: Biosecurity more aah... not as a preventive or as...erm... P: As a daily routine. E: and vaccination, is it a part? P: Certain diseases we can cover with available vaccines, so that type of product as well as this er, biosecurity will take care of it. E: So for example when the Avian Flu outbreak happened, did you change something in your..? P: Yes, they got rid of the flock as far away as it 3 kilometres and then another 7 kilometre radius? with a maximum of 10 kilometres,	**Dll-** Avian Influenza didn't get here since farmers on the steps of becoming more integrated biosecuriy. No cause-effect, more a correlation.	**Inst-** Animal disease and humans relationships filtered through the backyard vs. integrated	**Dll-** More visible integration, more hygiene, poor regions are visible dirty regions.	**Inst-** If they are dirty when they are framed as having less agency.	EPR
		1So you understand how important nutrition is. So we're working in this nutrition handle, we're working in some products. Whatever tradition, we're giving, so it should be properly digested and utilized by the animal. Otherwise what'll have, suppose you give feed to the animal but if it's not 100% utilized that is a waste of money	**Cr-** Digestion process.	**Inst-** Animal health is contained in animal digestion.	**Cr-** Digestion that is not performed is a waste of money.	**Inst-** Implementation and monitoring of the product is assumed in 'properly digested'.	PR
		1E: But if the big industries of antibiotics say yes, you know in comparison the feed conversion without antibiotics, what is better? A: No, no we do have trials, scientific trails, field trials, 200 trials, the research has been conducted in our products and there's no single product in the market without any research backup, ...	**Cr-** Visible trials mechanisms showing evidence.	**Inst-** Feed conversion in scientific back up on animal performance.	**Cr-** Big industries recognize mechanisms of performance.	**Inst-** Interactions with processors are contained in terms of evidence of performance.	PR
		1E: Europeans are very busy with the standards thing, and India and other countries are trying to meet the standards, you know for exports and imports, for example pathogen free, etc. What do you think about what assistance they could provide on this and for example to firms like this? A: The most important thing, we're working I suppose, is whatever the synthetic product you're giving to the animal [feeding with it], you can get any expert of a particular standard (from everywhere) and this will be there in travel time. Because the traces of these (synthetic) products will be there, either is coming into the milk, etc. But in case of our product whatever the product it's a zero result because there are no traces coming into the product.	**Cr-** Abundance of knowledge and action to improve standards on synthetic products.	**Inst-** Animal health in terms of erasable traces in the product.	**Cr-** Experts can provide the knowledge and visible actions to other stakeholders to achieve the standard.	**Inst-** Experts interaction contained in the provision of the concrete service.	PR
		1E: I imagine it's pretty difficult to believe in the 100% technical solution to mitigate some of the effects I suppose, or not? A: To mitigate or to work on some particular effects in animals and to work in some particular solution will work but no product can work for the 100% solutions. E: How do you work with farmers or the animals? 1A: We're getting the outsourcing on 50% less price so… E: How do you do that? A: It's erm (…) we don't charge, it's our philosophy that we don't charge very much, because we believe in the ultimate consumer which is the farmer to benefit as well. There are margins of course but we don't charge high much. On that basis we use the results of the animal trials. So why to 'charge' them?	**Dll-** Mitigation is good but no 100% solution.	**Inst-** No absolute control framed but still human-animal relations filtered through technical solutions, independent from human-animal behaviours.	**Dll-** Fairness logic without cause-effect frame: are farmers customers or for field trials?	**Inst-** Farmer relationships are contained in outsourcing and cost transaction.	EPR
		And we're having the European Union certification. We're the only country, India… E: Which certification? A: EU GMP (manufacturing certification) comply certification, this is basically for the Manufacturers who are aligning their manufacturing to the standards of the EU. Those standards we use to maintain our work.	**X**	**X**	**Cr-** Complying with minimum standards helps maintain our work.	**Inst-** Transaction with other countries filtered through manufacturing standards	PR (S)
		E: First, I have a question that I don't understand, I mean, do you think, what is the effect of fish in feeding for poultry? Is it good to use it? A: Because, nowadays what is the problem. Feed costs are very high at the moment. Is rising like anything. So people used to use it, but there's the problem of contamination, and high salt. Because there's the practice that fish used to be produced in the salt, that's a normal practice. This high salt content is coming to the bird and is highly poisoning, so ultimately this is going to	**Cr-** Fish feeding makes contamination high and causes salt poisoning.	**Inst-** Human animal relationships filtered through animal performance.	**Cr-** Fish feeding reduces productivity, affects in both ways since also costs increase in the long	**Inst-** Social transaction filtered through prices and scarcity of resources.	PR

		harm the productivity. But now is restricted day by day but because of the scarcity of soya, people are starting again to use it.			term.		
