MSc. Thesis

Linking climate change and agriculture: Framing a 'new' problem in an international bureaucracy

The case of the Food and Agriculture Organization (FAO)

March 2011

MSc. Thesis by Koen Joosten
Registration Number: 860527-412-030

Environmental Policy Group
Wageningen University and Research Centre
The Netherlands

Linking climate change and agriculture:

Framing a 'new' problem in an international bureaucracy

The case of the Food and Agriculture Organization (FAO)

Master thesis Environmental Policy submitted in partial fulfillment of the degree of Master of Science in Climate Studies at Wageningen University, the Netherlands

Koen Joosten

March, 2011

Supervisor:
Dr. Aarti Gupta
Environmental Policy Group
Wageningen University
The Netherlands
www.enp.wur.nl

Second Reader:
Marjanneke Vijge, MSc.
Environmental Policy Group
Wageningen University

© All rights reserved. This work may not be copied in whole or parts without the written permission of the author or supervisor

Foreword

This thesis has been written for the Environmental Policy Group, as part of the Master Programme Climate Studies (specialization environmental policy) at Wageningen University, the Netherlands. With this thesis I am finalizing my period as a MSc. student in Wageningen.

I would like to thank a number of people who have been of great help and support to me in writing this thesis.

First, I would like to thank Aarti Gupta, Assistant Professor of the Environmental Policy Group for her supervision. I appreciated her support and feedback, and I was pleased with her confidence in my work. She gave me room to independently develop my ideas, while at the same time she was a source of inspiration in times I found it difficult to make progress. I would especially like to thank her for her flexibility in the final stage of the writing process, when deadlines were approaching fast and time was limited. It was a pleasure to be supervised by her.

Second, I would like to thank the staff at the Permanent Representation of the Kingdom of the Netherlands to the UN Organizations in Rome for the possibility they gave me to work on the data collection for this thesis while I was doing my internship. They introduced me to the world of the UN organizations in Rome, and familiarized me with the specific procedures, circumstances and workings of a large, bureaucratic and sometimes not very transparent organization – the FAO. I would not have been able to write this thesis without their invaluable help.

Third, I would like to thank all those who have spent some of their time to offer me an interview for this research. In particular, FAO employees were very open and transparent. The information given by the interviewees was invaluable for gaining inside information and more generally for answering the research questions of this thesis. I would also like to thank all those who have sent me relevant documents: secretaries, colleagues of the interviewees, friends and fellow students.

Last, I would like to thank my family, friends for their support during the period of data collection in Rome and while writing my thesis.

Koen Joosten

March 31st, 2011

Summary

According to scientific literature, adaptation and mitigation in agriculture can potentially contribute to reducing the impact of climate change. In recent years the Food and Agriculture Organization of the United Nations (FAO) has been trying to address this link between agriculture and climate change in the United Nations Framework Convention on Climate Change (UNFCCC) negotiations, stressing the need of including agriculture in the climate agreements. However, agriculture is still a relatively unknown sector in the negotiations, and is – unlike forestry – not included in the UNFCCC, which sets an overall framework for intergovernmental efforts to tackle the challenge posed by climate change.

This thesis examines the involvement and influence of FAO in the UNFCCC on the link between agriculture and climate change. Using problem-framing theory, scientific literature, FAO (internal) documents and more than twenty interviews with FAO employees and country representatives in Rome (Italy), this thesis describes how the link between agriculture and climate change has been framed within FAO over the period 1992-2010, and what the effect of this framing has been on FAO's influence in the UNFCCC negotiations.

It shows that the need to consider the interests of its members greatly influenced the way FAO framed the link between agriculture and climate change. The political and institutional context makes it difficult for the organization to find a balance between the interests of the members and its own will. As a result, its members were kept outside FAO's climate change work to maintain maneuvering space and flexibility.

It can be concluded that at first sight the problem-framing process has been rather random and chaotic. However, this thesis shows that: 1) climate change received increasingly more attention within FAO over the years, 2) climate change has been mainstreamed into FAO's activities and organizational structure, but not through an official strategy, 3) there is a difference between what FAO does on the ground (mainly adaptation) and the message it wants to convey to the global politics level (mitigation), and 4) before 2007 the UNFCCC was not really used as a forum for FAO's activities on agriculture.

This thesis argues that when looking at three areas of influence – normative, cognitive and executive – the influence of FAO in the UNFCCC negotiations has been rather weak on all levels, particularly compared to the influence (and authority) the organization has in other fields of its work. This can be explained by time constraints but also by the political and institutional context within the organization. Next to the identification of implications for the ability of FAO to exercise influence in the UNFCCC negotiations, this thesis provides more insight in the processes and dynamics of problem-framing, as well as on the link between problem-framing and the influence of international bureaucracies in global environmental politics.

Abbreviations

FAO	Food and Agriculture Organization
WMO	World Meteorological Organization
UNFCCC	United Nations Framework Convention on Climate Change
COP	Conference of the Parties
PWB	Programme of Work and Budget
SF	Strategic Framework
MTP	Medium Term Plan
ADG	Assistant Director General
CGIAR	Consultative Group on International Agricultural Research
IUCN	International Union for the Conservation of Nature
CSO	Civil Society Organization
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
SOFA	State of Food and Agriculture

List of figures **Page**

List of Tables **Page**

List of Boxes **Page**

Table of Contents

1. Introduction

The global climate is changing, and a large part of that can be attributed to anthropogenic activity. While that was a very controversial statement twenty years ago, today it is widely accepted that changes are happening and human emissions of greenhouse gasses (GHGs) are a cause. As the Intergovernmental Panel on Climate Change (IPCC) stated in its Fourth Assessment Report:

"Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperatures, widespread melting of snow and ice and rising global average sea level" (IPCC, 2007)

Nowadays, many agree with the Stern Review (Stern, 2007) that the scientific evidence clearly indicates that climate change presents very serious global risks, and that it demands an urgent global response. Agriculture[1] is one of the many sectors that will be affected by climate change, and it is one of the sectors that is most climate-sensitive. Therefore, production processes will likely be heavily impacted (FAO, 2010).

The Food and Agriculture Organization of the United Nations (FAO), one of the most important actors in agriculture, food and forestry globally, has a large impact on national agricultural policy making. Founded in 1945, the FAO's mission is to achieve food security for the entire world population. FAO's mandate is to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy (FAO, 2010). Because of this mandate and the large impact climate change will likely have on agriculture and food security, linking climate change and agriculture could be an important part of FAO's activities. As stated by FAO itself, there is a need to ensure that countries are prepared to adapt to climate change and mitigate negative impacts (FAO, 2010).

The anticipated effects of climate change on the agricultural sector vary between regions, societies and degree of temperature changes. In mid- to high-latitude regions, moderate warming can benefit crop and pasture yields, but even slight warming in (seasonally) dry and low-latitude regions decreases yields (Easterling et al., 2007; Parry et al., 2004). Climate change will particularly affect vulnerable people and food systems, and will increase hunger and malnutrition (FAO, 2010).

GHG emissions are growing, and are expected to keep growing for the coming decades. Population growth and changing diets may even enhance this increase (Smith et al., 2007). Escalating emissions will further impact agriculture and food security, which undermines efforts to ensure sufficient food production to feed the entire world population that will grow to 9 billion by 2050, while it is estimated that in 2009 already 1.02 billion people were undernourished (FAO, 2009a). Climate change is thus a threat to global food security, and adaptation[2] is very likely necessary to save the lives of millions of people. Since agricultural GHG emissions are important contributors to climate change – total emissions from agriculture are for example higher than emissions from the transport sector (IPCC, 2007) – there is a large mitigation[3] potential for this sector as well.

Since 2007, FAO has been trying to convince parties to the United Nations Framework Convention on

[1] Contrary to other definitions, which include forestry and fishery, this research defines agriculture as the production of food and goods through farming only. Time constraints limit a broader definition. This should not be a problem since the effect of fisheries on climate change and vice versa is very limited, and forestry is a sector already covered quite well in the climate regime. Agriculture however, is the 'forgotten' sector in climate negotiations, justifying an in-depth examination.

[2] In this thesis, adaptation is referred to as "the actions of adjusting practices, processes and capital in response to the actuality or threat of climate change as well as changes in the decision environment, such as social and institutional structures, and altered technical options that can affect the potential or capacity for these actions to be realized" (Easterling et al., 2007)

[3] Mitigation is throughout this thesis defined as the actions taken by individuals, corporations or governments to reduce greenhouse gas emissions in order to minimize their effects on global climate change.

Climate Change (UNFCCC) to include agriculture in international agreements, stressing its potential for climate change adaptation and mitigation, and its role in achieving world food security. In recent years, FAO has been addressing agriculture as part of the solution to both climate change and food security challenges (FAO, 2009b). However, to date (March 2011) the mitigation and adaptation potential of the agricultural sector is underused, sometimes even neglected. And unlike forestry, agriculture is not part of any UNFCCC agreements. FAO's efforts for the inclusion of agriculture in the international agreements do not seem to deliver the intended results since they started in 2007. This raises questions like: Was FAO able to exert influence in the UNFCCC negotiations, and if so, how? How did FAO frame the link between climate change and agriculture?

This thesis aims to answer these questions, and contribute to a better insight into the ability of FAO to exercise influence in the UNFCCC negotiations with a goal to increase global adaptation and mitigation levels through the agriculture sector. To be able to do so, it will describe how the link between climate change and agriculture was framed within FAO, since problem-framing processes shape activities and strategies, and activities in turn affect the level of influence in the UNFCCC negotiations. Ultimately, this leads to the identification of implications for the ability of FAO to exercise influence in the UNFCCC negotiations, which can possibly be linked to the problem-framing process.

A logical starting point for this research is the United Nations Conference on Environment and Development (UNCED) or 'Earth Summit', in Rio de Janeiro, 1992. It was at this conference that the UNFCCC emerged. It entered into force in 1994 and has been ratified by more than 185 countries. A major accomplishment of the Convention, which is general and flexible in character, was that it recognizes that there *is* a problem. Since then, it has become the central forum for the international community to talk about and negotiate on climate change issues. This thesis will thus cover the period 1992-2010.

1.1 Problem Description

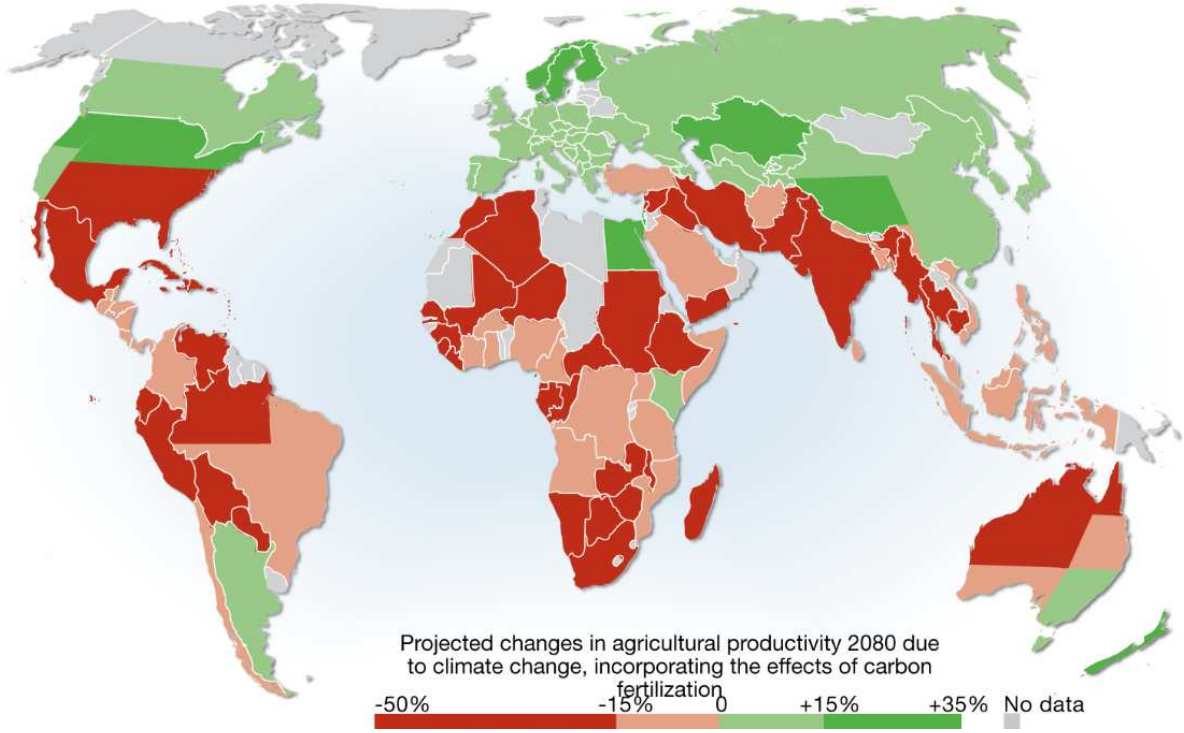
Climate change and agriculture are interrelated processes, both taking place on a global scale but with regionally unevenly distributed impacts, characteristics and conditions. Agriculture is an important (economic) sector globally, especially in developing countries. In 2007, 40% of the Earth's land surface was managed for cropland and pasture (Foley et al., 2005). In developing countries, almost 70% of the population lives in rural areas, where agriculture is the most important supporter of livelihoods. According to IPCC, there is high confidence that climate change will increase the already high number of people at risk of hunger (Easterling et al., 2007). Adapting to and mitigation of climate change are therefore considered important to ensure human wellbeing in the future. This section provides a background on the (debate on the) link between climate change and agriculture and the underlying challenges that exist in the climate change debate.

1.1.1 Impacts of climate change on agriculture

Unlike the contribution of agriculture to climate change, there is little scientific disagreement on the impacts of climate change on agriculture. Climate change is projected to have significant impacts on conditions affecting agriculture, including temperature, precipitation and run-off. These conditions determine the capacity to produce enough food for the human population and domesticated animals. In its 2007 assessment report, the IPCC stated (with high confidence) that climate change will increase the already high number of people at risk of hunger, especially affecting smallholder and subsistence farmers. It is very likely that there will be an increased frequency of heat stress, droughts and floods that reduce yields and livestock productivity. Furthermore, climate change and variability will likely result in a higher risk of fires and pest and pathogen outbreaks, negatively impacting agriculture and food security (Easterling et al., 2007). However, these impacts will be different for every region.

Although elevated levels of CO_2 can accelerate plant growth and increase yields, negative impacts such as the predicted temperature increase, altered precipitation and transpiration regimes and an increased frequency of extreme events will likely be more severe (Easterling et al., 2007). In the long run, climatic change could result in a reduction of agricultural productivity, through changes in water supply, agricultural inputs, soil erosion, reduced crop diversity and many more. This will have negative consequences for regional – and possibly world – food security. All four dimensions of food security (food availability, stability of food supplies, access to food, food utilization) will likely be affected by climate change (FAO, 2003a). Figure 1 gives the impact of climate change on agricultural productivity in 2080 for different countries. This clearly shows that estimated impacts are large and unevenly distributed, and that already vulnerable countries are hit relatively hard.

Figure 1: Projected changes in agricultural productivity in 2080 due to climate change

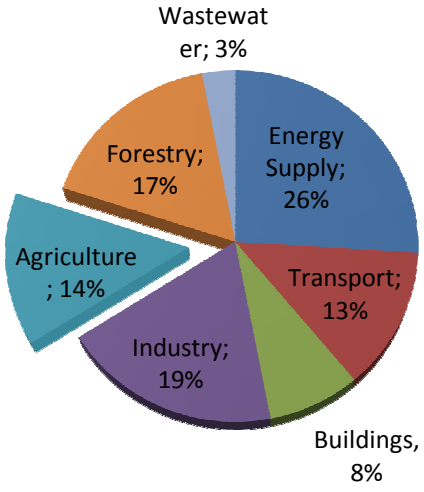


Source: Cline, W. R. 2007. Global Warming and Agriculture: Impact Estimates by Country. Washington D.C., USA: Peterson Institute.

1.1.2 Contribution of agriculture to climate change

The scientific debate regarding the contribution of agriculture to climate change is much more lively. Although there is more or less consensus on the notion that agriculture is a significant emitter of GHG gasses, there is a heated debate on the numbers. FAO's state of Food and Agriculture 2009, for example, was delayed by several months because of disagreements (between scientists as well as FAO members) on the numbers of the contribution of the livestock sector to GHG concentrations. Even though the following numbers come from the 2007 IPCC report, it should be noted that these are not undisputed.

Figure 2: Global Anthropogenic GHG emissions by Sector (2004)



Source: IPCC Assessment Report 4 (2007)

Scientists agree that agriculture releases to the atmosphere significant amounts of CO_2, CH_4 and N_2O. The IPCC estimated that in 2005, agriculture accounted for about 10-12% of total anthropogenic CO_2

emissions, while agricultural CH_4 and N_2O-emissions accounted for about 50% and 60% of global emissions respectively (Smith et al., 2007). Taken together, agriculture accounted for 14% of total GHG emissions (see figure 2). Emissions from agriculture have risen by 17% from 1990 to 2005, and are expected to increase in the coming decades due to economic growth and changing diets. "*Higher emissions are projected in the future if current trends are left unconstrained"* (Easterling et al., 2007). Emissions are likely to increase in developing regions, and only slightly in developed regions (Smith et al., 2007; Smith et al., 2008) (see also figure 3).

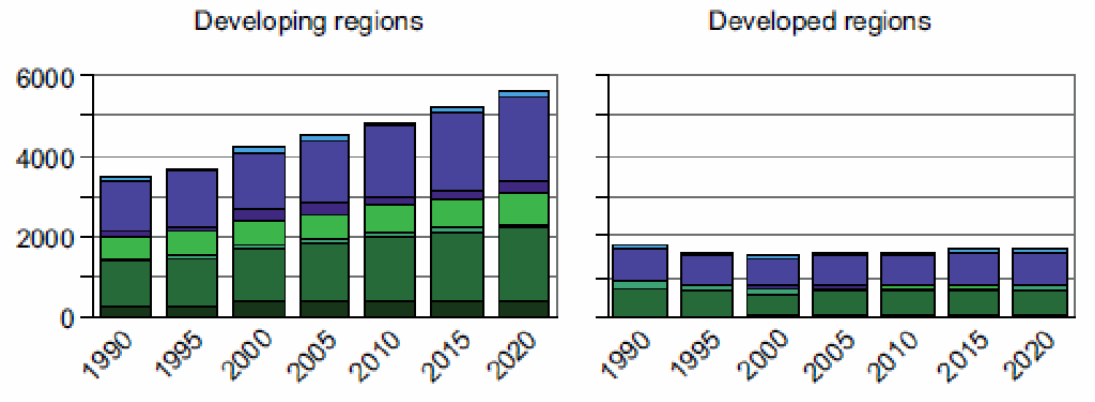


Figure 3 : Estimated historical and projected N2O and CH4 emissions in the agricultural sector of developing and developed regions during the period 1990-2020. Source: Adapted from US-EPA, 2006a.

1.1.3 Climate change adaptation and mitigation options in agriculture

Societies have a long record of adapting to impacts of climate and weather, and adapting to environmental conditions has always been part of agriculture. It is the pace and magnitude of climate change that causes problems. In its fourth assessment report the IPCC stated that adaptation to climate change is already taking place, but on a limited basis and seldom in response to climate change alone (Adger et al., 2007). Furthermore, adaptive capacity is unevenly distributed across and within societies, and substantial limits and barriers to adaptation exist (Adger et al., 2007).

Many agricultural practices can potentially mitigate GHG emissions. Agricultural GHG mitigation options are found to be cost competitive with non-agricultural options (for example energy and transportation) in achieving long-term (i.e., 2100) climate objectives. Although agricultural GHG fluxes are complex, active management of agricultural systems offers possibilities for mitigation. Many of these opportunities for mitigation use current technologies and can be implemented immediately (Smith et al., 2007).