		2 E: Is it dangerous for the consumer (on fish on poultry feed), or not at all. A: No, it's not rejected from the human consumption that fish is only coming into the poultry feed, so in ray (?) they are using this. It's cheaper so some farmers and processors are using it, basically it's used in layers, in broilers they're not, the immunity of the layers as a bird is more than the broiler, since they are different breeds for different purposes.	**Cr-** Immunity of broiler lower than immunity of layers.	**Inst-** Human animal relationships filtered through animal performance purposes.	**Cr-** Natural choice of cheaper prices is incentive for farmers and processors.	**Inst-** Social transaction filtered through rational prices.	PR
		2 E: Very interesting. And for example erm in the case of the exports with the pathogen free standard, what'd be necessary in India to happen for integrators and poultry industry in order to meet these standards. A: Actually we do have our laboratories and whatever the product we are offering our products totally microbial free, in our products. But these type of things they should be maintained, still there's no concept of this type of thing, low microbial content in formal produce but slowly this concept is picking up in India also. People are now getting the knowledge of this type of concept. Because what is happening previously most of, more than 90% of the chicken they used in like at the time of (inaudible) is getting to slaughter and then it's taking it to (inaudilble). But nowadays the process is getting into the picture so people are getting this and they're getting the benefit out of it. Slowly this concept is speaking up and surely in some 4 or 5 years, most of the chicken market can be ordered in to processed chicken.	**Cr-** Microbial free is diagnosed for food safety.	**Inst-** Human animal relationships filtered through microbial content.	**Dll-** Microbial knowledge is picking up but no cause framed found for this effect.	**Inst-** Social transaction filtered through standards.	PR (N) EPR (S)
		2 And do you think that your products, well we have your products for disease prevention, better than cure? A: Yes it's also economically better, because prevention is better than cure and we're basically in this prevention market. Whatever we're offering, they'll prevent the disease in the future, or mastitis or digestion or liver problem. So then. There yeah, they will also help to recover but mainly we're doing to recover	**Dll-Cr-** Prevention better than recovery because it is economically better is a correlation.	**Inst-** Prevention, recovering agency are filtered through the digestion, liver or mastitites	**X**	**X**	EPR (N)
		2 E: Yes, well for example in diagnosis that can be quite important before the disease appears can´t it? A: Yes right now, we're working whatever diagnosis we're having this is at the time of the disease. We don't have any tool for before the disease.[outbreaks] In laboratory we can do, by surveillance and monitoring, antibody dehydration and all these sort of things. In the lab we do but in the field we don't have this technique	**Dll-Cr-** Diagnosis can be identified in laboratories through concrete factors, in the field we can only do a correlation since technique not yet there..	**Inst-** Human animal relationships filtered through substances in animal body in laboratories. (antibodies, dehydration)	**X**	**X**	EPR (N)
		2E: Yes, because the problem with scientists is that trials might not be all recognized, but A: I know, yes, yes. This trial is in your country (laughs), but your trial it won't get in our country, yes in many other countries as well. Sometimes it is really difficult to enter. But we have entry in, so many European countries also. They are very straight, and they have entry as well in ours, so I think this is all part of the business actually. *In relation to trade partners standards*	**X**	**X**	**Dll-Cr-** Why are trials more difficult in some countries and in others not? Because of the market	**Intve-** Sometimes trials are easy sometimes they are straight is part of the diversity of business and regulations .	EM (S)
		1A: Look in the case of animals, what is happening. To get good and efficient production we're dealing in three ways. Number one is nutrition in the farm to get the better production. Second part is the management so how you manage your animals to get to forms of production in a better way and third is Disease Prevention. Because as you know most of the productivity is being killed by most of the diseases out there that will lead to production loss, so by controlling these 3 things, working on these 3 things we can get better production. So most of the scientists and researchers will address these 3 things, production, management and third is disease prevention for more efficient results	**Dll-Cr-** Relation between nutrition and disease prevention as a function of animal performance. (Animal as input-output).	**Inst -** Manage nutrition and disease prevention) High control over animals performing reactions is framed.	**Cr-** Animal health management increases productivity. .	**Inst-** All actors are contained in the controlling of three actions and implied as responding to functional rational actions..	PR

		1So you understand how important nutrition is. So we're working in this nutrition handle, we're working in some products. Whatever tradition, we're giving, so it should be properly digested and utilized by the animal. Otherwise what'll have, suppose you give feed to the animal but if it's not 100% utilized that is a waste of money.	**Dll-** Nutrition assumes it should be properly digested but no cause-effect relation	**Inst-** Animal Health in terms of utilisation of the product.	**X**	**X**	EPR (N)
		1To improve the productivity, we're going on this angle that is healthier products. Second part is the nutrition part, as feed manufacturers we're trying to incorporate good quality in feed ingredients. Very huge investment we did in theses manufacturing part. Poultry is able to produce ballat, cramps (5:50). The latest technology we're having and Manufacturer feed. Ballat and chorms (6:00) these are the form of the feed	**Cr-** Feed ingredients reduce cramps, ballat, etc.	**Inst-** Animal human relationships instrumentalized through technology.	**Dll-Cr-** The more quality in feeding products we provide, the more productivity.	**Inst-** Social transactions filtered through 'technology'.	PR (N) EPR (S)
		1Yes, because after the 4th or 5th month they're starting to have eggs, and this is the cycle basically. So in broilers because the life cycle is so short, only 6 weeks, the bird has to grow and (inaudible) in these times, so all the requirements, good quality of feed and nutrition, all the requirement for energy, or protein, calcium, phosphor…	**Cr-** Egg cycle dictates requirements of energy, protein, calcium, phosphor, etc. High control of digestion machine.	**Inst-** Human animal relationships filtered through life cycle of animal.	**Dll-** Nutrition is enough for digestion in the life cycle of the production. No side effects since no causes framed.	**NT-** Farmers not included in the action of feeding and nutrition within life cycle Animals have more agency than farmers in INPUTS.	PR (N) EPS (S)
		2E: So you can say if you use this product the cost of feeding, you place. A: But there are also some products available in the market which are maintaining this hygienic and this kind of thing, and now farmers are using them and they're explaining this fish meal after some treatment, so then they're only there using so that's how they're maintaining their production because soya is very scarce these days. E: So you mean these products in the market can clean the bacteria in the fish meal products A: Yes you have to have some treatment some kind of spray that kills the bacteria. Some farmers, ayurvedic farmers use in this case some of them are using directly and some of them having some effect.	**Dll-** Spray product can kill bacteria but no mechanisms framed found.	**Inst-** Human -Feeding animal relations filtered through hygiene and scarcity of soya.	**Dll-** Some farms having some effect through the products.	**NT-** Farmers contained in 'production', de-agentialized.	EPR (N) EPS (S)
		2-2 E: So you're not on disease control A: We're controlling the disease from nutrition. For disease control there are 2 ways either you increase the immunity of the animal or through vaccination. That part is coming through biological, we don't work with biological. So we're nutritional prevention. Because that is all together the front line. There're different companies working on this prevention part also.	**Cr-** A sense of control through immunity reinforcement or vaccination and nutritional prevention Disease control works through biological or immunity.	**Inst-** Nutrition as a controllable 'front line' in prevention of disease, human animal relations filtered through biological (vaccines) or immunity.	**X**	**X**	PR
		7-No, no actually what is happening we're dealing with natural products and the concept of natural products is a booming like anything because we're not depending on antibiotics but organic farming and we're decreasing the use of antibiotics day by day so our future will be.. I mean right now what is happening around 30% we're getting from exports, but within 1 year or 2 this will surpass the domestic production barrier, every year we're opening in a new country. Accordingly we're planning so we're planning some treatment also with some I mean some kind of production will start in other countries also. *In relation to the global demand for this.*	**X**	**X**	**Dll-** A relative sense of control of the 'trend' (30%) in demand highlighted but no justification framed found.	**NT-** Human-farmers interactions substituted by 'treatment' [of animals] with natural products.	EPS (S)