Opportunities for mitigating GHGs in agriculture are based on three mechanisms: reducing emissions, enhancing removals or avoiding (and displacing) GHG emissions. Smith et al. (2008) identify several mitigation measure, of which cropland management, grazing land management and restoration of cultivated organic soils have the largest potentials. They also show that there is large(st) potential for agricultural mitigation in developing countries in Latin America, Southern and South-Eastern Asia and Eastern Africa (see figure 4). However, GHG mitigation levels also depend on socio-economic development, human population growth, diets, application of adequate technologies, climate and non-climate policies, and future climate change. Consequently, mitigation potentials in the agricultural sector are still uncertain.

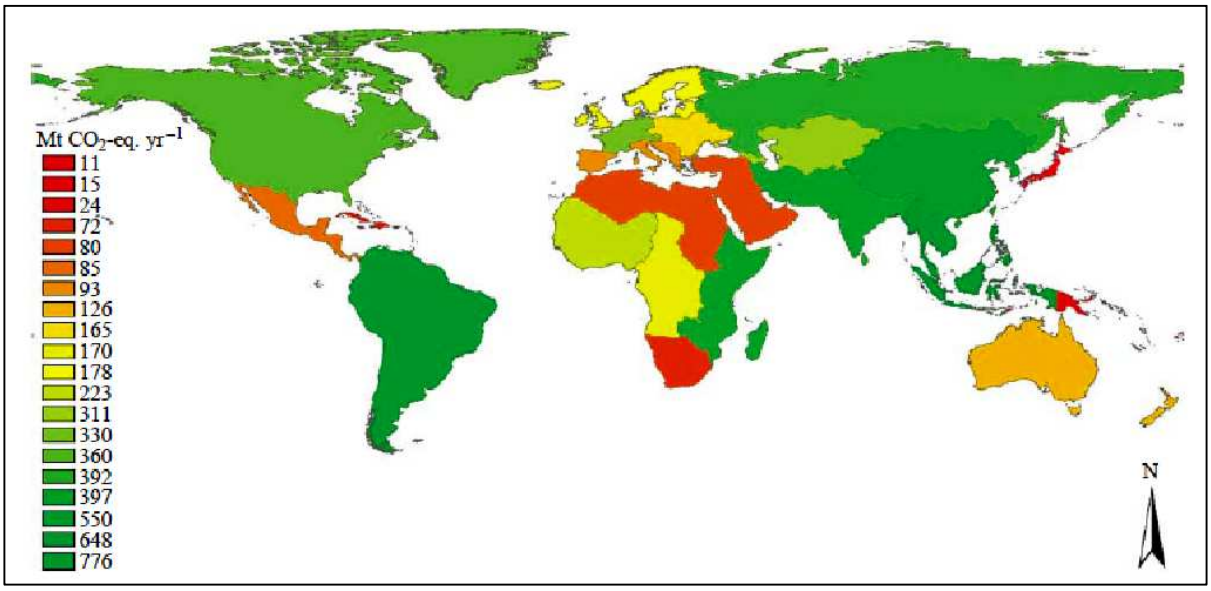


Figure 4: Total physical mitigation potentials (all practices, all GHGs: Mt CO2-eq. yrK1) for each region by 2030, showing mean estimates (B1 scenario shown though the pattern is similar for all SRES scenarios) (Smith et al, 2007)

There is a variety of cost-effective options for mitigation and adaptation in agriculture (Smith et al., 2007). Nevertheless, actual levels of GHG mitigation and adaptation in agriculture are far below the technical potential. This implementation gap occurs due to costs and other barriers to implementation (Smith, 2004). These are not likely to overcome without additional policy and/or economic incentives. In many regions, non-climate policies related to macroeconomics, agriculture and the environment, currently have a larger impact on agricultural mitigation and adaptation than climate policies (Smith et al., 2007). Including agriculture in climate agreements could provide the necessary incentives to increase the level of adaptation and mitigation in agriculture.

However, agriculture is a difficult sector to include in the UNFCCC. Compared to forestry, agriculture is very complex. It covers countless different farming systems and ecosystems and millions of (smallholder) farmers. Furthermore, to be able to contribute to climate change mitigation, there needs to be a system of measuring, reporting and verifying GHG emissions. There are currently still doubts on the accuracy of measurement reporting and verification of emission reductions.

1.1.4 The challenge

As apparent from the previous sections, adaptation and mitigation in agriculture can potentially contribute to reducing the impact of global warming, as well as to ensuring food security for the entire world population. From an environmental and food security point of view it therefore makes sense to include agricultural adaptation and mitigation in the UNFCCC climate agreements, given the fact that this is (currently) the only platform where global agreements on climate change can be reached. Despite being not very effective currently, UNFCCC agreements might be in the future. And unlike forestry, agriculture is not (yet) included in climate change agreements.

As a specialized agency of the UN for agriculture and food security with a mandate to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy (FAO, 2010), FAO is at first glance the best suited actor to address the link between climate change and agriculture on a global level. In recent years the organization has been trying to address the link between agriculture and climate change in the UNFCCC negotiations and the possibility of including agriculture in the climate agreements. So far, it is questionable whether these attempts were successful, and it is therefore justified to more closely examine the involvement and influence of the organization in this UNFCCC process. And although the UNFCCC negotiations and the potential role of

agriculture in adaptation and mitigation to climate change have attracted considerable attention in literature, academic literature has neglected FAO and its role in the UNFCCC. This makes this thesis even more relevant and timely.

To be able to draw conclusions on the involvement and influence of FAO in the UNFCCC, it is necessary to know how the link between agriculture and climate change was framed within the organization. The development of a FAO climate change activities are directly related to the way the problem of climate change is framed by the organization. In turn, the level and type of influence is determined by the actions or activities FAO undertakes. Although this process is not exclusively one-way but rather synergistic (e.g. activities can also have an effect on problem-framing), this thesis will mainly look at FAO activities to determine the frame that was – and is – used. Problem framing it thus central to the choice and implementation of activities and subsequently to the level of influence, which is the second element of this research.

Influence is considered to be *" the ability to modify one actors behavior by that of another"* (Cox and Jacobson, 1973, 3). This broad concept is in this thesis divided in three 'areas' of influence: cognitive, normative and executive. By providing for example knowledge, expertise and assistance related to climate change and agriculture to parties at the UNFCCC, FAO might be able to exert influence in the negotiations. Examining this process – and also the possible link between influence and problem-framing – can result in identifying the ability of FAO to exert influence in the UNFCCC negotiations.

As will be explained in chapter 3.3 in more detail, climate change is and has been a very sensitive and contested issue, with diverging views, perceptions, impacts and interests. Issues like responsibility, justice, equity, technology transfer and adaptation versus mitigation are still being debated, and will likely continue to dominate the international climate change talks. Since FAO itself consists of 192 member states from industrialized and developing countries, there are within the membership different views on climate change as well. Although this thesis looks at FAO as a bureaucracy, which *excludes* the members, it is not entirely correct to assume that its members did not have an influence in the problem-framing at all. FAO does more than simply execute agreements between states and has a certain amount of authority that can be used for exerting (independent) influence – as will be further discussed in the conceptual framework – but its members still have means to influence the organization's strategy and push for a certain direction. This thesis therefore also incorporates the possible effect of FAO members on the problem-framing process within the organization.

Recapitulating, this thesis will first analyze how the link between climate change and agriculture was framed within FAO. While keeping in mind the circumstances under which the problem-framing took place, this is done through looking at 1) the development of attention for (the link between agriculture and) climate change within the organization, 2) the embedding of climate change in the (structure of) the organization, 3) FAO publications on climate change, and 4) the activities of FAO in- and outside the UNFCCC process. By doing so, it will become clear how the FAO framed the link between climate change and agriculture.

Second, by looking at three areas of influence – normative, cognitive and executive – this thesis tries to describe what the influence of FAO in the UNFCCC negotiations was, including the possible link with the frame used. This will result in the identification of implications for the ability of FAO to exercise influence in the UNFCCC negotiations. This can be used by FAO to develop a more effective strategy for increasing the levels of agricultural climate change mitigation and adaptation.

In the end this research will provide more insight in the processes and dynamics of problem-framing, as well as on the link between problem-framing and the influence of international bureaucracies in global environmental politics. It will discuss what can be learned from this thesis.

1.2 Research Objective

The research objective of this research is two-fold.

First, it aims to provide insight in how the FAO framed the link between agriculture and climate change in the period 1992-2010 by looking at its activities. By using problem-framing theory, it will show that the adoption of a particular frame determined the portfolio of activities that target this problem, which can result in a certain – possibly suboptimal – outcome.

Second, by looking at three areas of influence – normative, cognitive and executive – this thesis tries to describe what the effect of problem framing was on the influence of FAO in the UNFCCC negotiations (in the area of climate change and agriculture). This will result in the possibility to identify implications for the ability of FAO to exercise influence in the UNFCCC negotiations to increase global adaptation and mitigation levels through the agriculture sector.

Achieving these objectives will provide more insight in the processes and dynamics of problem-framing, as well as on the link between problem-framing and the influence of international bureaucracies in global environmental politics.

1.3 Research questions

The main and sub research questions of this thesis are as follows:

1. *How did FAO frame the link between agriculture and climate change between 1992 and 2010, and how is that reflected in its strategy and activities?*
   a) How did the attention for climate change develop within FAO?
   b) How has climate change been embedded in the (structure of) the organization?
   c) What (kind of) activities did FAO undertake on the link between agriculture and climate change?

2. *Did FAO influence the UNFCCC negotiations in the area of agriculture and climate change, and is there a link with the frame used?*
   a) Did FAO exert influence by creating, supporting and/or shaping norm-building processes in the UNFCCC agreements, and how? (normative influence)
   b) Did FAO exert influence by changing the behavior of actors in the UNFCCC negotiations by changing their knowledge and belief systems, and how? (cognitive influence)
   c) Did FAO exert influence by reshaping national negotiation positions through direct assistance of national governments, and how? (executive influence)

3. *Given the findings from question 1 and 2, what does this research tell us about the processes and dynamics of problem-framing, the link between framing and influence, and the influence of international bureaucracies in global environmental politics?*

1.4 Methodology

This research draws largely on information gathered during a five month internship at the Netherlands Permanent Representation to the UN Organizations (FAO, IFAD & WFP) in Rome from March to July 2010. This data was acquired primarily through 25 semi-structured and open interviews with professionals working at FAO, in addition to a number of external experts in country delegations, and from other international organizations. The interviews were used for answering all research questions. The contacts for the interviews were obtained using the snowball method, of which the first contacts were made through the network of the Netherlands permanent representation in Rome. Next to interviews, valuable information on more confident and 'behind-the-scenes' processes and activities was gathered during informal contacts with both FAO employees and diplomats from a range of different countries. This made it possible to really grasp what was going on in this complex and not very transparent organization.

The limited time frame of this thesis made it impossible to get a sufficient representation of actors on which to base quantitative data analysis. That is why only qualitative data analysis was used for this thesis. A list of the interviewees can be found in Annex I .

Next to interviews, the information on which this thesis is based is complemented by an analysis of different sources such as internal and published documents of the FAO and its website, FAO project databases, as well as observations from meetings (workshops, seminars, conferences etc.) held at FAO headquarters. The regular scheduled meetings at FAO, such as the FAO Council and the Committee on Agriculture were a valuable source of information. Scientific literature, such as scholarly articles and books, but also newsletters, reliable internet sites, conference papers and negotiating texts are used to support the conclusions throughout this research.

1.5 Outline of the rest of the thesis

The outline of the rest of the thesis is as follows.

Chapter 2 sets out the conceptual framework and theories used in this research. Two concepts are central: *'Problem framing'* and *'Influence of international bureaucracies*.'

Chapter 3 provides the context of this research by briefly describing the political and institutional context of this thesis, by discussing the development of the climate regime, the mission, constitution and governance of FAO and some of the issues around agriculture in the (global) politics of climate change.

Chapter 4 analyzes the link between agriculture and climate change, and how the FAO framed this link. This is done using results from interviews with FAO employees, by analyzing FAO publications on climate change and through an analysis of activities undertaken by FAO (e.g. projects, advocacy, campaigns) both within and outside the UNFCCC process. However, this research does not aim to look at *all* FAO activities, rather it will present an overview on which to base conclusions. Next to the activities, this chapter will also look at the embedding of climate change in the structure of the organization and the development of attention for climate change within the organization.

By analyzing several examples, Chapter 5 describes the effect of problem-framing on the normative, cognitive and executive influence of FAO in the UNFCCC negotiations and allows for the identification of implications for ability of FAO to exercise influence in the UNFCCC negotiations.

This set-up finally leads to chapter 6, which will present the overall conclusions of this thesis and answers the research questions, but it will also place the conclusions in the broader (global) political context. It will discuss what this thesis tells us about the processes and dynamics of problem-framing, the link between framing and influence, and the influence of international bureaucracies in global environmental politics.

2. Conceptual framework

This research is based on two concepts: '*Problem framing'* and '*Influence of international bureaucracies.'* Both are necessary to explain how a 'new' problem is made sense of and acted upon – in other words framed – by an international bureaucracy, and how that frame affects an international bureaucracy's ability to influence international regimes by means of certain activities. Figure 2 illustrates this process. Both concepts are discussed below, following the part that defines international bureaucracies and the use of that concept in this research.

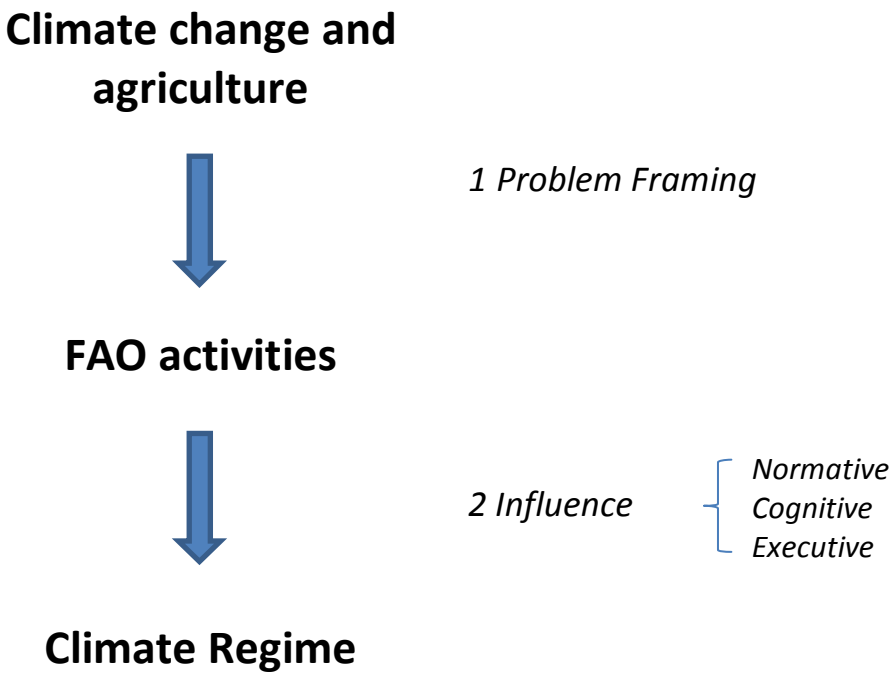


Figure 5: Conceptual Framework

2.1 Bureaucracies as international actors

International organizations (IOs) have become an important part of world politics, independent of their field of work. Whether in finance, armed conflicts or environmental issues, they have become important players that investigate, advise, take decisions and often lead the way in addressing complex problems. They do more than simply execute agreements between states, and often have a significant influence on world politics (Barnett and Finnemore, 2004).

This research follows Barnett and Finnemore's (2004) idea that IOs are constituted as bureaucracies, and that that bureaucratic character profoundly shapes the way they behave. Bureaucracies are defined by four central features: *Hierarchy, continuity, impersonality* and *expertise*. This results in an organization that is both composed of and producer of impersonal rules. "Rules are explicit or implicit norms, regulations and expectations that define and order the social world and the behavior of actors in it" (Barnett and Finnemore, 2004, 18). One of the effects of rules is that they can shape how civil servants see the world and perceive the problems they face. Rules define, categorize, and classify the world (Barnett, 2002). Rules thus have framing characteristics. They are primarily used to break down difficult and complex problems into smaller and more manageable tasks and then get designated to different parts of the bureaucracy, while coordinated under a hierarchical command (Barnett and Finnemore,

2004). An international bureaucracy takes this to a higher level, being composed of and producing international rules, which can eventually lead to binding agreements between states. Following Biermann et al. (2009a), this research defines an international bureaucracy as:

"….a hierarchically organized group of international civil servants with a given mandate, resources, identifiable boundaries, and a set of formal rules of procedures within the context of a policy area" (Biermann et al., 2009a, 37)

It is thus different from an international organization in the sense that an international bureaucracy is part of an international organization. The latter is composed of a normative framework, member states and a bureaucracy, in which the latter is often neglected as an actor on its own (Biermann et al., 2009a). This research will focus on the influence of the FAO bureaucracy.

2.2 Problem framing

How a 'new' problem is framed influences the choice and development of activities that target this problem, and results in a certain outcome. Problem-framing refers to a concerted effort to focus on one's understanding of a problem (Bardwell, 1991). Framing processes have come to be regarded, alongside resource mobilization and political opportunity processes, as a central dynamic in understanding the character and course of social movements. Frames help to render events or occurrences meaningful and thereby function to organize experience and guide action (Benford and Snow, 2000). In this research, the key frame analytical task is to understand what stakeholders within FAO think about climate change, and how the different interpretations get translated into activities and action. "Frame analysis does not begin with incontrovertible scientific facts about climate change that can best be interpreted in one way, but with investigating climate change as a concept that stakeholders draw upon to construct a variety of policy problems and to create policy communities" (Fletcher, 2009, 804).

Box 1: Environmental Framings
"In shaping environmental policies, what you could call "environmental framings" have been, and are, very important. We all create "stories" about how we use resources, live on the land, or affect the environment. We make a plot that explains what happens, using beginnings, running for some time, and finding endings, sometimes telling a moral with how the story ends. The Dust Bowl is a vivid example. There are many other examples that you can use to show why and how framings matter. For example, we have seen how direct provision and direct regulation have framed environmental problems in specific ways. As a result, we have seen only some kinds of stories built into the policies that we now have. Our policies could take very different approaches, but don't because of the stories that are most powerful and that prevail."
Professor Alastair Iles (UC Berkeley)[4]

This research will first analyze how the link between agriculture and climate change is framed within FAO. It is thus concerned with the negotiation and (re)construction of reality by actors within FAO. From the emergence of a consciousness on the issue of climate change, framing resulted in emphasizing certain actions, and offered particular interpretations of situations and events as well as attributed blame and responsibility. Frames also suggest suitable courses of action to resolve and prevent relevant problems (Triandafyllidou and Fotiou, 1998). Different interpretations and perspectives (a different frame) can result in completely different actions.

An international bureaucracy's activities can have an influence on the global level. It might start creating research programs and 'on the ground' projects, organize workshops and seminars, be present at international conferences and negotiations and take an (political) position in that process, and have (high level) contacts with politicians and officials of other international organizations, among others. It might also be the case that an organization frames a new problem as a non-issue, and therefore develops no

[4] Quote taken from Wageningen University course website on *'Principles of Climate Change Economics and Policy'* (ENR-22806), September 2010.

strategy at all. Furthermore, a frame can change over time, as circumstances change or activities are carried out. If for example, a research program provides a new insight, the organization's strategy can be adjusted. Framing is thus a dynamic process.

Problem-framing is in this research the central concept that shapes and affects FAO activities on climate change and agriculture, as well as FAO's influence in the climate change regime. This can be illustrated by the cog-wheels in figure 6 below. A high-speed clockwise-rotating cogwheel ("frame one") will result in a completely different outcome at the end of the chain than a slowly counterclockwise-rotating cogwheel ("frame two"). This shows the importance of frames in environmental policy-making.