		8-1 Our approach is also and then in the same way our logo is traditional knowledge and modern science. So we're working on that only because of traditional knowledge. Because basically what happens, they're the treasures of India. Basically you go in any house in India. They're using one or the other house and herds in India. So we're aware of how they do in the house, so the same thing we adopted from our traditional environment and we applied more research on this. We're	**Dll-** Modern Science is Traditional Knowledge in a concentrated form but	**Inst-** Human-Animal health relationships filtered through properties of	**Dll-** Traditional knowledge of uses of herbs in herds and houses is a national	**Inst-** Health or healing knowledge filtered through the properties of	EPR

		not using any crude form. Like for example there is a plant like osmium/osymon. 1Osymon, centen basil, colly basil we used to call it basil, people use it in a crude form, like leaves or stem, we use it in a concentrated form.	no concrete rationale framed to link them.	herbs rather than house-herd applications.	treasure, a concentrated form can only thus be a good thing, why or how are not framed.	the herbs rather than the uses [how people do it] in their houses and with herds.	
		2 (On immune system after fish feeding of different farmers) E: Does it affect the immune system as well or it's just the... A: Definitely, definitely, the immune system will be affected because then this microbiological, pathogenic level is high then everyday will be consuming more and more pathogenic bacteria and their productivity will be low	**Cr-** The higher the paghogens it will cause less productivity	**Inst-** Agency of animal through its microbiological or pathogenic levels	**X**	**X**	PR (N)
		1-2E: And do you think there's a relationship between for example Newcastle disease or these ones and the feeding is there a relationship between the feeding and these diseases against the immune system, you know when there's in a infection.. A: Oh yes definitely, feeding also, immunity also, because once the immunity is poor, what will happen the virus will spread in the lung will be caught leading to that disease. And most of the time, for this liver, kidney and heart, these are the 3 vital organs in the body, for there the changes of infection will be high, so we working on that angle. We improve the immunity of the vital organs. Also we're working on the stress on how stress is affecting the productivity of the animal and how you can by controlling the stress you can improve the productivity.	**Dll-** Organs' reactions to stress appear be controlled? What causes the stress or infections?	**Inst** Human Animal relationships filtered through three main organs related to stress: liver, heart and kidney.	**Cr-Dll** Stress as an inherent function of productivity.	**NT-** Farmer is contained in the function of productivity of the animal.	Ems (N) EPS (S)
		2-2 E: How do you notice the stress in the poultry? A: No, no look now, because in poultry what is happening, we're having open farms, we're not having environmental controlled farms and they are environmentally stressed and there are so many operations within poultry, shifting, delinking, vaccination, so every time there Is stress. And for vaccination they're introducing some form of body of molinda. So you can see very well, it will not consume feed, lose weight, productivity will be low, egg production will be low, and then we give our product then after vaccination and the bird will be fed. Because we reduce the stress by transforming their environment	**Dll-** Animals framed as unable to escape stress in farming environments and its mechanisms. Is stress the effect of what?	**Inst-** Chickens are made of organs or parts.	**Dll-** Farming environmental stress can be reduced with pills and palliatives, not with fewer operations.	**Intve-Inst** A strategic relationship between stress and productivity is assumed but farmer is contained in farming operations.	EPr (N) Ems (S)
		3-2E: Regarding space... Space to move for the animals, you see the layers are in these cages and broilers have more space to move, why is this? A: These are the management standards, how much space you have to give to birds for better production. But suppose if you are compromising the space and then the bird will not produce. Just because overcrowding the bird, and it will not produce	**Cr-** Space for cages can tell how to control animal behaviour.	**Inst-** Human-Animal relationships filtered through space requirements.	**Cr-** Overcrowding of units will diminish produce.	**NT-** Social transactions replaced by management standards.	PR (N) PS (S)
		E: Yes and exercise, isn't it, they might not move enough… A: There is a thing, because you're not following the standards, for space and also for height because in that case the bird will be moving and will lose energy and require more feed. So there's a scientific proof you have to give this space. Not more than that or less than that. So overcrowding is bad for production but too much space the bird will lose energy so it's not good for production.	**Cr-** Space for cages can tell how to control animal energy requirements.	**Inst-** Human-Animal relationships filtered through animal space energy requirements.	**Cr-** Overcrowding of units will diminish produce, giving too much space will lose energy and production too.	**NT-** Social transactions replaced by management standards.	PR (N) PS (S)
		2E: And slaughtering? Is there any kind of research on that? A: We did some research on that, like dressing yield. Suppose you get 1 kg of a layer bird, and after slaughter you get 600 gr. So suppose liver is healthy because it's the most important organ so more and more it will be converted to meat. So 2% meat it will have more dressing yield, we're claiming so the liver will work in a very efficient way, so it won't be converted to fat but to meat. And fat is of no more use.	**Cr-** The healthier the liver the more efficient dressing yield.	**Inst-** Human-Animal relationships filtered through animal hormonal processes.	**X**	**X**	PR (N)
		2 E: They will adapt to stress? How do you do that? A: Well this is all scientific, we stop the stress hormonal process by controlling the production of this hormone the corticalsteron by controlling this production, there's no feeling of stress is a chemical implication will take place so by this we're claiming that the bird will not feel the stress, there's no as much water loss of water.	**Cr-** Feeling of animal stress can be controlled through hormonal processes.	**Inst-** Human-Animal relationships filtered through animal chemical processes.	**X**	**X**	PR (N)

		1Do you think you can work together against mycotoxins with other products that are not necessary natural to diminish the side effect of them. Do you think it is possible to combine both natural and synthetic products approaches? A: Yes it's possible because no solution is perfect in the world. So there's a scope for natural also, and ultimately you have to combine the products to get better results because no product can offer a 100% solution. Because neither the natural product nor the synthetic will be 100% for the solution. In some cases the natural work in some cases the synthetic work. So we have to combine the approach and mix types depending on what the customer wants.	**Dll-** Good to have a combination able to diminish side effects of substances such as mycotoxings but no concrete effect since no causes framed.	**Inst-Intve** Animal human relationships substituted by substances and analogies to more complex relationships.	**Dll-** No perfect solution or combination but no mention to the extent of uncertainty (the framing of cause-effect).	**Inst-** Social transactions objectivised through the contained farmer-veterinary relationships.	EPR
		1E: So you concentrate on the products as well, and I ask this because when you're talking about research, do you think is anything in the farmers' practices that might be of interest for your research, for example in diagnosis, or you know farmers know the animals behaviour.... to identify you know when animals are ill or.. you know A: Well, suppose we get some kit that is farmer friendly and he can himself diagnose by a drop of blood and now he can understand my bird is going to be ill and at that moment he will identify and the bird will not be ill and can identify the preventive part and he will correct that part, so we won't need to invest in the healing part. We're not working on that part right now.	**Dll-** If a new product is developed to prevent all disease, it will be used to diagnosis in the farm. Through a drop of blood and the disease cause will reveal itself.	**Inst-** Human-Animal relationships would be used to identify through a drop of blood the problem and correct it. The animal is still a bunch of substances.	**Dll-** If research gets so good, farmer will help diagnose with a kit provided by us, the type of disease. The farmer will know t that moment about the disease.	**Inst-** Human-Animal relationships would be used to make farmer get a kit and diagnose the disease according to a drop of blood- de-agentializing existing knowledge and capacity of farmers.	EPR
		E: Yes, well for example in diagnosis that can be quite important before the disease appears isn't it? A: Yes right now, we're working whatever diagnosis we're having this is at the time of the disease. We don't have any tool for before the disease. In laboratory we can do, by surveillance and monitoring, antibody dehydration and all these sort of things. In the lab we do but in the field we don't have this technique.	**Cr-** By controlling antibodies in laboratories, controlling or prevention in the field can be observed.	**Inst-** Human-animal relationship filtered through surveillance of substances.	**X**	**X**	PR (N)
		E: Right. And do you think that taste makes a difference in the case of feed and health care and taste? A: Well it depends because in the case of bird, because meat is a part also of water, and when there's flaccidity of the meat, that means that water content will be lost from these meat, the taste will change. E: Because of this water absorption capacity? A: No, no, because of water retention, this is at the time of stress a lot of free radicals that are being produced and they basically disintegrate the cellular structure and ultimately they result in loss of water from the muscles. So by giving our product this will reduce this free radical production.	**Cr-** The more flaccidity of meat, the more water content and change in taste will happen.	**Inst-** Human animal stress relationships filtered through liquid absorption and flaccidity of birds.	**Cr-** By controlling liquid retention, meat production can be controlled.	**Inst-** Social transactions objectivised through meat and free radical production.	PR