However, the activities an international bureaucracy employs can also affect its frame. The relationship between framing and activities is thus a two-way process. In the figure below, this means that the 'activities'-cogwheel can also start turning the other way around, resulting in a different frame and level of influence. It is a synergistic process, in which both the frame and the activities affect each other. However, for the sake of simplicity, this thesis looks at the activities FAO employed to determine how the link between climate change and agriculture was framed.

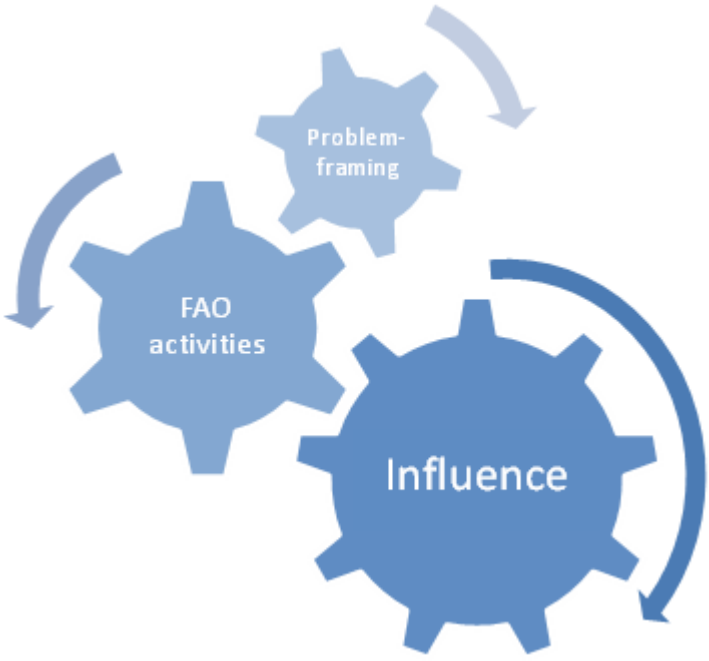


Figure 6 : Problem framing as a core concept in this thesis. Note that the cogwheels can also turn the other way around, depending on the relationship between problem-framing and activities

2.3 Influence of international bureaucracies

International bureaucracies do more than simply execute agreements between states, and often have a significant influence on world politics. They have a certain amount of authority that can be used for exerting influence. Influence in general can be defined as the ability to modify one actors behavior by that of another (Cox and Jacobson, 1973, 3). As a basis for influence, authority can be divided in delegated, moral, and expert authority (Barnett and Finnemore, 2004). Delegated authority is the most 'basic' authority, and is the authority that is delegated to the organization by its member states. International bureaucracies are authorities because their member states have put them into charge. Moral authority is often used as a basis of action, since international bureaucracies (claim to) embody, serve, or protect some widely shared set of principles and are seen as defenders of values of the international community.

Furthermore, international bureaucracies draw on their expertise as a basis for authority since they have detailed, specialized knowledge about their tasks.

International bureaucracy action isn't thus "*merely epiphenomenal of the behavior of their state creators"* (Barnett and Finnemore, 2004, 27). In the case of FAO, its authority creates a basis for autonomous actions, which might be used for influencing the climate change regime. Part of this research is devoted to identify examples of the influence FAO had on the way agriculture is perceived and integrated in the climate regime.

This research follows the approach taken by Biermann et al. (2009a) and makes a distinction between *normative, cognitive and executive* influence. In other words, FAO as a negotiation-facilitator, knowledge-broker and capacity-builder (Biermann et al., 2009a).

Normative influence is about how a bureaucracy influences "global environmental governance through the creation, support and shaping of norm-building processes for issue-specific international cooperation" (Biermann et al., 2009a, 48). This research looks at how the FAO influenced international norm-setting in the early stages of integrating agriculture into the UNFCCC climate change agreement. Despite the fact that the FAO is not a key player in the UNFCCC negotiations (it has only an observer status), international bureaucrats can exercise considerable influence in international negotiations "even when they are not key players during the negotiation stage" (Young, 1994, 179). Initiation of side-events during negotiations or conferences, seminars and workshops on the implementation of international agreements can be indicators for normative influence.

Cognitive influence is about changing the behavior of actors by changing their knowledge and belief systems (Biermann et al., 2009a). Knowledge is a powerful tool, and can have significant influence on international regimes. Communities of scientists ('epistemic communities') often strengthen the knowledge base on which regimes are designed and operate. Brown Weiss and Jacobson (1998) found that '*the greater the size, strength and activism of epistemic communities, the greater the probability of both implementation and compliance'.* The more scientific and technical information, the higher the pressure on governments to act is. Since the FAO is an specialized UN agency, it has a large knowledge base. In theory FAO could thus have a large cognitive influence on the agriculture – climate change link within the climate regime. Indicators for cognitive influence can be the use of information from FAO (e.g. press declarations, reports, databases, strategy papers, etc) in public debates or media, by decision-makers in making policy, by scientists in the IPCC assessment reports or by negotiators in climate negotiations.

Executive influence is the reshaping of national interests through the direct assistance to countries in their effort to implement international agreements. Training programs for civil servants in a specific country might shape national policies through the ideas, concepts and policies that international bureaucracies propagate (Biermann et al., 2009a). Technology transfer, financial support or (trans)national partnerships supported by the bureaucracy can be other ways to wield influence. Policy diffusion by international bureaucracies can also be of importance, since a successful policy from one country can be spread to other countries (by the bureaucracy or by countries themselves). Indicators for executive influence can among others be the adoption of new laws, programs or agencies, or new instruments and practices to protect the environment (Biermann et al., 2009a).

After setting out the conceptual framework and theories used in this research, the next chapter will provide the context of this research by briefly describing the political and institutional context of this thesis, by discussing the development of the climate regime, the mission, constitution and governance of FAO and some of the issues around agriculture in the (global) politics of climate change.

3. The political and institutional context

3.1 Development of the climate change regime

The 'greenhouse effect' is not a very new concern. Already at the end of the nineteenth century Arrhenius suggested that a growing stock of carbon dioxide in the atmosphere would cause the earth's surface temperature to rise. However, the subject did not attract much attention until the late 1950s, when observations in atmospheric processes began. These observations immediately showed a steady rise in atmospheric carbon dioxide, and the first concerns about 'catastrophic warming' occurred a decade later.

During the 1980s, a series of conferences, research programmes and workshops helped to build scientific consensus about the nature of the problem. This, together with rising concern about environmental issues, led to the establishment of the Intergovernmental Panel on Climate Change (IPCC) in 1988, under guidance by the World Meteorological Organization (WMO) and the UN Environment Programme (UNEP) (Betsill, 2005). IPCC's assessment reports form the scientific basis for the diplomatic processes of the UN Framework Convention on Climate Change (UNFCCC). As will be discussed in chapter 4.5, FAO (together with many other organizations) provides input and assistance to the IPCC.

It was in the beginning of 1991 when countries began negotiating a global convention on climate change. It was the UNFCCC that emerged, and it was signed at the Rio Earth Summit in 1992. It entered into force in 1994 and has been ratified by more than 185 countries. A major accomplishment of the Convention, which is general and flexible in character, is that it recognizes that there *is* a problem. That was no small thing in 1994, when the treaty took effect and less scientific evidence was available than now. The Convention is a "framework" document, "something to be amended or augmented over time so that efforts to deal with global warming and climate change can be focused and made more effective" (UNFCCC, 2010).

Article 2 of the UNFCCC sets out its overall objective:

"The ultimate objective of this Convention … is to achieve … stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system. Such a level should be achieved within a time frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner." - UNFCCC, 1992

The Convention itself is legally binding for the parties that ratified it, but sets no mandatory limits on greenhouse gas emissions for individual countries and contains no enforcement mechanisms. However, negotiations continued after 1992 and during the first Conference of the Parties (COP) in 1995 consensus emerged on the need for a protocol including specific targets and agreements. After ten days of intensive negotiations parties agreed on the Kyoto Protocol, which included a 5.2% reduction target for developed countries for the period 2008-2012 compared to 1990. After ratification by the Russian Federation in 2004, the Kyoto Protocol entered into force in 2005.

With the first commitment period of the Kyoto Protocol coming closer, parties reached agreement on a timeline and structured negotiation on the post-2012 framework with the adoption of the Bali Action Plan In Bali, Indonesia, at the end of 2007. The Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA) was established as a new subsidiary body to conduct the negotiations aimed at urgently enhancing the implementation of the Convention up to and beyond 2012. Since then, meetings aimed at reaching a post-Kyoto agreement.

The last COP in Copenhagen, Denmark, had the overall goal to establish an ambitious global climate agreement for the period from 2012 when the first commitment period under the Kyoto Protocol expires. A binding agreement on long-term action was not reached, but the resulting Copenhagen Accord can be seen as a political statement to show willingness to act on the climate change issue.

Following this non-binding Copenhagen agreement, expectations for the next Conference of the Parties in Cancún, Mexico, were low. Four preparatory rounds of negotiations were held during 2010, and in the end resulted in a clash between the US and China. According to the NY Times the "*...climate change conference began with modest aims and ended [...] with modest achievements* (NY Times, 2010). What came out of COP16 were the Cancún Agreements, which gives the participating countries another year to decide whether to extend the Kyoto Protocol or not. It is not a legally binding treaty, but it is seen as a step towards a more robust accord at the next climate conference in 2011 in Durban, South Africa (NY Times, 2010). However, it did set up a new fund to help poor countries adapt, it creates new mechanisms for transfer of clean energy technology, and provides compensation for the preservation of tropical forests and strengthens the emissions reductions pledges that came out of the Copenhagen negotiations (UNFCCC, 2011). It does *not* include agriculture.

3.2 The Food and Agriculture Organization of the United Nations

In 1943, 44 governments met in Hot Springs (USA) to commit themselves to establishing a permanent organization for food and agriculture. In 1945 the first session of the FAO Conference was held in Quebec City, Canada, and it established FAO as a specialized organization of the United Nations. In 1951 the FAO headquarters moved from Washington DC, United States, to Rome, Italy. The organization never left Rome since then, and is now one of the three Rome-based UN Organizations for Food and Agriculture, together with the World Food Programme (WFP) and the International Fund for Agricultural Development (IFAD).

The FAO is the main international organization dealing with agriculture, food and forestry globally. It is a specialized agency of the United Nations, with a mandate to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy (FAO, 2010). It is active on all levels of agriculture and food production – from demonstrating new agricultural techniques to smallholders to giving advice on international trade in agricultural products to national governments. Achieving food security is at the centre of all FAO activities[5]. These activities comprise four main areas:

1. Providing information within reach (through electronic fora and databases, newsletters, reports, etc.)
2. Sharing policy expertise with member countries
3. Providing a neutral meeting place for rich and poor nations to build common understanding
4. Bringing knowledge to the field, in projects, funds and crisis situations (FAO, 2010)

Governance, structure and finance

FAO is governed by the Conference of Member Nations, which meets every two years to review the work carried out by the Organization and approve a Programme of Work and Budget (PWB) for the next biennium. The Conference elects a Council of 49 Member Nations to act as an interim governing body in between Conference sessions. Other governing bodies – such as the Finance Committee, Programme Committee and Committee on Agriculture – *'…ensure that FAO's vision and policies are carried out in an*

[5] At the World Food Summit of 1996, countries defined food security as existing *"when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life". (http://www.fao.org/wfs/index_en.htm)*

effective and transparent way so that the Organization fully complies with its mandate to help build a world without hunger' (FAO, 2010).

The organization itself is composed of eight departments: Agriculture and Consumer Protection; Economic and Social Development; Fisheries and Aquaculture; Forestry; Human, Financial and Physical Resources; Knowledge and Communication; Natural Resources Management and Environment and Technical Cooperation (see also the organizational chart on page 25, which also highlights the divisions and departments of particular interest in this research).

FAO's Regular Programme budget is funded by its members, through contributions set at the FAO Conference. The FAO budget for the biennium 2008-2009 was US$929.8 million. The budget covers core technical work, cooperation and partnerships including the Technical Cooperation Programme, information and general policy, direction and administration (FAO, 2010; PV Rome, 2009).

FAO employs more than 3 600 staff members - about 1600 professional and 2 000 general service staff - and currently maintains five regional offices, nine sub-regional offices, five liaison offices and 74 country offices. In its headquarters in Rome around 2000 staff members are employed, the remaining 1600 work in decentralized offices (FAO, 2010). The current Director General – which is elected by the FAO Conference – is dr. Jacques Diouf, elected in 1993. In 2011, a new Director General will be elected.

FAO and the United Nations

The United Nations system is made up of the United Nations Secretariat, the United Nations programmes and funds, and the UN specialized agencies. The programmes, funds and agencies have their own governing bodies and budgets, and set their own standards and guidelines. Together, they provide technical assistance and other forms of practical help in virtually all areas of economic and social endeavour. FAO is a United Nations specialized agency, accountable to the FAO Conference of member governments. FAO participates in the United Nations Economic and Social Council (ECOSOC) which coordinates economic, social and related work of the 14 UN agencies as well as regional commissions.

Membership

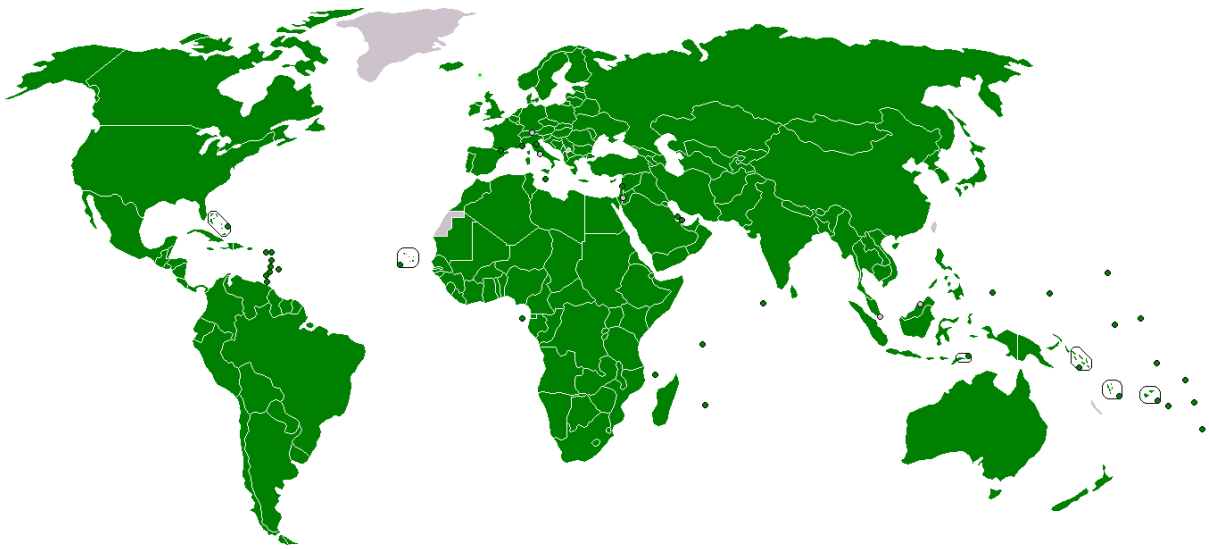
FAO has 191 Member Nations plus one Member Organization, the European Community and one Associate Members, The Faroe Islands. Non-member states are Brunei, Liechtenstein, Singapore, The Holy See and the states with limited recognition. As can be seen in figure 7, membership of FAO is nearly universal.

FAO members are grouped in the following regional 'blocks':

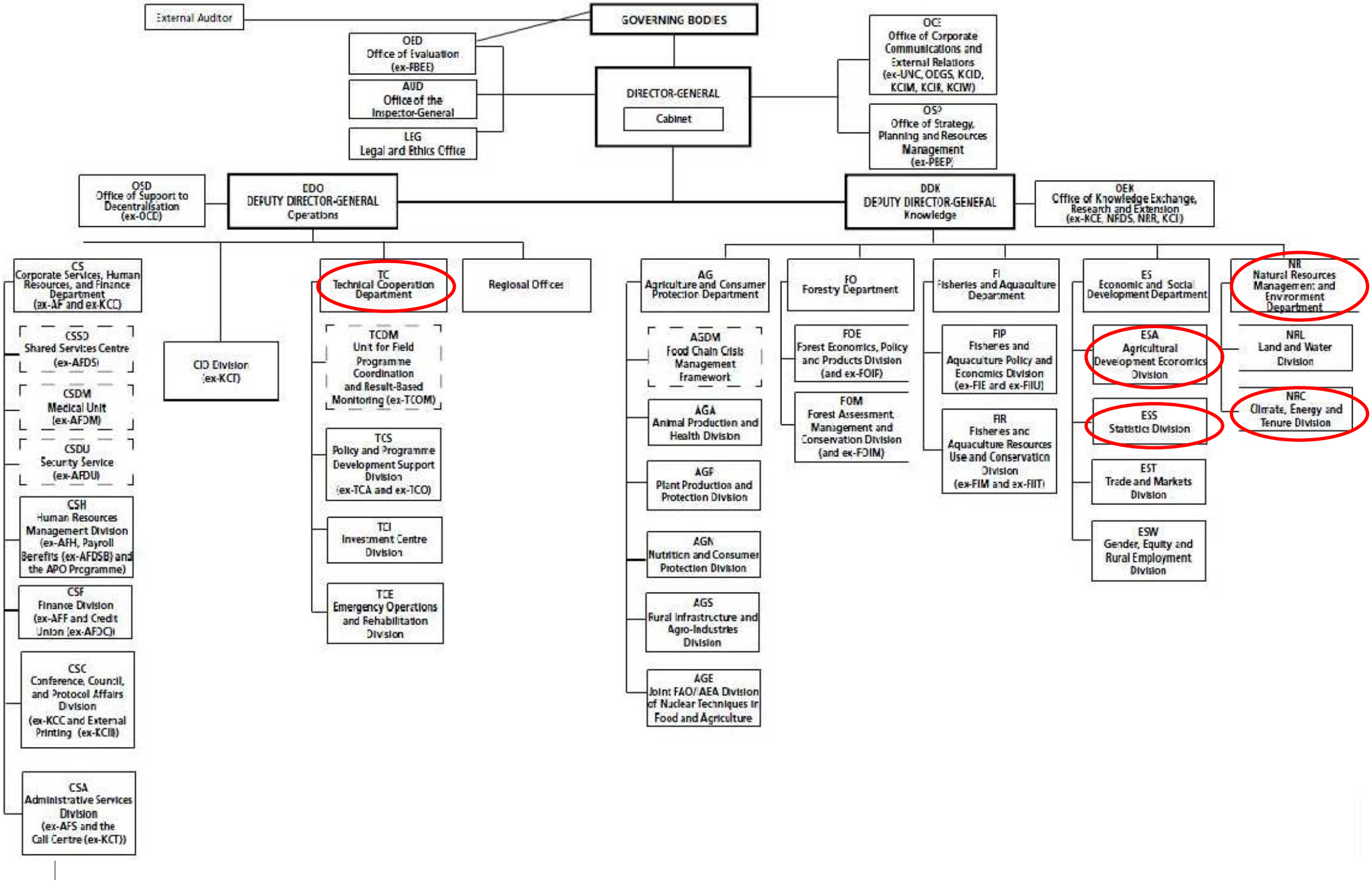
Africa Group	Nordic Countries
European Regional Group (ERG)	Group of 77 (G-77)
Latin American and the Caribbean Group (GRULAC)	European Union
Southwest Pacific Group	OECD
North America	
Near East Group	
Asia Group	

Note that the regional groups in the left column are more 'official', they can for example as a group have voting rights when choosing members of technical committees, but also chairmen and secretaries of important meetings. The groups in the right column meet rather informal to exchange views, discuss issues and sometimes make joint statements.