		A: So in terms of natural products this is not a mainstream type of thing. We use to develop our own standards, and most of the time they're working on… other things, very popular, ours is not very popular, we have some difficulties, even though we're fighting in convincing the people but we're giving as well so many new concepts to the customers. *In relation to the status of homeopathy*	**X**	**X**	**Gral-** We give so much innovation and new concepts to customers so that we develop our own non mainstream standards.	**NT-** While we 'fight' to change the status of mainstream, agency of other stakeholders or social transactions is absent.	SV (S)
		2 E: Because it's a holistic approach. From the feeding to the slaughtering, I was talking to a vet and he mentioned something also on the adaptation of imported broilers, that not all broilers adapt to this kind of weather or conditions… and… A: Yes we have this problem but most of them they adapt, after one generation some adaptations have taken place so yes. E: Even in extreme different weather conditions than for instance the European farmers? A: We have some mortality but in general there is not a problem with that.	**Dll-** After one generation, imported broilers adapt to the local environment. (but no cause-effect relationship)	**Inst-** Agency of animals filtered through levels of mortality and adaptation, survival capacity.	**X**	**X**	EPR (N)

		2 E: which are the problems that you define as the first problems and challenges in the poultry industry? A: 1st problem is availability of grains and 2nd is environment because is not favourable for production. Especially during 6 months they're not able to produce specially in the north, so it's a big challenge and they lose the approach also. How they can combat this problems. And also how the indigenous people are developing some heaters not electrically, they use to sores power coming from some (for wood cutting) so it burns very slowly and they're using this to burn in the night, so you see, so most of the north of India they use this type of things. There's no electricity also. So it's very challenging this. So in cattle is not a big problem since they're bigger animals.	**Dll-** Scarcity of resources often leads to solutions to combat these problems.	**NT-** Human environment produce stressful relationships, these can only be attempted to be challenged.	**Dll-** Indigenous people come with solutions, but no cause-effect as to the electricity solution, it remains a challenge.	**NT-** Problems are to be fought and other social dimensions are not visible.	IPS
Trade Disputes	Hormones case (Appellate Body Report- Key Extracts)	The distinction made by the Panel between general studies on the health risks associated with hormones and specific studies addressing the health risks of residues in food of hormones used for growth promotion purposes was, in the view of the European Communities, devised by the Panel for the sole purpose of enabling it to conclude that the Monographs of the International Agency for Research on Cancer ("IARC") are not relevant as a risk assessment in this case. This, the European Communities asserts, amounts to a distortion of relevant scientific evidence. The European Communities also alleges that the Panel violated Article 11 of the DSU by discarding several articles and opinions of individual scientists invoked by the European Communities (Appellate Body Report, para 17) *Criticism to the DSB Decision*	**Cr-** Cause-effect relationship between food risk and growth hormones, no other interrelationships involved.	**NT-** No transaction with the animal body other than hormone residues problems filtered through risk assessments	**Cr-** Cause-effect relationship between articles and opinions are evidence for risk assessments, general monographs of general hormones risks are not.	**NT-** Social transactions other than specific scientific opinions are absent. No further transactions with individual scientists explained (IARC)	PS
		For every million women alive into the United States, Canada, Europe today, about a 110,000 of those women will get breast cancer. This is obviously a tremendous public health issue. Of those 110,000 women who get breast cancer, maybe several thousand of them are related to the total intake of exogenous oestrogens from every source, including eggs, meat, phyto-oestrogens, fungal oestrogens, the whole body burden if exogenous oestrogens. And by my estimates one of those 110,000 would come from eating meat containing oestrogens as a growth promoter, if used as prescribed (US and Canada Panel Reports, Annex, para 819; Appellate Body Report, para 198, note 181) *The EU perspective*	**Gral-Dll** Health risks from general oestrogens are related to food	**NT-** No transaction with the animal or animal body other than hormone residues problems filtered through risk assessments	**Gral-Dll-** Correlated estimations of body burden are public health problems	**NT-** Social transactions other than scientific opinions are absent	SV
		188. Although it expressly recognizes that Article 5.1 does not contain any specific procedural Requirements for a Member to base its sanitary measures on a risk assessment, the Panel nevertheless proceeds to declare that "there is a minimum procedural requirement contained in Article 5.1". That requirement is that "the Member imposing a sanitary measure needs to submit evidence that at least it actually took into account a risk assessment when it enacted or maintained its sanitary measure in order for that measure to be considered as based on a risk assessment". The Panel goes on to state that the European Communities did not provide any evidence that the studies it referred to or the scientific conclusions reached therein "have actually been taken into account by the competent EC institutions either when it enacted those measures (in 1981 and 1988) or at any later point in time". (emphasis added) Thereupon, the Panel holds that such studies could not be considered as part of a risk assessment on which the European Communities based its measures in dispute. Concluding that the European Communities had not met its burden of proving that it had satisfied the "minimum procedural requirement" it had found in Article 5.1, the Panel holds the EC measures as inconsistent with the requirements of article *Response from the DSB*	**Cr-** Cause-effect relationship between food risk and growth hormones, no other interrelationships involved.	**NT-** No transaction with the human or animal body environment other than sanitary problems filtered through risk assessments	**Cr-** DSB expects EU to have used sanitary measures based on the same risk assessment studies.	**NT-** Social transactions other than scientific opinions are invalid (i.e. social or customary aspects of legitimate standards)	PS

		189. We are bound to note that, as the Panel itself acknowledges, no textual basis exists in Article 5 of the SPS Agreement for such a "minimum procedural requirement". The term "based on", when applied as a "minimum procedural requirement" by the Panel, may be seen to refer to a human action, such as particular human individuals "taking into account" a document described as a risk assessment. Thus, "take into account" is apparently used by the Panel to refer to some subjectivity which, at some time, may be present in particular individuals but that, in the end, may be totally rejected by those individuals. We believe that "based on" is appropriately taken to refer to a certain objective relationship between two elements, that is to say, to an objective situation that persists and is observable between an SPS measure and a risk assessment. Such a reference is certainly embraced in the ordinary meaning of the words "based on" and, when considered in context and in the light of the object and purpose of Article 5.1 of the SPS Agreement, may be seen to be more appropriate than "taking into account". We do not share the Panel's interpretative construction and believe it is unnecessary and an error of law as well. *The EU criticism perspective*	**Gral-Dll** Correlations to base decisions upon rather observable cause-effects should be ´taken into account´to define risk relations	**NT-** No transaction with the human or animal body other than observable sanitary problems filtered through risk assessments	**Gral-Dll-** Minimum procedural requirements are vaguely, not concretely defined and ultimately constructed in law.	**NT-** Social transactions other than scientific opinions are absent. Only observable situations are transacted.	SV
		196. Several of the above scientific reports appeared to the Panel to meet the minimum requirements of a risk assessment, in particular, the Lamming Report and the 1988 and 1989 JECFA Reports. The Panel assumes accordingly that the European Communities had demonstrated the existence of a risk assessment carried out in accordance with Article 5 of the SPS Agreement. At the same time, the Panel finds that the conclusion of these scientific reports is that the use of the hormones at issue (except MGA) for growth promotion purposes is "safe". The Panel states: ... none of the scientific evidence referred to by the European Communities which specifically addresses the safety of some or all of the hormones in dispute when used for growth promotion, indicates that an identifiable risk arises for human health from such use of these hormones if good practice is followed. All of the scientific studies outlined above came to the conclusion that the use of the hormones at issue (all but MGA, for which no evidence was submitted) is safe. *Response from the DSB*	**Cr-** Cause-effect relationship between food risk and growth hormones, no other interrelationships involved.	**NT-** No transaction with the human or animal body other than sanitary problems filtered through risk assessments	**Cr-** Cause-effect relationship between articles and opinions are evidence for risk assessments, general monographs of general hormones risks are not.	**NT-** Social transactions other than scientific opinions are absent	PS