Figure 7: Map of FAO membership



FAO members - dark green, observers - light green. Source: FAO, 2010


External Auditor
GOVERNING BODIES
OED
Office of Evaluation
(ex-PBEE)
AUD
Office of the
Inspector-General
LEG
Legal and Ethics Office
DIRECTOR-GENERAL
Cabinet
OCE
Office of Corporate
Communications and
External Relations
(ex-UNC, ODGS, KCID,
KCIM, KCIR, KCIW)
OSP
Office of Strategy,
Planning and Resources
Management
(ex-PBEP)
OSD
Office of Support to
Decentralisation
(ex-OCD)
DDO
DEPUTY DIRECTOR-GENERAL
Operations
DDK
DEPUTY DIRECTOR-GENERAL
Knowledge
OEK
Office of Knowledge Exchange,
Research and Extension
(ex-KCE, NFDS, NRR, KCI)
CS
Corporate Services, Human
Resources, and Finance
Department
(ex-AF and ex-KCC)
CSSD
Shared Services Centre
(ex-AFDS)
CSDM
Medical Unit
(ex-AFDM)
CSDU
Security Service
(ex-AFDU)
CSH
Human Resources
Management Division
(ex-AFH, Payroll
Benefits (ex-AFDSB) and
the APO Programme)
CSF
Finance Division
(ex-AFF and Credit
Union (ex-AFDC))
CSC
Conference, Council,
and Protocol Affairs
Division
(ex-KCC and External
Printing (ex-KCII))
CSA
Administrative Services
Division
(ex-AFS and the
Call Centre (ex-KCT))
CID Division
(ex-KCT)
TC
Technical Cooperation
Department
TCDM
Unit for Field
Programme
Coordination
and Result-Based
Monitoring (ex-TCOM)
TCS
Policy and Programme
Development Support
Division
(ex-TCA and ex-TCO)
TCI
Investment Centre
Division
TCE
Emergency Operations
and Rehabilitation
Division
Regional Offices
AG
Agriculture and Consumer
Protection Department
AGDM
Food Chain Crisis
Management
Framework
AGA
Animal Production and
Health Division
AGP
Plant Production and
Protection Division
AGN
Nutrition and Consumer
Protection Division
AGS
Rural Infrastructure and
Agro-Industries
Division
AGE
Joint FAO/IAEA Division
of Nuclear Techniques in
Food and Agriculture
FO
Forestry Department
FOE
Forest Economics, Policy
and Products Division
(and ex-FOIF)
FOM
Forest Assessment,
Management and
Conservation Division
(and ex-FOIM)
FI
Fisheries and Aquaculture
Department
FIP
Fisheries and
Aquaculture Policy and
Economics Division
(ex-FIE and ex-FIIU)
FIR
Fisheries and
Aquaculture Resources
Use and Conservation
Division
(ex-FIM and ex-FIIT)
ES
Economic and Social
Development Department
ESA
Agricultural
Development Economics
Division
ESS
Statistics Division
EST
Trade and Markets
Division
ESW
Gender, Equity and
Rural Employment
Division
NR
Natural Resources
Management and
Environment
Department
NRL
Land and Water
Division
NRC
Climate, Energy and
Tenure Division

3.3 Agriculture in the (global) politics of climate change

As explained in chapter 3.1, scientists and environmental groups have been struggling for over 30 years to get the public, private sector and national governments take the issue of climate change seriously. Yet only in the past few years, climate change has become a very important subject in global (environmental) politics, as well as in the media. Whatever the underlying reasons are – some mention the influence of Al Gore, the work of the IPCC, but hurricane Katrina as well – it is now everywhere (Giddens, 2008).

> ***"Due to the far reaching and multi-faceted nature of the potential impacts, climate change has become the most important and dangerous, and certainly the most complex global problem" (Ikeme, 2003).***

Before diving into the framing of the link between agriculture and climate change by the FAO, it is useful to provide an overview of the (global) context in which the problem-framing within FAO took place. This shaped and still shapes the way the link between climate change and agriculture is framed. The following section will provide the necessary background on the politics on agriculture in global environmental politics.

Global context – Climate change is often described as a "malign" problem (Depledge, 2005; Miles et al., 2001). Climate change is characterized by high scientific complexity, persistent scientific uncertainties about causes and impacts, large differences in the contribution to climate change, differences in vulnerability to climate change between developed and developing countries and long time lags between short-term costs and long-term benefits (Depledge 2005). But above all, responses to climate change – and inaction – are perceived to have higher political stakes than any other international environmental agreement. Effective response to climate change are expected to have large consequences for the current economic and social order, because they challenge the way economic and social development has been pursued since the industrial revolution (Depledge, 2005; Biermann et al., 2009). According to Oberthür and Ott (1999), climate change has become a matter of "high politics" in international relations. Simultaneously, the predicted effects of inaction are large. Climate change is a global threat, and can considerably affect the welfare of nations and individuals around the globe to varying extents (Stern, 2006; IPCC, 2007).

The combination of high political stakes and the large consequences of inaction has resulted in differences in national interests. This has led parties to proceed very carefully in the UNFCCC negotiations, and be aware of the positions of others and comparative (dis)advantages of proposed measures. Over the last twenty years, North-South issues have been dominating the climate change debate (Agyeman et al. 2003). The North focuses mainly on the most economically efficient paths towards combating climate change, and generally stresses the need of fair allocation of emission reduction targets. The South on the other hand keeps emphasizing the responsibility of developed countries for climate change and is concerned with equality and the negative impacts of climate change in their countries (Müller, 2002; Ikeme, 2003). These differing views on climate change are related to different perceptions about how climate change may affect humanity. In the North, climate change is not seen as critical threat to humans, but instead is viewed as an environmental problem that can be addressed through lifestyle changes and mitigation policies. In the South, climate change is considered a life-threatening problem which also hinders (economic) development (Ikeme 2003).

As a result, three issues dominate the climate change debate: distribution of impacts; distribution of responsibility; and distribution of costs and benefits (Ikeme, 2003). In the UNFCCC negotiations, three major groups or blocks can be identified, although they also consist of a range of countries with differing views and positions. See Annex VI for an overview of all party groupings at the UNFCCC. The *developed countries* (or the North) in general stress the importance of mitigation, some – and in particular the United States – argue that reduction measures are only meaningful if developing countries also cut their emissions. The US refuses to commit itself to stringent reductions, as long as developing countries do not

commit to significant reductions. *Developing countries* (or the South), on the other hand, feel that they should not bear the costs of (significant) abatement while they are developing. Economic development and poverty reduction are considered to be much more important than emission reductions. Within the developing countries, it is felt that adaptation is more important than mitigation. A third 'group' in the UNFCCC contains the *small island states and other particularly vulnerable countries*. They emphasize global solidarity and fairness when they claim for assistance to adapt to the impacts of climate change (Goltz, 2009). The small island states in particular ask for significant mitigation measures as well since they are very vulnerable to sea level rise.

These different positions and viewpoints led both within and outside the UNFCCC to questions as: Who should reduce emissions, and when and how should they do it? Should adaptation be prioritized over mitigation? Who should pay how much for climate change adaptation and mitigation in developing countries?

Agriculture is not part of the UNFCCC agreements and has until know not received very much attention during the negotiations themselves. Agriculture is a special case, being essential for many of the world's poorest and for economic development in developing countries. Since this thesis is mainly concerned with the framing of the link between climate change and agriculture as well as the influence of FAO in the UNFCCC, the next section will discuss the political context within FAO. This is necessary to be able to better understand the framing process in the organization.

Politics within FAO - The issues mentioned above are also relevant for the situation in FAO. It was impossible as well as outside the scope of this thesis to map the different positions of member states on the link between agriculture and climate change. However, results from interviews provide some insight in these issues. The main outcome is that FAO member states in general are not aware of FAO's activities on the link between climate change and agriculture on the UNFCCC level and that as a result, there is no debate on this issue at the moment (March 2011) between the members or between the members and the organization. As will be shown in the following chapters, one reason is that FAO itself started addressing this link at the UNFCCC only since 2007. The other reason is that FAO has decided to not involve its members in its climate change strategy and its activities at the UNFCCC.

In their informal contacts with diplomats and through cooperation in extra-budgetary projects, FAO employees have witnessed a range of different ideas and views on the link between agriculture and climate change from different countries within its membership, as well as different positions on FAO's involvement in this area on the UNFCCC level. Different views encompass the previously discussed "adaptation versus mitigation" debate and the involvement of FAO in the UNFCCC. Regarding the latter, this mainly focuses on the nature of FAO activities at the UNFCCC level (should the organization be completely neutral[6] or is there room for advocacy?). Looking at the "adaptation versus mitigation" debate, interviews reveal that developing country members mainly stress the importance of adaptation over mitigation in their respective countries – both 'on the ground' as well as at the UNFCCC – while members from industrialized countries in general place emphasis on the need for climate change mitigation.

Other issues include the different perceptions on the contribution of agriculture to GHG emissions and the need of agriculture to contribute to climate change mitigation. Some countries disagree with figures[7], while others argue that for equity and justice reasons, smallholder agriculture – being essential for the world's poorest – should be left unconstrained and treated as a special case. Different opinions also exist

[6] Whether an international bureaucracy can or should be neutral is discussed in chapter 6

7 FAO's state of Food and Agriculture 2009, for example, was delayed by several months because of disagreements (between scientists as well as FAO members) on the numbers of the contribution of the livestock sector to GHG concentrations

on the scope of adaptation measures. Should they encompass impacts of response measures? This could include the effect of mitigation measures on oil producing countries but could also encompass the impacts of biofuels on food security. And lastly, there is disagreement on approaches to adaptation and mitigation. Developing countries generally favour a top-down approach for adaptation and mitigation responses, while with some exceptions developed countries generally prefer the bottom-up approach. These issues show the complexity of the link between agriculture and climate change, even though it is not being officially debated within FAO.

Next to these challenges, there are some characteristics of FAO that influence how the link between agriculture and climate change is framed. In general, and unlike some other UN organizations, FAO is often considered to be 'on the side' of developing countries. Developing countries generally appreciate FAO, while developed countries are (at times very) critical towards the organizations' performance. The appreciation of FAO by developing countries can partly be explained by FAO's voting structure. Every member has one vote, so all countries – whether they are large or small – have an equal influence when it comes to voting[8]. Furthermore, FAO's focus on development of the agriculture sector is especially important for developing countries. And because of this focus, most attention goes to developing regions. This also means that nearly all FAO field activities take place in developing countries. This makes sense because of FAO's mandate to raise levels of nutrition and standards of living, to improve agricultural productivity and to better the condition of rural populations (FAO, 2010).

Additionally, interviews revealed that FAO employees in general view developing countries as the victims of climate change, a problem caused by the (now) industrialized world. Within FAO, there is a general feeling that blame for the problem of climate change can therefore be attributed to developed countries. As the organization has a focus on developing countries, adaptation is considered to be more important for these countries. However, the organization will never state that in public, since industrialized countries provide virtually all of FAO's funds. While nearly all FAO projects take place in developing regions, most of FAO's funding comes from developed countries. In fact, the 25 largest contributors provide 92.6% of FAO's regular programme budget. Of these 25 top contributors, only China, Mexico and Brazil are not generally considered to be industrialized countries (FAO, 2011). So, although the organization mainly regards climate change mitigation as the responsibility of developed countries, the need to incorporate its members interests influences the framing of the link between climate change and agriculture.

As became clear in interviews with FAO employees, three characteristics of the organization make FAO's work in climate change very difficult:

a. Recipients of FAO assistance are mainly developing countries;
b. Funding for FAO (climate change) activities comes from industrialized countries, with different interest than developed countries;
c. Every member has equal voting rights, irrespective of financial contributions to the organization.

This makes it at times very difficult for the organization to find a balance between the interests of the members and its own will. Although FAO does more than simply execute agreements between states and has a certain amount of authority that can be used for exerting (independent) influence, its members still have means to influence the organization's strategy and push for a certain direction. Since they have the power to block or steer activities and strategies, FAO has to take into account the different views and positions of its members.

8 Within the organization, it is a public secret that the current FAO Director General was able to serve three consecutive mandates because he 'bought' votes from small (and) developing countries through development projects and assistance from the organization.

Although this has not happened yet, the fear of unleashing a difficult debate with and between its members on the organization's climate change activities and strategy (in the UNFCCC) has made FAO to choose not to involve the member states in its climate change work. As will be shown in the following chapters, the political environment has partly determined the outcome of the framing of the link between climate change and agriculture.

4. FAO's framing of the agriculture – climate change link

This chapter deals with the framing of the link between agriculture and climate change. First, this chapter also looks at the embedding of climate change in the structure of the organization and the development of attention for climate change within the organization. Chapters 4.2 and 4.3 discuss FAO publications and activities on climate change. This is done using results from interviews with FAO employees, by analyzing FAO publications on climate change and through an analysis of activities undertaken by FAO both within and outside the UNFCCC process. However, this chapter does not aim to look at *all* FAO activities, rather it will present an representative overview of the organization's activities.

4.1 The embedding of climate change in the FAO bureaucracy

FAO's core mandate – given by its member states during its foundation in 1945 – is to raise levels of nutrition and standards of living, to improve agricultural productivity and to better the condition of rural populations (FAO, 2010). At the time of founding FAO climate change was not an issue. As described in chapter 3.1, climate change became an issue in global politics during the 1980s. As part of the larger problem-framing process, this section looks at the embedding of climate change in the FAO bureaucracy and organizational structure since the 1990s. It will analyze FAO Medium Term Plans, Programmes of Work and Budget, Strategic Frameworks and the responsibilities and distribution of tasks related to climate change within the organization.

This analysis examines several (series of) core documents that deal with the general strategy of FAO. The Programmes of Work and Budget can be regarded as the organization's business plan covering two years, and have to be approved by the FAO conference. They deal with actual projects and activities over a two-year time span and they therefore seem to fit best within the analysis of FAO activities, but analyzing them on their climate change strategy over time contributes to a better understanding of the embedding of climate change in the FAO bureaucracy. FAO Medium Term Plans and Strategic Frameworks guide the work of FAO over a longer period of time. All these documents have to be approved by the FAO member states. Documents analyzed on their climate change strategy are:

Programme of Work and Budget	**Medium Term Plan**	**Strategic Framework**
• Every two years from 1991-92 to 2010-11	• 1992-1997 • 2002-2007 • 2006-2011 • 2010-2013	• 2000-2015 • 2010-2019

Starting with Strategic Framework 2000-2015, FAO adopted a new programme model with a results-oriented approach, with special emphasis on interdisciplinarity. This new programme model included a long term Strategic Framework, a 'rolling' Medium Term Plan and the regular two-year Programmes of Work and Budget, all separate documents. Before 2000, there were no separate strategy documents other than outcomes of FAO Conferences and Councils that guided FAO work. To analyze the embedding of climate change in the FAO bureaucracy for the period 1990-2000, the reports of the bi-annual FAO Conferences were examined. These reports include a PWB and MTP, but these are much less elaborate and specific than the ones developed after the year 2000. This means that for the period 2000-2010 it is easier to identify how climate change has been embedded in the FAO bureaucracy.

In general, it is remarkable that climate change receives increasingly more attention in every subsequent strategy document, whether it are the Programmes of Work and budget, Medium Term Plans or Strategic Frameworks. In the 2000-01 Programme of Work and Budget, climate change is mentioned 13 times (in a

267-page document), while in the 2008-2009 Programme of Work and Budget climate change is mentioned 88 times in 151 pages. Although this gives an indication of the importance attached to climate change issues in the organization's strategy, more in-depth analysis of these documents is needed to be able to show the embedding of climate change in FAO. This is done starting with the more general and visionary Strategic Frameworks, followed by the Medium Term Plans and lastly the more detailed Programmes of Work and Budget. Documents analyzed are:

4.1.1 The FAO mandate and vision

There is no formal mandate for FAO to engage in climate change issues on a global level. But, as stated before, FAO has *".....a mandate to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy"* (FAO, 2010c). Since climate change is estimated to negatively impact agricultural productivity and especially affect the already vulnerable, it would be justified if FAO engages in climate change issues on a global policy level.

So, although it is not mentioned specifically, the need for FAO to work on a global policy level on climate change issues and get involved in the climate negotiations can be considered as *implicitly* part of its mandate.

4.1.2 Analysis of FAO strategy on climate change over the period 1990-2000

Due to the fact that there were no separate Programmes of Work and Budget, Medium Term Plans and Strategic Frameworks before the year 2000, it was necessary to look at the reports of the bi-annual FAO Conferences. Part of every Conference is the approval of a Programme of Work and Budget and Medium Term Plan, but these strategy documents were much shorter and less elaborate than the Programmes of Work and Budget and Medium Term Plans produced after the year 2000. One of the main functions of the FAO Conference – next to approving strategy documents – is to determine the policies of the organization, so analyzing the entire Conference reports will help to reveal FAO's position on climate change in the 'early days'. Four Conference reports were looked into, from the 26th (1991-92) until the 29th (1997-98) session. This section also includes some other documents that reveal the FAO strategy.

Medium Term Plans – There is no mentioning of climate change in the 1992-1997 Medium Term Plan's 'Overview of background issues', nor in 'cross-sectoral actions' or 'programme priorities and regional dimensions' (FAO, 1991). Although there is significant attention for sustainable agriculture, climate change is completely absent from this medium term FAO strategy. This also goes for the Medium Term Plan 1998-2003.

Programmes of Work and Budget – As with the simultaneously approved Medium Term Plan 1992-97, the 1992-93 Programme of Work and Budget does not mention climate change. Nor does the Conference report (1991-92) (FAO, 1991). The same goes for the other Programme of Work and Budget in the period 1990-2000. Climate change is completely absent from the Conference Reports and Programmes of Work and Budget, which means that it was not an issue in the official FAO strategy.

Other documents – Already in 1991 a higher budget was allocated to cross-sectoral activities, which lead the organization to engage in climate change work even though it was not part of the official strategy. In the beginning of the 1990s, sustainable agriculture gained attention internationally, leading to an increase in the budget allocated to cross-sectoral activities, which included climate change (FAO, 2006). The resulting activities focused mainly on increasing knowledge on the link between agriculture and climate change, and the impacts of and (identification of possible) responses to climate change. This is also reflected in a FAO document prepared for the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro, June 1992. This document on "Climate Change: World Agriculture and the Rural Environment" listed among others FAO's strategies and actions, which were

mainly directed at adaptive responses to climate change and increasing the knowledge on the link between climate change and agriculture (see table 1 on next page).

Furthermore, the 111th session of the FAO Council in 1996 endorsed FAO's participation in the 'Climate Agenda' (a framework for integrating International Climate Related Programmes), to assist countries in responding to *climate fluctuations and extremes* (FAO, 1996). Note that this is again climate variability, *not* climate change.

This picture is not reflected in the Conference reports, nor in the PWBs and MTPs. This means that although there was no official strategy or approval from member states to engage in climate change work, FAO found room to do so anyway. In this regard, its strategy was mainly directed at climate variability and risk, at adaptation to climate change as well as increasing knowledge. Mitigation was not really part of early (unofficial) FAO strategy and hence also not part of the framing.

Interviews reveal that FAO deliberately did not develop an official climate strategy over the period 1992-2000 to avoid being dragged into a debate with its member states over its strategy. As described in chapter 3.3, FAO members have very different opinions on how the organization should engage in climate change work. Developing countries prefer an orientation on adaptation to climate change, while developed countries emphasize the need to avoid climate change problems and therefore push for mitigation action. By not developing an official strategy – that has to be approved by its members – FAO avoided being dragged into lengthy and difficult discussions with its members. As described, this did not mean that the organization did not work on climate change at all. Even without an official strategy or explicitly addressing climate change, FAO found room to engage in climate change work. Unlike in the period 2000-2010 – as discussed later – FAO was able to do so because climate change was not yet a high profile issue as it was over the period 2005-2010. In other words, the FAO members let the organization have its way.

Table 1: FAO's strategies and actions Source: Climate Change: World Agriculture and the Rural Environment (FAO, 2006)	Climate variability & Risk	Adaptation	Increasing knowledge	Mitigation
1) development of monitoring and early warning systems for extreme events affecting food and agriculture, such as droughts and pest and disease outbreaks	X	X		
2) disaster preparedness plans and food security assistance schemes	X	X		
3) stimulation of research to increase reliability of seasonal weather forecasts to reduce risk in rain fed farming			X	
4) promotion of improved geo-referenced databases on natural resources and current land uses that influence sources and sinks of greenhouse gases			X	
5) improved management of existing forests; afforestation and reforestation programmes		X		X
6) stimulation of research and application of methods to improve nutrition, health and genetic characteristics of livestock			X	
7) conservation schemes for plant and animal genetic resources, including traditional land races now under threat		X		
8) promotion of the development of resilient agricultural systems and adapted management practices, including crop diversification and the breeding of stress-tolerant crops	X	X		
9) conservation and rehabilitation of degraded lands, more judicious use of nitrogen fertilizers, and improvement of rural water use efficiency		X		X
10) stimulation of further research on the effects of increased CO_2, alone and combined with increased UV-B radiation and ozone, on plant growth and on soil conditions, especially in tropical environments			X	
11) stimulation of improved modeling of climatic change at regional and national levels, and subsequent reassessment of national human population supporting capacities		X	X	

4.1.3 Analysis of FAO strategy on climate change over the period 2000-2010

Strategic Frameworks – The FAO strategic frameworks are ideal for analyzing the framing and embedding of the link between climate change and agriculture within the FAO bureaucracy. They reveal the degree of importance attached to climate change, as well as how the response of the organization to the expected impacts and challenges of the issue is shaped. By comparing the two strategic frameworks, one can also show the change over time.

These Strategic Frameworks do not provide detailed guidance on how to deal with climate change. They rather mention the general goals that need to be achieved to deal with the challenges posed (by climate change). This makes sense, since such a forward looking long-term strategy cannot be as specific as a two-year Programme of Work and Budget, for example.

Strategic Framework 2000-2015 – This document – approved by FAO member states in 1999 - starts with the identification of trends and projections up to 2015 that have a bearing on FAO's work, of which increased urbanization, globalization and population growth are the main forces. Overall, this Strategic Framework states that agriculture "*…will have to meet the needs of growing and increasingly urbanized populations, while at the same time protecting the natural resource base for future generations"* (FAO, 1999, 27). To be able to meet this challenge, FAO and its member states developed three global goals (see table 2).

Although climate change will likely negatively affect the achievement of these goals, it is – except being identified as a key cross-sectoral issue that needs a more interdisciplinary approach, which is a sign of problem-framing – hardly mentioned in the Strategic Framework. It can be concluded that climate change was not an important issue when this strategic framework was approved.

Table 2: The global goals of the FAO strategic frameworks

The three global goals of the Strategic Framework 2000 - 2015	The three global goals of the Strategic Framework 2010 - 2019
Goal 1 - Access of all people at all times to sufficient nutritionally adequate and safe food, ensuring that the number of undernourished people is reduced by half by no later than 2015.	**Goal 1** - Reduction of the absolute number of people suffering from hunger, progressively ensuring a world in which all people at all times have sufficient safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life;
Goal 2 - The continued contribution of sustainable agriculture and rural development, including fisheries and forestry, to economic and social progress and the well-being of all.	**Goal 2** - Elimination of poverty and the driving forward of economic and social progress for all with increased food production, enhanced rural development and sustainable livelihoods;
Goal 3 - The conservation, improvement and sustainable utilization of natural resources, including land, water, forest, fisheries and genetic resources for food and agriculture.	**Goal 3** - Sustainable management and utilization of natural resources, including land, water, air, climate and genetic resources, for the benefit of present and future generations.

Strategic Framework 2010 – 2019 – Contrary to the first strategic framework, climate change is regarded as much more important issue for FAO in the Strategic Framework 2010-2019. Again, this document identifies trends, risks and challenges that affect FAO's work. Although many challenges are the same as compared to the Strategic Framework 2000-2015, climate change is added as one of the main challenges that worsen the increased scarcity of natural resources (FAO, 2009d). Next to the impact of climate change on agriculture and the need for adaptation, agriculture is identified as a sector that should help mitigate the overall impact of climate change.

The difference with Strategic Framework 2000-2015 with respect to climate change is best illustrated in the third global goal, where climate is explicitly mentioned as a core aspect of sustainable management and utilization of natural resources (see table 2). This is probably the largest difference with the previous strategic framework, showing the shift in thinking about climate change.

This strategic framework document also develops strategic objectives, coupled with organizational results. Eleven Strategic Objectives (A to L) were identified, ranging from the 'Sustainable intensification of crop production' to 'Improved food security and better nutrition'. With three out of eleven strategic objectives addressing climate change is mentioned as a condition to achieve them. For achieving four of the remaining eight objectives climate change issues need to be incorporated, but aren't mentioned explicitly. Table 3 gives an overview of how climate change is linked to the different strategic objectives.

Table 3: Overview of how climate change is linked to the strategic objectives

Strategic Objectives that mention climate change explicitly:	**Strategic objectives that would benefit from incorporation of climate change considerations:**
A – Sustainable intensification of crop production *(Focus on the need of adaptation to climate change)*	**B – Increased sustainable livestock production** ➔ *Emissions from the livestock sector form a significant part of total agricultural GHG emissions. Additionally, the livestock is expected to grow rapidly in line with increasing meat consumption in developing countries.*
E – Sustainable management of forests and trees *(Focus on both adaptation and mitigation, but on the international level mostly on mitigation)*	**H – Improved food security and better nutrition** ➔ *Improving food security is (partly) dependent on increasing agricultural productivity, which is in turn affected by climate change*
F – Sustainable management of land, water and genetic resources and improved responses to global environmental challenges affecting food and agriculture *(Focus on both adaptation and mitigation)*	**I – Improved preparedness for, and effective response to, food and agricultural threats and emergencies** ➔ *Climate change will likely increase the number of extreme events*
	L – Increased and more effective public and private investment in agriculture and rural development ➔ *To be able to better address the link between climate change and agriculture, investment in agriculture and rural development is necessary*

This analysis of two FAO Strategic Frameworks shows that in ten years time, climate change has become a central element of FAO work. Over the years, climate change changed from a minor aspect to a major challenge requiring specific attention. While for some aspects of FAO work this is explicit, achieving some

objectives will need the inclusion of climate change considerations, even when this isn't explicitly mentioned in the framework.

FAO Medium Term Plans

Medium Term Plan 2002-2007 – This Medium Term Plan is based on the context as described in the Strategic Framework 2000-2015, and is the 'operationalizing' of the strategic framework. In this process, FAO identified 16 'Priority Areas for Inter-disciplinary Action' (PAIAs), of which 'Climate Change Issues in Agriculture' is one. This PAIA contributes to '*Promoting, developing and reinforcing policy and regulatory frameworks for food, agriculture, fisheries and forestry'*. Rationale for this PAIA is that FAO had expertise in the various sectoral aspects (e.g. soils and forestry contribution to carbon sequestration, gas emissions, fertilizer use, etc.), but that multi-disciplinary approaches were lacking (FAO, 2000). With the expectation that debates and international normative actions would intensify, the FAO felt the need to contribute to discussions on the impact of climate change and the identification of solutions, within its domain of competence. Intended outcome of the Priority Area for Inter-disciplinary Action on 'Climate change issues in agriculture' was the provision of consistent and comprehensive advice to members, the facilitation of supportive analysis and the provision of technical inputs to negotiation processes, and strengthening the dissemination of information. Additionally, it had to enable FAO to support fully the implementation of the UNFCCC, and to provide considerable technical inputs to mitigation and adaptation measures.

Apart from the Priority Area for Inter-disciplinary Action on climate change issues in agriculture, the only other subject linked to climate change is forestry (mainly on GHG emission reduction potential of forests). It is clear that from this Priority Area – in the Medium Term Plan 2002-2007 – FAO choose to work on both adaptation and mitigation. However, work on mitigation was mainly intended to increase knowledge on how agriculture contributes to climate change, and to identify the possibilities for mitigation in the agricultural sector.

Medium Term Plan 2006 – 2011 – Compared to the Medium Term Plan 2002-2007, this document does not offer any additional insights on the FAO strategy on climate change. FAO continued working on the Priority Area for Inter-disciplinary Action on 'Climate change issues in agriculture', but apart from this most attention went to the link between forestry and climate change. As with the previous Medium Term Plan, this document is based on the context and challenges identified by the Strategic Framework 2000-2015. This Strategic Framework did not identify climate change as a major issue for FAO, resulting in a Medium Term Plan with the same view.

Medium Term Plan 2010-2013 – As with the Strategic Framework 2010-2019 (that was drafted simultaneously with the MTP 2010-2013), climate change receives much attention in this plan, although the Priority Area for Inter-disciplinary Action on 'Climate change issues in agriculture' was abolished. Climate change is for the years 2010-2013 regarded as a major challenge affecting (future) food security, and therefore needs to be addressed in FAO work. Next to additional investments to enhance adaptive capacity to deal with climate change impacts, agriculture is explicitly identified as a sector that needs to contribute to mitigate the overall impact of climate change. This differs from previous Medium Term Plans in the sense that it is the first time that agriculture is mentioned as a key sector for mitigation.

This means that over the period 2005-2010 a shift in focus took place. Initially, FAO work on agriculture and mitigation was aimed at increasing the knowledge on the contribution of agriculture to climate change and the identification of possibilities for agriculture to help mitigate the impacts of climate change. The last Medium Term Plan differs from that in the sense that FAO took a more results-based approach with an objective to ensure that agriculture will become a key sector for climate change mitigation.

Programmes of Work and Budget

Analysis of the PWBs in the period 2000-2010 do not provide many additional insights in the embedding of climate change in the FAO bureaucracy, other than the ones that came out of the MTPs and SFs. A few noteworthy aspects are discussed below.

- Until the Programme of Work and Budget 2008-09, climate change in the FAO strategy was mainly directed at forestry, and to a lesser extent, livestock. Assistance (providing technical assistance and expertise on impacts of climate change to agriculture) to the UNFCCC has been a constant factor in the FAO Programmes of Work and Budget. Later documents, from 2006 onwards, also looked at the possible role and contribution of agriculture to climate change. This shows that FAO members endorsed a role for FAO in the UNFCCC since they have approved these documents. This relates to providing technical assistance and expertise only, since advocacy or communication activities are not mentioned in the Programmes of Work and Budget.
- The Programme of Work and Budget 2008-09 regards climate change as a "*momentous global challenge of the 21st century"* (FAO, 2007a, 29). Besides being vulnerable to climate change and the need for adaptation, agriculture, livestock and land use change are identified as contributors to global greenhouse gas emissions, as well as potential contributors to climate change mitigation. The organization's climate change work is expected to progressively achieve among others 'full reflection of climate change adaptation and mitigation in FAO corporate policies, programmes and activities. The 2008-09 Programme of Work and Budget also states that FAO should achieve "*Effective technical guidance on reduction of greenhouse gases emissions in the agriculture and livestock sector"* (FAO, 2007a, pp 28).
- The Programme of Work and Budget 2010-2011 identifies climate change as an area of programmatic emphasis.

Even though climate change has become more important for FAO since 2005 and is now considered to be an very relevant part of FAO work, it is not very often mentioned explicitly. Climate change is rather 'woven' or 'mainstreamed' into FAO's work. Interviews with FAO staff from the Natural Resources Management and Environment Department reveal that this is done on purpose. Besides the fact that climate change is a very multi-disciplinary topic that needs to be mainstreamed with other FAO activities, not considering the topic too explicitly leaves the organization more room for maneuver. Just as in the period 1992-2000, no official strategy was developed since an official strategy needs to be approved by the members which will take up time and lead to lengthy and difficult discussions. Although the organization did develop a 'profile on climate change', this is not an official strategy and does not have to be approved by the membership.

Even though climate change has become a more explicit part of FAO's work, having no official climate change strategy very likely gave the organization more room to independently develop its activities. Although FAO members did give the organization a mandate to work on climate change both on the ground and at the UNFCCC – since they approved all strategy documents that included references to this – this was limited to technical assistance and expertise only. There is no word about other activities such as advocacy, awareness raising or communication activities, neither in the Strategic Frameworks, Medium Term Plans or Programmes of Work and Budget. Following chapters will show that within FAO it is the advocacy and communication activities that are thought of as politically sensitive, and are therefore left out in official documents.

It can be concluded that the organization tried to keep its members 'outside' of its work on climate change, and did not explicitly address climate change in its official strategies, to be able to maintain room to also develop climate change activities that are not framed as neutral (by FAO itself) or that are politically sensitive and possibly unwanted by the membership. This goes for example for FAO's

involvement in the UNFCCC. As shown in chapter 5, a significant part of the organization's involvement in the climate negotiations can be characterized as advocacy and/or awareness raising activities that cannot be considered very 'neutral'. These activities go further than the provision of technical assistance and expertise to the UNFCCC.

A quick round of consultation revealed that diplomats at FAO did not know what the organization was doing on agriculture in the UNFCCC. The first and only briefing of the members on FAO work in climate change – both 'on the ground' and at the UNFCCC – took place in June 2010, long after climate change became a more important part of FAO work (2005) and FAO's efforts in the UNFCCC developed (starting in 2007, as shown in the following chapters). This briefing on FAO's work on climate change was part of a larger 'Informal Members Briefing' during an afternoon session of the FAO Council. In 15 minutes, the Assistant Director-General for the Natural Resources Management and Environment Department summarized the state-of-play at the UNFCCC in the areas of interest to FAO. Most of the attention was devoted to forestry issues (UN-REDD) and FAO's involvement in that area. Very little information was given on agriculture in the UNFCCC negotiations, and only FAO's technical assistance and two of the FAO submissions were mentioned. Some time was devoted to the prospects of agriculture in the climate change agreements. After this presentation, there was no time for the members to make statements or ask questions.

4.1.3 Climate change in the FAO organizational structure

Actual work on climate change is dispersed throughout the FAO organizational structure, and mainstreamed with 'other' FAO work. Climate change is a cross-sectoral issue, and FAO's activities are therefore spread over all departments and cover all agricultural sectors (i.e. agriculture, livestock, forestry, fisheries) as well as highly cross-sectoral topics (e.g. bioenergy, biodiversity, climate risk management). All departments cover climate change in their work, with no dedicated climate change department or division. All technical units of FAO – including the Departments of Agriculture and Consumer Protection, Economic and Social Development, Fisheries and Aquaculture, Forestry, Natural Resources Management and Environment, Technical Cooperation as well as FAO's Legal Office and regional, sub-regional and country offices – implement climate change activities in their work. Although some divisions do have staff acting as climate change 'focal points', they are mainly contact persons and no designated experts. Since climate change adaptation or mitigation is often one of the many goals in FAO work, and touches almost all other aspects of FAO work, every staff member could at any time have to deal with it. The 'Interdepartmental Working Group on Climate Change' and the 'Environment, Climate Change and Bioenergy Division' within the 'Natural Resources and Environment Department' play an important role in coordinating these activities (FAO, 2010a). It is the 'Environment, Climate Change and Bioenergy Division' that has the ultimate responsibility for coordinating FAO involvement in the UNFCCC process. See also the organizational chart on page 26 for a graphic presentation of these departments and divisions.

The Natural Resources Management and Environment Department – Part of the Natural Resources and Environment Department mandate is to *"...provide leadership, technical and policy advice and knowledge towards the sustainable use of the earth's natural resources (land, water, genetic resources and biodiversity); improved responses to global environmental challenges affecting food and agriculture, such as climate change [...] and strengthened transfer and extension of knowledge required towards these goals"* (FAO, 2010). Although all FAO departments cover climate change in their activities, this department is intended to be a coordinator or an 'umbrella' for FAO climate change work, and natural resources in general. It is headed by an Assistant Director-General. As evidenced by interviews with FAO employees, both within and outside the Natural Resources Management and Environment Department, this Assistant Director-General is given very little room for manoeuvre by the Director-General. Even

though the Director-General does not give much freedom to any of his Assistant Director-Generals, especially the Assistant Director-General for the Natural Resources Management and Environment Department was very restricted for reasons that did not became clear in the interviews. Many interviewees found this very unproductive, since especially a multi-disciplinary department as this department is, needs a manager that can get involved and move around 'freely' in a range of different issues and stakes.

This is one of the reasons for interviewees to consider the NR Department as rather weak on climate change issues. The other reason is that according to some people, there is no coherent strategy or profile on FAO climate change work. Furthermore, there is no climate change focal point, which makes it difficult for people within and outside FAO to get in touch quickly with the right person in FAO who has the knowledge and expertise that is needed.

The Environment, Climate Change and Bioenergy Division – In 2006-2007, a new division on Environment, Climate Change and Bioenergy was established to have a close link with the Interdepartmental Working Group on Climate Change. This division is part of the Natural Resources Management and Environment Department, and is tasked with the responses towards the challenges of climate change. It division assists member countries in their efforts on the mitigation of climate change, as well as the development of adaptive capacities of agriculture, fisheries and forestry to the impacts of climate change. It also acts as a secretariat for the Interdepartmental Working Group on climate change.

Interdepartmental Working Group on Climate Change – In 1988, a *technical* group was established, the *ad hoc* 'Interdepartmental Working Group (IDWG) on Climate Change and Variability in Relation to Food Security'. This group was the first direct involvement of FAO with climate change. Its main tasks were to assess the possible impact of climate change on world agriculture and food production, to develop the position of the organization and to participate in international discussions (especially after the adoption of the UNFCCC in 1992 and the Kyoto Protocol in 1997)

Rationale for establishing the *ad hoc* Interdepartmental Working Group was the lacking of cross-sectoral coordination between the different FAO departments and activities. These activities were mainly focused on indentifying climate risks and effective (adaptive) responses into FAO's global and field work (FAO, 2010). As its name suggests, this group covered both the short-term fluctuations in climate (climate variability) and the longer-term aspects (climate change).

In 2003 FAO formalized the *ad hoc* Interdepartmental Working Group by establishing the 'Interdepartmental Working Group on Climate Change'. This was done at the request of the FAO Committee on Agriculture at it Sixteenth Session in March 2001, to develop an integrated climate change programme consistent with the legal and political framework of the UNFCCC and the technical work of the IPCC (FAO, 2003b). This again shows that FAO members gave the organization the mandate to engage in climate change work both at the UNFCCC and on the ground, but on the provision of technical assistance and expertise only. The Interdepartmental Working Group on Climate Change consists of approximately 15 members, appointed by all departments concerned with climate change issues. Among others, its tasks are:

- To coordinate work on, and revise FAO position papers on climate change-related issues;
- Providing technical and policy guidance for FAO's involvement in the implementation of the UNFCCC and the Kyoto Protocol;
- To ensure that climate change issues are given due attention in FAO's work (FAO, 2003b).

Unlike the *ad hoc* working group, this Interdepartmental Working Group on Climate Change only covers (long-term) climate change, which shows a shift in focus compared to the 1990s.