		198. With regard to the scientific opinion expressed by Dr.Lucier at the joint meeting with the experts, and as set out in paragraph 819 of the Annex to the US and Canada Panel Reports, we should note that this opinion by Dr. Lucier does not purport to be the result of scientific studies carried out by him or under his supervision focusing specifically on residues of hormones in meat from cattle fattened with such hormones. Accordingly, it appears that the single divergent opinion expressed by Dr. Lucier is not reasonably sufficient to overturn the contrary conclusions reached in the scientific studies referred to by the European Communities that related specifically to residues of the hormones in meat from cattle to which hormones had been administered for growth promotion. *Response from the DSB*	**Cr-** Cause-effect relationship between food risk and growth hormones, no other interrelationships involved.	**NT-** No transaction with the human or animal body other than sanitary problems filtered through risk assessments	**Cr-** Cause-effect relationship between articles and opinions are evidence for risk assessments, general monographs of general hormones risks are not.	**NT-** Social transactions other than specific scientific opinions are absent	PS
		200. We believe that the above findings of the Panel are justified. The 1987 IARC Monographs and the articles and opinions of individual scientists submitted by the European Communities constitute general studies which do indeed show the existence of a general risk of cancer; but they do not focus on and do not address the particular kind of risk here at stake - the carcinogenic or genotoxic potential of the residues of those hormones found in meat derived from cattle to which the hormones had been administered for growth promotion purposes -- as is required by paragraph 4 of Annex A of the SPS Agreement. Those general studies, are in other words, relevant but do not appear to be sufficiently specific to the case at hand.	**Gral-Dll** Health risks from general oestrogens are related to food, no particular risk	**NT-** No transaction with the human or animal body environment other than sanitary problems filtered through risk assessments	**Gral-Dll-** Monographs are too general, relevant but not sufficient	**NT-** Social transactions other than scientific opinions are absent. No individual studies are considered valid and no further problematization.	SV

		Response from the DSB criticism of EU perspective					
		203. The Panel considers this type of risk and examines the arguments made by the European Communities but finds no assessment of such kind of risk. Ultimately, the Panel rejects those arguments principally on a priori grounds. First, to the Panel, the provisions of Article 5.2 relating to "relevant inspection, sampling and testing methods": ... do not seem to cover the general problem of control (such as the problem of ensuring the observance of good practice) which can exist for any substance. The risks related to the general problem of control do not seem to be specific to the substance at issue but to the economic or social incidence related to a substance or its particular use (such as economic incentives for abuse). These non-scientific factors should, therefore not be taken into account in a risk assessment but in risk management. (Underlining added). Moreover, the Panel finds that, assuming these factors could be taken into account in a risk assessment, The European Communities has not provided convincing evidence that the control or prevention of abuse of the hormones here involved is more difficult than the control of other veterinary drugs, the use of which is allowed in the European Communities. Further, the European Communities has not provided evidence that control would be more difficult under a regime where the use of the hormones in dispute is allowed under specific conditions than under the current EC regime of total prohibition both domestically and in respect of imported meat. The Panel concludes by saying that banning the use of a substance does not necessarily offer better protection of human health than other means of regulating its use. *Response from the DSB*	**Cr-** Cause-effect evidence between control of substance and control of risk	**NT-** No transaction with the human or animal body environment or food other than substances filtered through risk control	**Cr-** Risk managements are not risk assessment problems, they are more general problems, out of the concrete area of control Incomplete however ir to how or to whom report abuses of risk managements.	**NT-** Social transactions other than scientific opinions are absent and non relevant to the good practice, they belong to other (non WTO) area of control. Abuses of risk management however are not further problematized	PS