Organizational culture – It is likely that the organizational culture of FAO has also contributed to the way the agriculture-climate change link was framed. FAO can be characterized as a rather hierarchical, top-down organization. Many, both within and outside the organization, regard FAO as inflexible and in-transparent. The organization is often characterized as being reluctant in adjusting to the shifting views on development assistance and in building coalitions. This led the membership in 2006 to start implementing extensive reforms, which are still in the phase of being implemented. Furthermore, and despite the few reforms that already have been implemented, senior management is often given little freedom and resources by the Director-General to achieve its goals. The Director-General has a very authoritative leadership style, that many cannot easily agree with, according to a majority of the interviewees. The kind of leadership and (arbitrary) choices that were made by the Director-General even led to the resignation of an Assistant Director-General in 2006. In her resignation letter that was published by the Guardian, she firmly criticized the Director-General for his leadership and choices. Among others, she wrote:

"I am sad that you have isolated yourself so much from most senior managers. Combined with a lack of transparency in decision making, you have stimulated a culture of silence, rumors and even fear"

– Louise Fresco, former Assistant Director-General for the Agriculture and Consumer Protection Department[9]

This seems to work out on the employees at lower levels in the hierarchy as well. Many were during interviews very careful in making strong statements that could possibly have 'harmed' their managers. Furthermore, it is a public secret within FAO that the Director-General is often on the side of developing countries. Although it has not been proven, the Director-General was able to serve three consecutive 6-year terms – which is quite extraordinary in the United Nations – due to the help of supporting votes from (small) developing countries, which were promised development projects and other assistance from the organization in return.

The Director-General's position might have worked through the organization's activities, and possibly has influenced the framing process as well. Since developing countries in general have a preference for adaptation to climate change instead of mitigation, the Director-General's political position might have limited the organization's work on climate change mitigation through agriculture. It was not possible to prove this from the results of the interviews conducted, but it is likely that the Director-General's position has influence the framing of the agriculture-climate change link.

[9] Resignation letter published by the Guardian on guardian.co.uk (14 May 2006) http://www.guardian.co.uk/world/2006/may/14/foodanddrink

Recapitulating - Although it is not mentioned specifically, the need for FAO to work on a global policy level on climate change issues and get involved in the climate negotiations is *implicitly* part of its mandate. This might explain the fact that although climate change issues were not part of the official FAO strategy (as shown by the analysis of the Medium Term Plans and Programmes of Work and Budget over the period 1990-2000), the organization did develop some activities on climate change. Those activities focused mainly on increasing knowledge, and advising member countries on climate variability, risks and adaptive responses. Mitigation issues were not part of this early work on climate change.

Even in the beginning of the first decade of the 21st century, climate change was not explicitly part of the FAO activities. In the few cases climate change was explicitly mentioned, the focus was mainly on the forestry and – to a lesser degree – the livestock sector. With the development of the Priority Areas for Inter-disciplinary Action on climate change issues in 2002, climate change was for the first time explicitly part of the FAO portfolio.

Over the period 2005-2010 a shift in focus took place. FAO MTPs and Strategic Frameworks acknowledged the relevance of climate change for FAO objectives. Climate change became identified as a major challenge standing in the way of achieving global food security, the main goal of FAO. Mitigation through agriculture was given increasingly more attention, up to the last MTP (2010-13) that stated that agriculture must become a key sector for climate change mitigation.

So, FAO's framing of the link between agriculture and climate change has since 1990 gradually advanced from virtually non-existent (but with activities on increasing knowledge on possible climate change impacts and solutions), to a more explicit frame that includes mobilizing the role of forests *and* agriculture as a way of reducing climate change itself. Even though climate change is now considered to be an important part of FAO work, it is not very often mentioned explicitly. Climate change is rather 'woven' or 'mainstreamed' into FAO's work. This also goes for FAO strategy documents. Still, climate change will directly affect future food availability, access, stability, and utilization. It turns out that FAO deliberately did not develop an official climate strategy or address the issue explicitly in its official documents over the period 1992-2000 to avoid being dragged into a fierce debate with its member states. For at least forestry and fisheries, official strategies exist.

Even though climate change has become a more explicit part of FAO's work over the period 2005-2010, having no official climate change strategy very likely gave the organization more room to independently develop its activity portfolio. Although FAO members did give the organization a mandate to work on climate change at the UNFCCC – they approved all strategy documents that included references to this – this was limited to technical assistance and expertise only. To be able to maintain room to also develop climate change activities that are not framed as neutral, politically sensitive or unwanted by the membership, the organization tried to keep its members 'outside' of its work on climate change, and did not explicitly address climate change in its official strategies.

Looking at the organizational embedding of climate change it can be concluded that, just as the embedding of climate change in the FAO strategy, actual work on climate change is dispersed throughout the FAO organizational structure, and mainstreamed with 'other' FAO work. The Interdepartmental Working Groups help to coordinate the climate change activities. The technical *ad hoc* 'IDWG Climate Change and Variability in Relation to Food Security' (established in 1988) mainly focused on indentifying climate risks and effective (adaptive) responses into FAO's global and field work. Its successor, the 'IDWG on Climate Change', also began covering mitigation aspects.

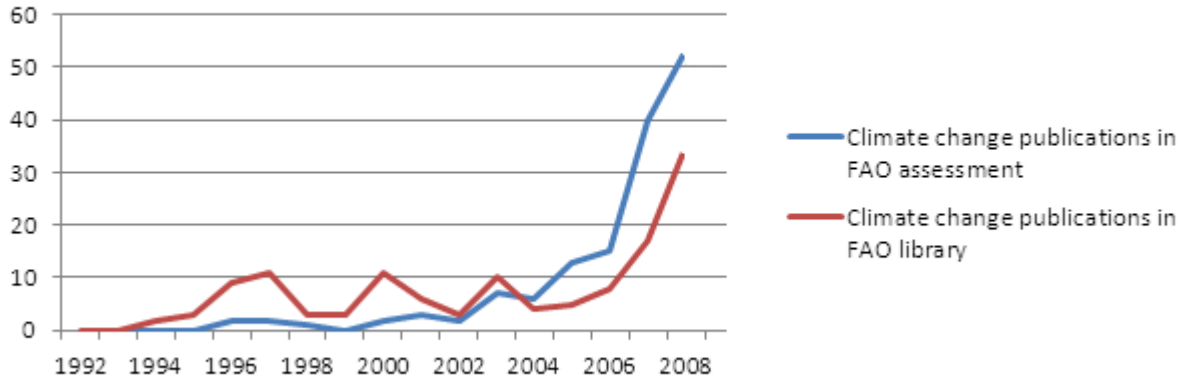
Regarding the embedding of climate change in the FAO bureaucracy and organizational structure, the most important finding is that over the period 2000-2010, climate change has been mainstreamed in FAO's work. Furthermore, the organizational culture has likely contributed to the problem framing.

4.2 Analyzing FAO publications on Climate Change

4.2.1 Development over climate change publications over time

Climate change has gained more attention within FAO over the years. This can be shown by analyzing the number of FAO publications on climate change per year since 1992. The result is shown in the graph below. The blue line represents a FAO assessment of its own climate change publications, while the red line represents the number of climate change publications found in the FAO online library. The reasons for the difference between these lines was not examined, but they both show that climate change has gained increasingly more attention within FAO since 1992.

Figure 8: Number of climate change publications per year since 1992



This graph show a significant increase in FAO publications on climate change over time since 1992. It is clear that the subject has gained attention within the organization. Especially the increase of publications since 2005 – the year in which the Kyoto Protocol was ratified – is remarkable.

In its own overview of climate change publications (done in 2009), FAO distinguished 14 different categories. The chart below shows the total number of climate change publications per category from 1992 – 2008.

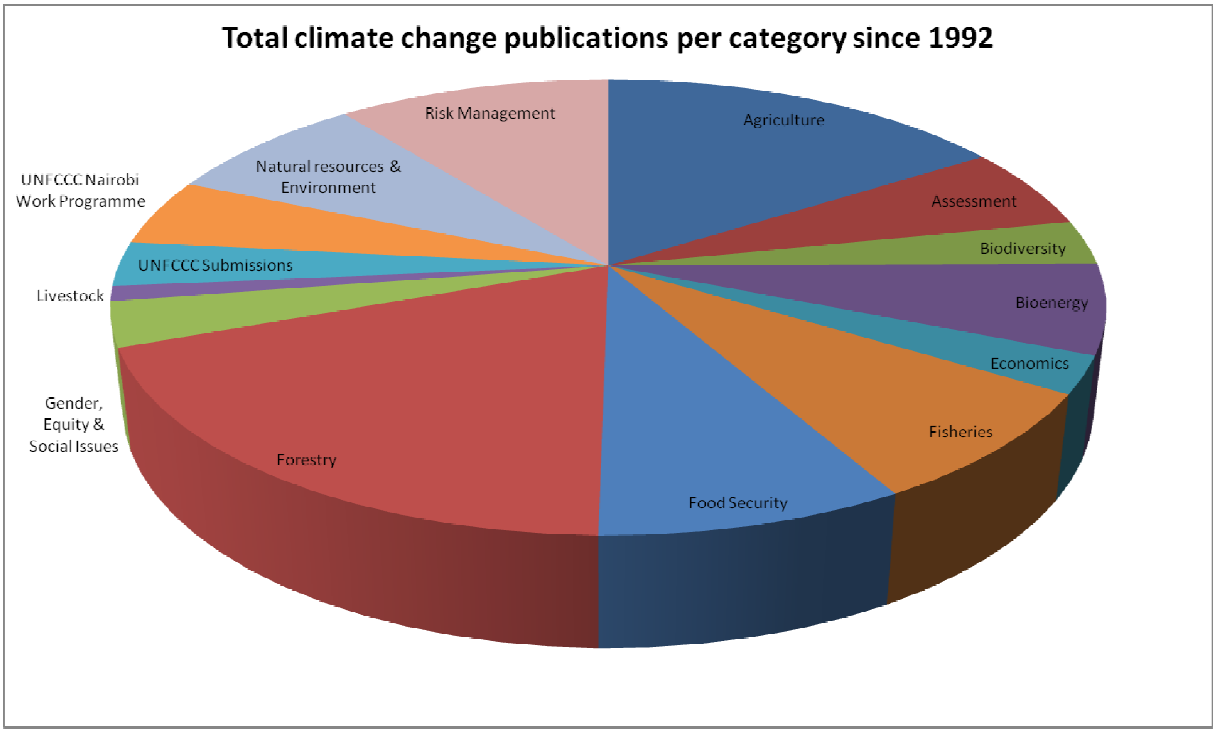
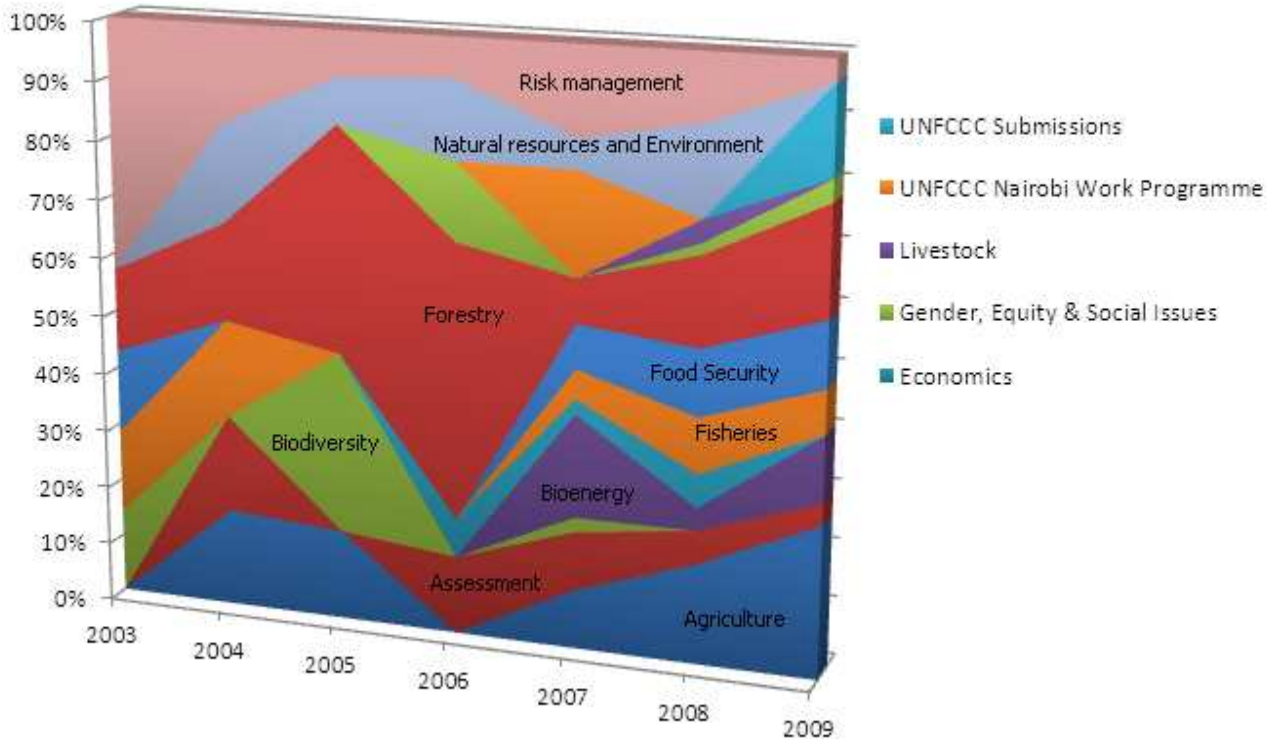


Figure 9: Total climate change publication per category since 1992

This chart shows that forestry, agriculture, food security, risk management and fisheries have been the main subjects of FAO climate change publications. This does not say anything about the development over time, since this chart only tells something about the sum of all FAO climate change publications.

The next graph does give an indication of the development of the categories of publications over time. Note that only the categories that do not fit within the figure are shown on the right. Furthermore, publications before 2003 are left out because there were very few publications over the period 1992-2002.

Figure 10: percentage of climate change publications per category per year since 2003



Although it is a rather complex and difficult picture, it shows some trends. First of all it is clear that 'risk management' has become a relatively less important subject. Furthermore, since 2006 agriculture issues in climate change seems to gain attention within FAO, resulting in relatively more and more publications. Results from interviews show that in 2010 there was even more attention for agriculture in FAO's climate change publications. This means that this trend continued in 2010. Lastly, this graph shows that the number of forestry publications were a significant part of total publications in 2005 and 2006, but since then the relative number of forestry publications has declined. This can be explained by the foundation and (successful) development of UN-REDD in 2007 and beyond –FAO was part of UN-REDD - and the shift in attention from forestry to agriculture within FAO itself.

Another finding from this graph is that over the period 2003-2009, the number of categories has increased from five in 2003, to nine in 2009. There has been a diversification of FAO climate change publications. This can also be shown by analyzing text clouds on keywords for FAO publications on climate change.

A *text cloud* or *word cloud* is a visualization of word frequency in a given text as a weighted list (Lamantia, 2008) . The clouds give greater prominence to words that appear more frequently in the source text. This is relative to the total number of words in the cloud. It is likely that the more a word is used in the keywords of a large number of FAO publications, the greater the attention was for that subject within the organization. Text clouds can therefore be a useful tool in analysing how attention for, and importance of, certain subjects developed over time, by comparing two text clouds from different period. The clouds below show the results of all keywords for climate change related publications in the FAO digital library, for the period 1992-2000 and 2001-2009. Although the number of publications considered varies between the two periods, this does not affect the analysis, since a text cloud gives the relative importance of words that appear in a certain text.

Figure 11: Text cloud of keywords from 78 FAO climate change publications in the period 1992-2000[10]

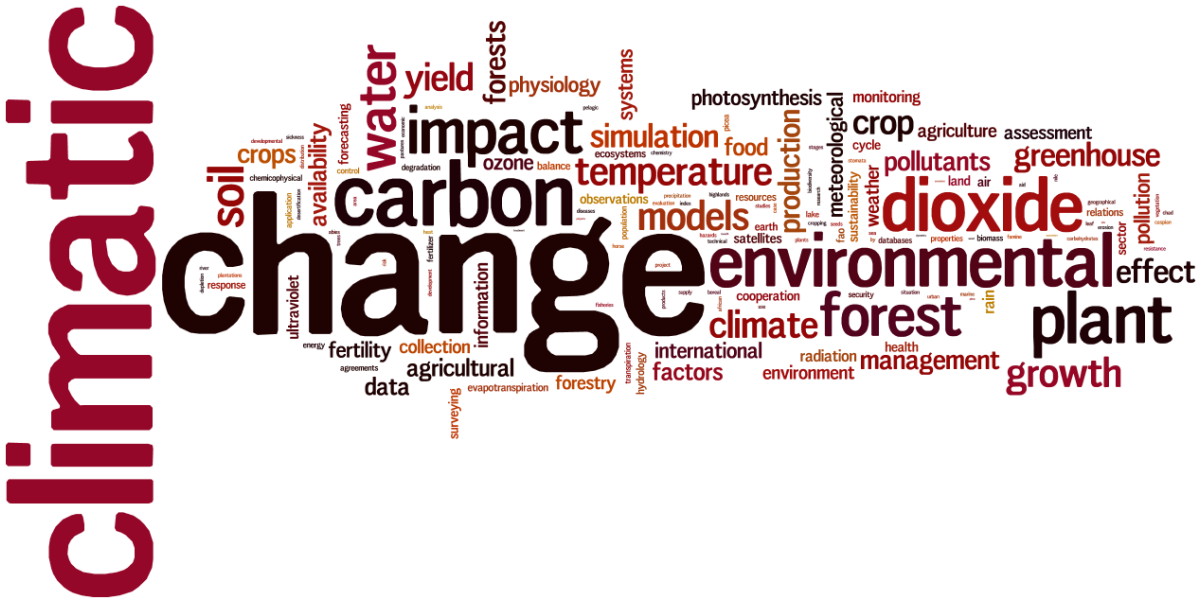


Figure 12: Text cloud of keywords from 138 FAO climate change publications in the period 2001-2009[3]

[10] Text clouds were made using the tool on www.wordle.net

By comparing the two text clouds, one can see that:

1) Where in the first cloud the word 'international' is difficult to find, it is much more present in the second cloud. This means that during the period 2001-2009 'international' appeared significantly more often in keywords of FAO climate change publications. This also goes for the words 'management', 'assessment', 'development', 'impact´ and 'forest'. Looking the other way around, the words 'carbon', 'dioxide', 'temperature', 'plant', 'soil' and 'water' are much more outstanding in the period 1992-2000 than in the period 2001-2009. Especially the first three words (carbon, dioxide and temperature) reveal a focus on the more fundamental workings of climate change, whereas in more recent years the focus seems to have shifted to responding to climate change (the words international, management and development).
2) FAO climate change publications have diversified. The text cloud from the period 2001-2009 shows several equally large words, whereas the text cloud for the period 1992-2000 shows fewer but more outstanding words. This latter text cloud merely contains a lot of different small words;
3) Remarkably, 'agriculture' or 'agricultural' are not very well represented in both text clouds. Assuming that there is a relationship between the occurrence of keywords and actual attention within FAO for these keywords, one can say that agriculture was not of significant importance in FAO climate change publications. This is in contrast to the findings from the organization's own assessment of its climate change publications. This can be explained by the fact that FAO is a specialized UN organization for food security and *agriculture.* It is possible that there is a tendency to not label climate change publications with an 'agriculture'-keyword, since this might seem unnecessary for an agriculture organization. This was confirmed when several publications were examined more closely.

4.2.2 Important FAO publications analyzed

According to FAO, publications are essential to its role as a knowledge organization. Consequently, more than 300 titles per year are published (FAO, 2010). Publications deal with all subjects relevant to FAO work, such as hunger and food security, nutrition, forestry and climate change. FAO's most important publications are the so-called 'Flagship Publications'. These present a comprehensive overview of, and information on the current global state of agriculture, fisheries, forests, commodity markets and hunger. They are issued regularly, as a way to inform public debate and policy-making, both at national and international levels (FAO, 2010).

Although the first was published only a few years ago, FAO submissions and policy briefs to the UNFCCC give a good overview of how the organization sees the position and contribution of agriculture in the climate agreements and negotiations. These are therefore analyzed as well.

<u>FAO's Flagship Publications – The State of Food and Agriculture</u>

In light of this thesis' subject, one of the regularly issued Flagship Publications is examined: 'The State of Food and Agriculture'. In particular, the 'World Review'-sections of these publications were looked into. The 'Regional Overviews', which provide detailed information of regionally important challenges, were not considered since this thesis is mainly concerned with the overall picture. Within every flagship publication, there is a general topic to which FAO paid special attention, as well as a part on several smaller 'selected issues'. Examining the flagship publications will partly reveal how climate change was framed within FAO, as well as the importance attached to climate changes issues (over time).

Every SOFA incorporates many of FAO's more 'low-profile' publications, as well as its (staff) expertise on the discussed subjects. Analyzing them will therefore yield a very good overview (over time) of how FAO framed the link between agriculture and climate change in its publications. Only the 'The State of Food and Agriculture' reports which paid attention to climate change are discussed here. See Annex II for an overview of all reports since 1992.

In 1994, climate change was for the first time extensively discussed in the 'The State of Food and Agriculture'. Although its title is '*Forest development and policy dilemma's'*, this report does not exclusively focus on forestry. Climate change is selected as a special issue, and the impacts, contribution, (short and long-term) policy approaches, linkages and responses for agriculture, forestry and fisheries are discussed. Despite the large uncertainties about climate change at that time, FAO carefully indicated that:

1) Annual crops could benefit from CO_2 fertilization, as a result of elevated CO_2 levels
2) Natural vegetation and some perennial crops are less likely to benefit, or will actually suffer to an extent unknown
3) Agricultural crops, soils and forest interaction with pests, diseases and water availability may be affected
4) Climate change impacts between developed and developing countries are likely to be uneven
5) Inter-seasonal and inter-annual climate variability will likely increase, resulting in a higher risk of crop failures and food shortages (FAO, 1994)

Although we know now that these projected impacts turned out to be correct, FAO at that time considered that there were too many uncertainties about certain features of climate change and national-level impacts on agriculture to justify specific investments for developing countries. Also in this 'State of Food and Agriculture', estimates of the contribution of agriculture, forestry and fisheries to GHG emissions were very low. The number of agricultural activities that contributed to GHG emissions were thought to be relatively few (FAO, 1994).

Despite the uncertainties, FAO acknowledged that there was some degree of scientific consensus on the existence of global warming, and that the agricultural sectors would be affected. This resulted in the call for certain agricultural policy measures that would make sense in any scenario, justified economically, as well as helping to slow the negative impacts of climate change (FAO, 1994). These are the so-called '*no-regrets'* measures.

Given the complications and uncertainties that existed in the early 1990s, FAO identified two stages (short and long-term) at the international level in the emerging policy approach. In the first, focus would be needed on research and a '*no-regrets'* approach. In the second, tough commitments to deal with global warming would be needed, but only if further research would show that it must be avoided. However, a lack of research was not regarded as a reason for inaction in crucial areas, especially where no-regrets options existed (FAO, 1994).

The 1997 'State of Food and Agriculture' on "*The agro-processing industry and economic development*" drew attention to global climate change abatement policies and its implications for developing countries. It acknowledged the fact that although most developed countries saw the need to reduce global emissions, many countries yet had to demonstrate the political will to accomplish these reductions. Furthermore, FAO underlined that developing countries regarded the global warming problem as a result of industrial development within developed countries, which was not their responsibility neither in the past nor in the future, and that many developing countries saw other priorities (economic development, food security) as more pressing. The organization acknowledged the historical contribution of developed countries to the stock of atmospheric greenhouse gases, but nonetheless emphasized that to increase the

international abatement effort, *"…it will be necessary at some stage to broaden participation to include countries not currently committed to emission abatement"* (FAO, 1997).

This 1997 'State of Food and Agriculture' even stated that developing countries should start reducing their emissions within the next few years, since most of the growth in carbon emissions will come from developing countries. As with the 1994 report, FAO called for no-regret approaches (FAO, 1997). Improved land management practices, for example, have a positive impact on GHG emission levels, but also on water availability and soil fertility, among others.

The next 'State of Food and Agriculture' that paid attention to climate change is the 2002 report: "*Agriculture and global public goods ten years after the Earth Summit".* It is the first 'State of Food and Agriculture' that states that agriculture is a sector of key importance in the issue of climate change – both as a source of the problem and as a sector affected by the problem (FAO, 2002). Again, FAO emphasized that most of the impacts are likely to be felt in developing countries, due to their geographic location and their dependence on the agriculture sector.

The 2002 'State of Food and Agriculture' then provides an analysis of how economic development in developing countries might go together with climate change mitigation, through carbon sequestration by poor land-users. Its focus is thus mainly on small-holder climate change mitigation. As estimated at that time, about 80 percent of global carbon stocks are stored in soils or forests and that a significant amount of the carbon originally contained in soils and forests has been released as a result of unsustainable activities and deforestation. The 2002 report suggests reducing deforestation, adopting agroforestry activities, reducing soil degradation and rehabilitating degraded forests and lands as measures that can potentially sequester carbon and thus mitigate the effects of climate change.

It then looks at the necessary conditions for poor land-users to become suppliers of carbon-credits, to contribute to global mitigation efforts. However, the conclusion of this 'State of Food and Agriculture' is that it is not very likely that the poor will be part of a system for carbon sequestration credits, unless large and concerted efforts are made in institution and capacity building and information provision (FAO, 2002). But even when this happens, paying poor land-users is not enough to reduce rural poverty or mitigate climate change. More is needed for that.

But above all, the 2002 report clearly states that *"…it is not fair nor effective to demand the provision of environmental goods and services from the poor, unless such measures also offer the potential for improvements in their livelihoods"* (FAO, 2002).

The very extensive and in-depth 2007 'State of Food and Agriculture' on 'Paying farmers for environmental services' builds on the 2002 report by diving into the possible advantages and challenges of enhancing environmental services for meeting agricultural and environmental demands of the future through better management of agriculture. Like the 2002 'State of Food and Agriculture', it also examines the potential of this approach to contribute to poverty reduction, and is therefore limited to smallholder agriculture. One of the three discussed services to which agriculture can contribute is climate change mitigation (FAO, 2007b).

One of the conclusions is that smallholder agriculture has the potential to increase significantly the provision of environmental services such as climate change mitigation, but that this will require changes in the way in which agro-ecosystems are managed. It also looks at synergies between the provision of different ecosystem services: production practices adopted to enhance one ecosystem service may enhance others at the same time. Soil carbon sequestration, for example, can have positive impacts on climate change mitigation but also on water quality and food production.

Just as in 2007, the 2009 'State of Food and Agriculture' on "Livestock in the Balance" explicitly addresses climate change issues, both on adaptation and mitigation. It's main conclusion is that action is needed to meet the increasing demand in an environmentally and socially sustainable way since the livestock sector is expanding rapidly, due to population growth, higher welfare levels and urbanization. One of its messages is that governance of the livestock sector should be strengthened to ensure that its development is environmentally sustainable and that it both adapts to and contributes to mitigating climate change (FAO, 2009e).

As shown by this analysis of the regularly issued 'The State of Food and Agriculture', climate change is a recurrent subject. Already in 1994, climate change was extensively discussed. It is particularly remarkable that climate change mitigation takes up most of the attention in the reports, as can be seen in the table below. This might be explained by the fact that FAO's 'State of Food and Agriculture'-reports have a global (policy) focus. The next chapters show that on the global level, FAO focuses on mitigation of climate change, while 'on-the-ground' there is much more attention for adaptation. It therefore makes sense that the 'State of Food and Agriculture'-publication have the tendency to focus on mitigation more than adaptation.

Table 4: Focus of the SOFA's that discuss climate change

Year	Title	Main focus
1994	Forest development and policy dilemmas	Climate change adaptation and mitigation, no-regret approaches
1997	The agro-processing industry and economic development	International agreements, mitigation policies in developing countries
2002	Agriculture and global public goods ten years after the Earth Summit	Climate change mitigation, smallholders
2007	Paying farmers for environmental services	Climate change mitigation, smallholders, synergies
2009	Livestock in the Balance	Livestock, climate change adaptation and mitigation

Other (more irregular) FAO publications

Over the period 2008-2009, FAO has produced a significant amount of publications specifically aimed at the link between climate change and agriculture (e.g.: FAO, 2008a; FAO, 2009b; FAO, 2009g; FAO, 2010a). The documents published over the period 2008-2009 show the development of a new frame on climate change. This new vision draws largely on the concept of synergies and a no-regrets approach: opportunities for cost-effective adaptation and mitigation with additional benefits for development and food security that are beneficial even in the absence of climate change. According to FAO, with appropriate planning, climate change adaptation and mitigation initiatives can be integrated into sustainable development initiatives resulting in mutually beneficial outcomes.

According to FAO, climate change should be dealt with in a broader context of development, since it is one of the major challenges to food security and agriculture. It explicitly states that agriculture, forestry and fisheries are part of the solution to climate change since they are a significant source of GHG

emissions worldwide. FAO states that adaptation, mitigation and sustainable development can reinforce each other and that actionis needed, since inaction will significantly increase future costs.

In this new vision, FAO identified priority-action areas, six on adaptation and four on mitigation (FAO, 2009b).

Adaptation

- Data and knowledge for impact assessment and adaptation
- Governance for climate change adaptation
- Livelihood resilience to climate change
- Conservation and sustainable management of biodiversity
- Innovative technologies
- Improved disaster risk management

Mitigation

- Strengthening the agriculture, forestry and other land-based sectors in climate change negotiations and international agreements
- Data and knowledge for mitigation
- Methods and technologies for mitigation
- Governance for climate change mitigation

This new profile for climate change, established between 2007-2010, explicitly stated that mitigation should be part of FAO work.

> "*Mitigation is also a major concern in the sense that, if we do not get global warming under control, we could face large-scale disruption of food systems down the road that could be beyond our ability to manage. Moreover, in view of the important contribution of the agriculture sector to emissions, and its equally important potential contribution to emissions reduction and carbon sequestration, mitigation merits greater attention that hitherto"* (FAO, 2008)

In order to account for the uncertainties related to climate change FAO adopted a "no regrets" approach, emphasizing measures that should be taken in any case - even in the absence of climate change - because they improve the efficiency of present practices in agriculture as well as in forestry or in fishery. At the same time, these measures put smallholders in a better position to adapt to or mitigate climate change. Besides that, adaptation and mitigation must be tackled as an integrated part of sustainable development, and sustainable production practices are a good basis for action (FAO, 2010a).

Some interviewees indicated that by focusing on the synergies between food security, adaptation and mitigation, FAO avoided being criticised by its members. In this way, interests from all members are considered. Adaptation (considered important by developing countries) as well as mitigation (mainly in favour with developed countries) are both covered. Furthermore, food security issues and development are also 'taken care of'. It shows that since 2007 a new frame emerged, that is based on four pillars: adaptation, mitigation, food security and (economic) development.

Recapitulating - Looking at FAO publications on climate change, one can say that attention for climate change has increased significantly since 1992. As shown by this analysis of the regularly issued 'The State of Food and Agriculture', climate change is a recurrent subject. Already in 1994, climate change was extensively discussed. However, estimates of the contribution of agriculture, forestry and fisheries to GHG emissions were very low at that time.

The increase in attention for climate change issues especially goes for the period 2005-2009. This leads to the conclusion that within FAO, climate change has become an increasingly important subject. However, looking at the FAO publications on climate change one can see that the link between agriculture and climate change has only received increasingly more attention after 2007. Up to the foundation of UN-REDD (in 2007), forestry related climate change publications were a significant part of total FAO climate change publications. After UN-REDD was founded and started to develop (successfully), forestry became relatively less important and publications on the link between agriculture and climate change began to gain ground. Even though the analysis of two text clouds seems to contradict this finding, agriculture issues in climate change gained attention within FAO over the last couple of years, resulting in more and more publications since 2006. Next to this, there was also a diversification in FAO climate change publications, leading to more varied publications with different subtopics.

Over the years 2007-2010, a new frame emerged. FAO developed a new vision on climate change, focusing on the concept of synergies and a no-regrets approach. With appropriate planning, climate change adaptation and mitigation initiatives can be integrated into sustainable development initiatives resulting in mutually beneficial outcomes. In other words, adaptation and mitigation in agriculture is possible and will help to combat climate change while it will simultaneously contribute to increasing food security and boosting (economic) development.

4.3 Analyzing FAO activities on climate change

By examining FAO activities on climate change, this section tries to determine how the agriculture-climate change link was framed within FAO. Together with the embedding of climate change in the bureaucracy and organizational structure, as well as the FAO publication on climate change, this makes it possible to determine the overall frame that was used by the organization. This section will look at three FAO activities: 1) the provision of (statistical) data, information and expertise, 2) Technical support to field projects and countries, and 3) contributions to the IPCC.

1) Provision of (statistical) data, information and expertise on food and agriculture issues

A large part of FAO's knowledge – which lies mainly with its employees – is accessible to its members and other parties through its online knowledge platform. Users of this portal can interact directly with technical experts in particular fields of interest, and obtain answers to their questions. It also provides links to further resources with supporting technical information. It also provides communities of professional staff and collaborating centres with common interests and objectives related to sustainable agriculture and food security.

FAO's database FAOSTAT provides an enormous amount of time-series and cross sectional data relating to food and agriculture. It is a regularly used source of data by policymakers, both in developing and developed countries. The Statistics Division is responsible for The FAO Corporate Statistical Database, FAOSTAT, and staff are compiling, processing and storing time series statistical information since 1961 by country. FAOSTAT is multilingual and currently contains over 3 million time-series records from over 210 countries and territories covering domains on agriculture, nutrition, fisheries, forestry, food aid, land use and population. It is currently the world's largest and most comprehensive statistical database on food and agriculture. It contains over 1 billion data points (cells), 40 million of which are updated annually (FAO, 2011c).

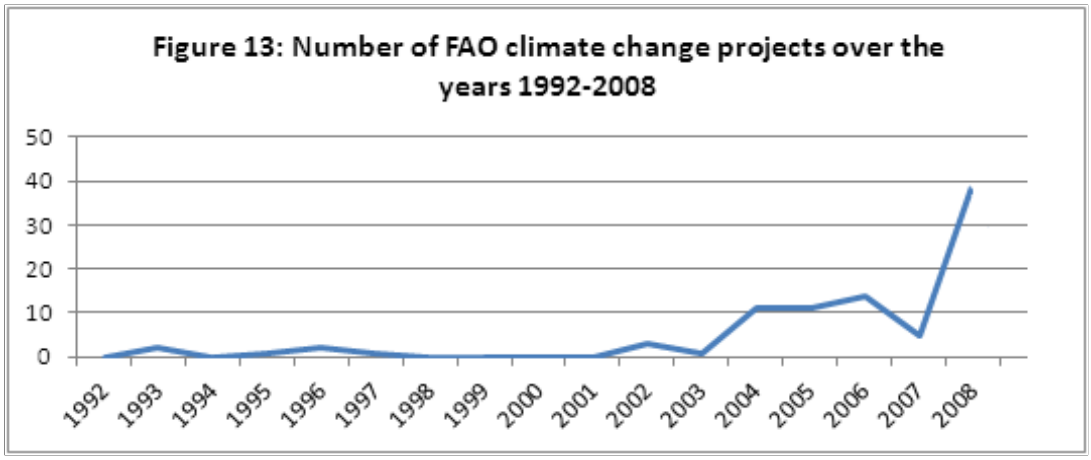
Organization wide, statistics coordination is carried out by an Inter-Departmental Working Group on Statistics, chaired by the Statistics Division. The working group has representatives from all FAO Divisions involved in the preparation of statistics and it reports back to the Office of The Director General (FAO, 2011c).

2) Technical support to field projects and countries

Outside the UNFCCC, FAO plays a role in assisting member countries with climate change issues related to climate change and food security. The major objective of ensuring food security is considered in FAO's programme on climate change. Projects are mainly targeted towards providing better solutions for climate related risks in member countries and therefore aim mostly at *adaptation* to climate change.

Activities include

- *Mainstreaming*: Integrating climate change adaptation and mitigation strategies into 'regular' agricultural, forestry or food security plans.
- *Impact assessment*: Assessing the impacts of climate change on agriculture and food security.
- *Capacity building*: Increasing national and local capacity to reduce (climate change related) risks and climate change adaptation.



Based on 101 projects in the FAO project database, of which seven had an unknown starting date

Looking at the starting date of FAO climate change projects one can see that over the period 1992-2009 numbers have risen dramatically since 2003. Just as with the FAO climate change publications, this shows increased attention for climate change issues within the organization.

Looking at the focus of the field projects, FAO's own overview of climate change projects yields to following picture, in which the projects are differentiated to three categories: mitigation, adaptation and risk management.

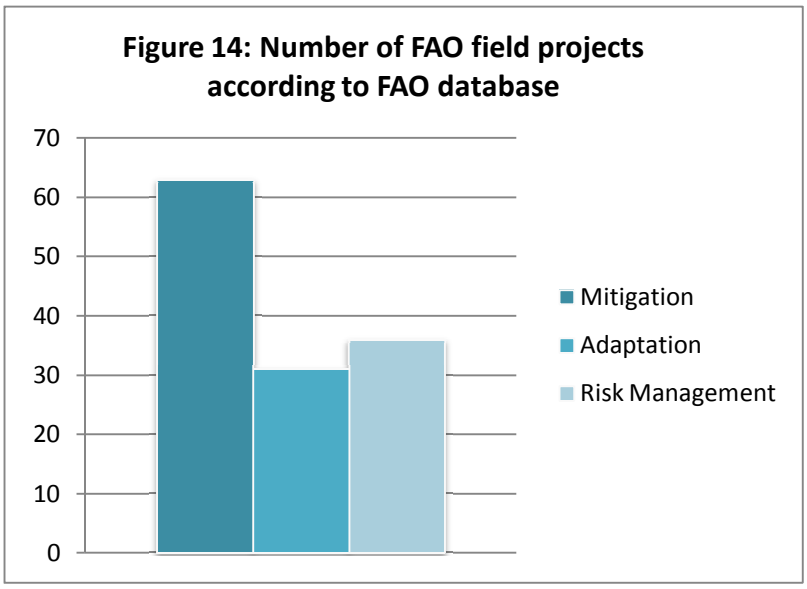


Figure 14: FAO field projects on climate change (according to FAO)

This graph - based on FAO's own project database - seems to show that more attention is paid to climate change mitigation than to climate change adaptation. However, when closely examining the projects in these lists it becomes clear that there is much overlap between categories (i.e. many projects are listed in two or more categories). Besides, when investigating the list with 'mitigation' projects, it is clear that in many of these projects 'mitigation' is defined in a different way than is done throughout this research. For example, project TCP/JOR/3001 on National Drought Mitigation Strategy in Jordan has nothing to do with GHG mitigation. Almost half of the projects that fall under FAO's category of 'mitigation' are actually aimed at disaster risk mitigation, not at GHG mitigation. In this thesis' definition, these projects are considered to be an adaptation project. When looking at the 'adaptation' projects in the database, there is no reason to adjust the numbers. Reviewing them does not lead to the conclusion that some of them should be labeled differently, to be able to use them properly in this thesis.

This goes for 29 'mitigation' projects that, in line with this thesis, should be considered as a FAO adaptation project. Also, the 'risk management' projects that are not already mentioned in the 'adaptation' projects list have to be considered as adaptation projects, since dealing with risks is adaptation. Next to that, most projects that do focus on GHG mitigation have an adaptation goal as well, while the other way around this is not the case for the adaptation projects.

When corrected for this overlap and differently defined projects, the picture is as follows:

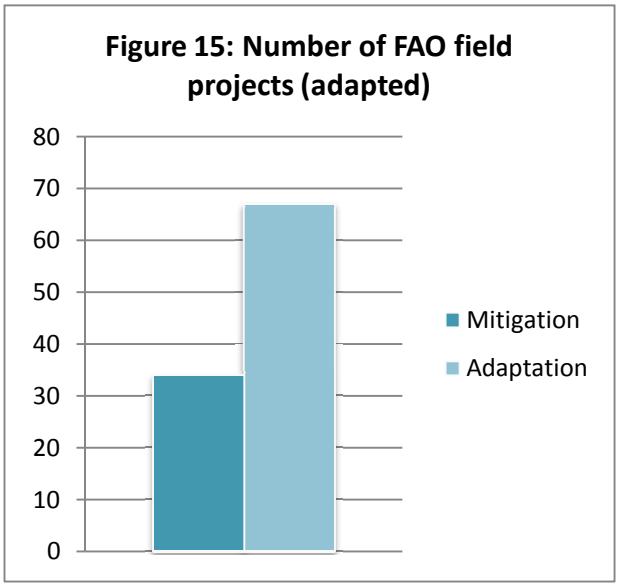


Figure 15: FAO field projects on climate change (adapted)

This shows that almost two-third of FAO field projects are aimed at adaptation. As evidenced by results from interviews with FAO employees, this is mainly due to the fact that (nearly all) field projects take place in developing countries. Since developing countries usually are more interested in climate change adaptation, it makes sense that most FAO projects are also on adaptation. It also shows that 'on the ground', FAO regards climate change as mostly an adaptation issue. Interviews confirm this. Nearly all interviewees identify adaptation as the most important aspect of a FAO response to climate change. This is based on the predicted large impact of climate change on developing countries, and the fact that these countries do not have a historical responsibility for the high concentrations of GHG concentrations. It can thus also be concluded that there is a general feeling with FAO employees that developing countries should not bear the costs of mitigation since industrialized countries are to blame for the current high concentrations of GHG's.

Another interesting finding from this section is that FAO apparently would like to show that there are more mitigation projects than they actually have. This goes also for the total number of climate change projects. Without considering the overlap, it seems that FAO has nearly 150 projects on climate change. After correcting for the overlap, just over 100 projects remain. This has likely to do with the need to find a balance between the members (developed versus developing countries). 'In between the lines'-results from interviews with staff from the Interdepartmental Working Group on Climate Change seem to affirm this. Staff choose their words carefully, being aware of the different views and influences of the FAO members. Off the record, they confirm that they rather give industrialized (and financing) countries the impression that in field projects they are focusing very much on climate change mitigation, while on the ground adaptation is the main focus.

Additionally, FAO employees acknowledged that climate change is increasingly used as a means to secure funding. Many think climate change is a 'hot topic', popular with donor countries. It therefore gets much attention in preparing project proposals, in the hope that funding will automatically follow.

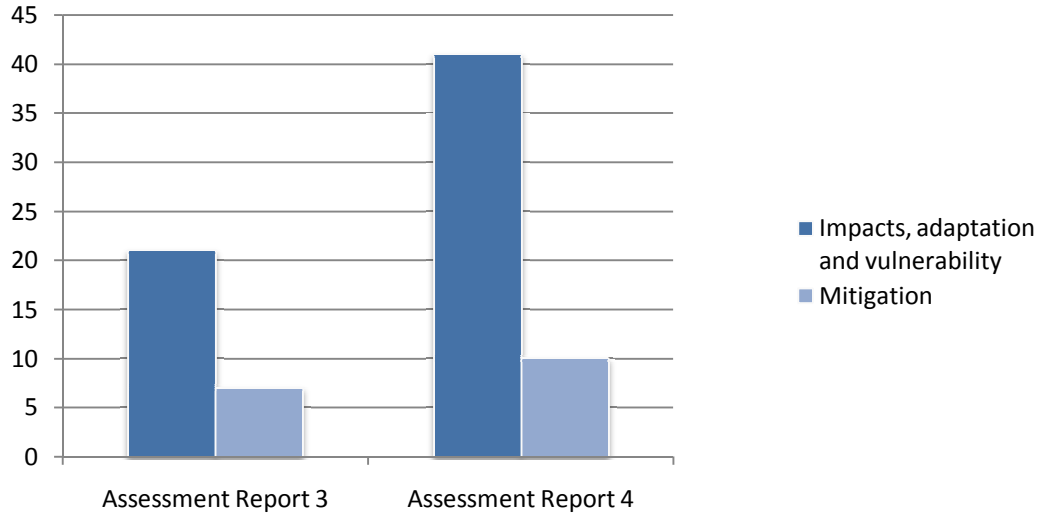
3) Technical contributions to IPCC

The IPCC brings together experts and specialists working on various aspects of climate change from all over the world. The IPCC does not recommend actions, but by carrying out an assessment of policy on relevant aspects of climate change it provides the scientific basis for actions by others. IPCC's assessment reports have played a central role in the interaction processes between public policy making on the national and international level on the one side and scientific research and policy advice on the other (Siebenhüner, 2003).

Like with the UNFCCC, FAO has provided expert knowledge and contributions to the IPCC, as well as (lead) authorship on several chapters relating to agriculture over the years (See Annex III for an overview of FAO contributions to the IPCC). By sharing information, knowledge and data, FAO provides input in to the sections related to food security and agriculture, while also providing professional staff to participate as authors. Especially FAO's statistical data on agriculture and forestry issues have been used extensively in the IPCC reports. In IPCC's Fourth Assessment Report, chapter five only (*Food, fibre and forest products*) of Working Group II, has references to 19 different FAO publications.

The figure below shows the number of FAO documents used in the third and fourth assessment report[11] of the IPCC, in the reports by Working Group II (Impacts, adaptation and vulnerability) and Working Group III (Mitigation in climate change).

Figure 16: Number of FAO documents used in the third and fourth IPCC assessment reports



This clearly shows that FAO data is used in the IPCC, and that FAO's knowledge is mainly used for IPCC's reports on impacts, adaptation and vulnerability. Looking at use of FAO publications for the mitigation part of IPCC's work, one can see that this is significantly less. It can be concluded that according to the scientists involved in writing the assessment reports, FAO's expertise is mainly considered to be in the adaptation domain, rather than in mitigation. From the use of FAO publications in the IPCC reports it becomes clear that mainly the organization's flagship publications (e.g. The State of Food and Agriculture or The State of the World's Forests) are used. These seem to have more impact and authority than other FAO publications. FAO employees and country representatives alike agree with this. FAO's flagship publications are considered to be very authoritative and leading in their fields.

[11] It was impossible to do the same for the first and second assessment report. Since these were published well before internet was widely used, they are only available through IPCC's website as scanned copies. This makes them almost inaccessible.

Recapitulating – One of FAO's activities is the provision of statistical data and information. Its database FAOSTAT is currently the world's largest and most comprehensive statistical database on food and agriculture, and is a regularly used source of data by policymakers, both in developing and developed countries. Technical contributions to the IPCC are another part of FAO climate change activities. FAO has provided expert knowledge and contributions to the IPCC, as well as (lead) authorship on several chapters relating to agriculture over the years. FAO data is used in the IPCC, mainly for sections on impacts, adaptation and vulnerability.

FAO main activity outside the UNFCCC is the technical support to field projects and countries. Analyzing FAO field projects shows that over the period 1992-2009 numbers have risen dramatically since 2003. While there were only a handful of field projects on climate change that started in the period 1992-2003, as much as 40 projects started in 2008.

A key finding of this part is that the organization wants its (funding) members to think that as much attention is paid to climate change mitigation as to climate change adaptation. However, an in-depth analysis of FAO's field project database shows that almost two-third of FAO field projects are aimed at adaptation. Since developing countries are often much more interested in climate change adaptation and nearly all FAO field projects take place in developing countries, it makes sense that most FAO projects are also on adaptation. It also shows that 'on the ground', even nowadays FAO frames climate change as mostly an adaptation issue.

4.4 The FAO profile: How has the agriculture-climate change link been framed?

FAO's (unofficial) strategy and hence its frame on climate change has since 1992 gradually advanced from virtually non-existent (but with some activities on increasing knowledge on workings of and possible climate change impacts), to a more explicit frame that includes mobilizing the role of forests and agriculture as a way of reducing climate change itself. But even though climate change is now considered to be an important part of FAO work, it is not very often mentioned explicitly. Climate change is rather 'woven' or 'mainstreamed' into FAO's work, as well as in its organizational structure. However, between the lines a general picture on how FAO framed the link between agriculture and climate change emerges.

Table 5: The changing FAO frame on climate change and agriculture in the period 1992-2010

1992	*1994*	*1996*	*1998*	*2000*	*2002*	*2004*	*2006*	*2008*	*2010*	*2011*
Climate variability					The role of forestry in mitigation (UNREDD)			Potential role of agriculture in mitigation		
Risks and impacts of climate change for agriculture and food security					Agriculture as a sector for climate change adaptation (although not through UNFCCC)			Synergies with food security and development		
The need for increasing knowledge on climate change								UNFCCC as an important forum for agriculture		

Looking at FAO publications on climate change, one can say that attention for climate change in general has increased significantly since 1992, but especially over for the period 2005-2009. This leads to the conclusion that within FAO, climate change has become an increasingly important subject over the years. However, looking at FAO publications, results from interviews and FAO activities within and outside the UNFCCC, one can see that the link between agriculture and climate change has only received increasingly more attention after 2007. This is due to the fact that attention shifted away from forestry issues to agriculture, because of the (successful) establishment of UN-REDD. In the 1990s, priorities were mainly climate variability, increasing knowledge on climate change and the risks and impacts of climate change for agriculture and food security. Around 2000, the role of forestry in mitigation and the link between agriculture and adaptation received most attention. Over the years 2007-2010, a new frame emerged. FAO developed a new vision on climate change and agriculture, focusing on the concept of synergies with food security and development. In other words: it underlined the necessity, benefits and feasibility of adaptation and mitigation in agriculture (through the UNFCCC), while simultaneously contributing to food security and economic development. This vision was also carried out through different documents.

Since the establishment of the UNFCCC in 1992, FAO has been providing technical support to the negotiations. This initially focused mainly on (increasing knowledge on) climate change risks, impacts and variability, followed by forestry issues (mostly mitigation) around 2000. Most of FAO activities in the UNFCCC were aimed at forestry, including communication and awareness raising during UNFCCC meetings. After COP-13 in 2007, attention shifted to from forestry to addressing the need for and possibility of integrating agriculture in the climate agreements. One can say that mitigation in agriculture as part of a possible climate agreement 'lagged behind' in FAO's framing.

FAO's main activity outside the UNFCCC is the technical support to field projects and countries. Analyzing FAO field projects shows that over the period 1992-2009 the number of field projects has risen dramatically since 2003. While there were only a handful of field projects on climate change that started in the period 1992-2003, as much as 40 projects started in 2008 alone. An analysis of FAO's field project

database shows that almost two-third of FAO field projects are aimed at adaptation. Since developing countries are often much more interested in climate change adaptation and nearly all FAO field projects take place in developing countries, it makes sense that most FAO projects are on adaptation as well. It also shows that 'on the ground', FAO frames climate change as mostly an adaptation issue, contrary to what the organization wants its (funding) members to think.

What becomes clear is that the need that was felt within the organization to consider the interests of its members greatly influenced the way it framed the link between agriculture and climate change. Although the organization mainly regards climate change mitigation as the responsibility of developed countries, the need to incorporate its members interests influenced the framing of the link between climate change and agriculture. Overall, one can say that it is not possible to identify one clear frame that was used throughout the period 1992-2010. At first sight it appears as a rather random and chaotic process, with continuously shifting attention and a difference between 'on-the-ground' and headquarter activities and policy. However, this 'chaotic' and 'random' process can also considered to be strategic and deliberate. Different frames at different levels (e.g. headquarters vs. 'on-the-ground') can serve a strategic purpose, and do not have to be incompatible with each other. Chapter 6 will explore this issue in more detail.

In general, four outcomes of the analysis on FAO's framing of the link between agriculture and climate change over the period 1992-2010 can be identified:

1) Climate change received increasingly more attention within FAO over the years;
2) Climate change has been mainstreamed into FAO's activities and organizational structure, but no official strategy on FAO's climate change work has been developed. Compared to the forestry and fisheries 'membership approved' strategies this is remarkable. Since 2007, a new frame emerges that incorporates adaptation, mitigation, food security and development issues. This frame will likely be less politically sensitive, since it is a very holistic and integrated approach that includes all of the main issues around agriculture and climate change;
3) There is a difference between what FAO does on the ground (mainly adaptation) and the message it wants to convey to the global politics level (mitigation). On the ground, adaptation has always been considered more important than mitigation, but on the policy and politics level the organization gives the image that mitigation is as equally important (especially since 2007) ;
4) The UNFCCC was not used by FAO as an important forum for linking agriculture and climate change issues until 2007. In the period 1992-2007, FAO mainly provided technical advice to the UNFCCC, and was involved in setting up UN-REDD. Only after the (successful) establishment of UN-REDD, FAO started addressing the link between agriculture and climate change in the UNFCCC.

Regarding FAO's involvement in the UNFCCC, the organization faces the difficulty of finding a balance between the interests of its members and its own will. This makes that there is an inconsistency between the image of (what is framed as) neutrality[12] and of a purely technical organization FAO wishes to carry out, and the actual work the organization performs (which is much more in the direction of advocacy and persuasion). The organization is 'locked' somewhere between (the desired image of) neutrality and its wish to (strongly) advocate for agriculture in the climate change agreements. This is especially the case since 2007, when FAO started to try to convince UNFCCC parties to consider agriculture in the negotiations.

Interviews reveal that FAO deliberately did not develop an official climate strategy, address the issue explicitly in its official documents and refrained from clearly framing the link between agriculture and climate change to avoid being dragged into a (difficult) debate with its member states. Such a debate

[12] Neutrality and to what extent it is possible or necessary to be neutral as an international bureaucracy is discussed in chapter 6

might have limited its work on climate change. Even though climate change has become a more explicit part of FAO's work over the period 2005-2010, it was felt that having no official climate change strategy and not involving the members on politically sensitive issues gave the organization more room to independently develop its activity portfolio and also work on activities not other than the provision of technical assistance and expertise (such as advocacy and awareness raising, or other not 'neutral' activities).

The fact that climate change has not been explicitly incorporated in an official FAO strategy but rather has been mainstreamed in existing organizational structures and activities is very likely the result of the need that was felt within the organization to find a balance between the different interests of its members and its own will. To maintain its 'independence' and flexibility to work on climate change issues as deemed fit by the organization itself, FAO did not explicitly or clearly frame the link between agriculture and climate change – even though the emerging frame should not be a very contested one – nor did it try to develop an official strategy in cooperation with its members. The fear to get involved in a political game involving both the bureaucracy and its membership around its strategy on climate change and the organizations' mandate, led to a situation in which the organization tried to keep its members outside its climate change work. Results from interviews and the lack of provision of information towards the members have shown that this especially concerns FAO's involvement in the UNFCCC, and to a lesser extent to the organization's climate change activities on the ground. Country representatives do not have much information on the organization's involvement in the climate change negotiations. Furthermore, it has been shown that FAO deliberately gives 'colored' information to different members. Industrialized (and financing) countries are given the impression that in field projects they are focusing very much on climate change mitigation, while on the ground adaptation is the main focus. On the other hand, the main focus of FAO at the UNFCCC has since 2007 been to also get agricultural mitigation in the agreements, which is not generally known with developing country members.

This also means that FAO cannot send out a very strong (or political) message since that might be against the wishes of its membership. Chapter 5 (influence of FAO in the UNFCCC) will examine whether this keeping the membership outside politically sensitive issues at the UNFCCC led to more autonomy for FAO, and whether this had an effect – being it positive or negative – on the influence of the organization within the UNFCCC.

5. FAO influence in the climate change regime

By looking at three areas of influence – normative, cognitive and executive – this chapter will try to describe what the influence of FAO in the UNFCCC negotiations was, incorporating the possible link with the framing process as described in chapter 4. It will also draw on the concept of international bureaucracy authority, which can be divided in delegated, moral and expert authority. This will result in the identification of implications for the ability of FAO to exercise influence in the UNFCCC negotiations. These findings might be used by FAO to develop a more effective strategy for increasing the levels of agricultural climate change mitigation and adaptation, if desired. Chapter 6 will then take a step back and look at what this thesis has shown about the processes and dynamics of problem-framing, the link between framing and influence, and the influence of international bureaucracies in global environmental politics. Note that since chapter 4 showed that FAO has only been active in the UNFCCC on the link between agriculture and climate change since 2007, this chapter mainly looks at the period 2007-2010.

5.1 Normative Influence

Normative influence is about how a bureaucracy influences "global environmental governance through the creation, support and shaping of norm-building processes for issue-specific international cooperation" (Biermann et al., 2009a, 48). It refers to the role that international bureaucracies can play in developing international and national norms. This can be done through for example *"...the initiation of intergovernmental norm-setting processes, the proactive support of on-going negotiations, or the support and guidance of national and subnational norm setting"* (Biermann et al., 2009b).

Did FAO act as a negotiation facilitator that shaped global cooperation?

This section looks at how the FAO influenced international norm-setting in the UNFCCC process. Despite the fact that the FAO is not a key player at the UNFCCC, international bureaucrats can exercise considerable influence in international negotiations "even when they are not key players during the negotiation stage" (Young, 1994, 179). Initiation of side-events during negotiations or conferences, seminars and workshops on the implementation of international agreements can be indicators for normative influence. The main question of this section is: Did FAO act as a negotiation facilitator that shaped global cooperation?

Since 2007, FAO has been trying to communicate the message of the necessity of including agriculture in the UNFCCC negotiations. A possible approach could be creating, supporting and shaping norm-building processes in the UNFCCC context. Norms form the connection between the general values (such as liberty, justice, right to develop) and the actual behaviour. FAO recognizes the right to develop for poor countries, and that industrialized countries should take the lead in combating climate change. In the organization's view, (smallholder) agriculture in developing countries can and should contribute to climate change mitigation and adaptation, while at the same time contributing to economic development and increased food security.

This section will look at if (and possibly how) FAO was able to facilitate the UNFCCC negotiations through its normative work on the link between climate change and agriculture. Examining the normative influence of FAO in the UNFCCC negotiations will be done through looking at three aspects of FAO work that could have had influence. These are international standard setting, side-events and advocacy activities through personal contacts with UNFCCC negotiators.

International standard setting – Standard setting is a significant part of FAO's work and mandate. In its 2010-2019 strategic framework, one of FAO's core functions is defined as *"negotiating international instruments, setting norms, standards and voluntary guidelines, supporting the development of national legal instruments and promoting their implementation"* (FAO, 2009d). All of FAO's normative work is connected with food and agriculture. Codes, norms and conventions help nations implement international standards. Many interviewees in and outside FAO, but also in- and external reports consider FAO to be strong in normative work. One example is the initiative led by FAO to establish guidelines for foreign direct investments in the agriculture sector of developing countries (the so-called "land grabbing"). Together with the World Bank and IFAD, FAO is currently establishing guidelines for investments to secure among others the rights of local populations and (local) food security. This initiative is by some interviewees considered as an example of FAO's expertise and authority through standard setting in food and agriculture. Although the influence of FAO in many standards and codes is and has been significant, box 2 shows that there is currently no FAO standard, norm or guideline on a topic related to the link between climate change and agriculture. A possible way for FAO involvement could be an international standard or guideline for the accounting of reduced GHG emissions through soil carbon sequestration in agriculture.

Box 2: Involvement of FAO in international standards, codes and norms

- Codex Alimentarius *(food)*
- International Plant Protection Convention *(plants)*
- Code of Conduct for Responsible Fisheries *(fisheries)*
- World Organisation for Animal Health *(animals)*
- Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade *(pollutants)*
- International Code of Conduct on the Distribution and Use of Pesticides to reduce the hazardous effects of pesticides *(pollutants)*

Source: FAO, 2010

At the moment, there is no intention within the organization to develop a standard, code or norm on related to the relation between climate change and agriculture. FAO itself states that "*food additives and pollutants, animal health, responsible management of natural resources such as fisheries and forests are only a few of the areas where international standards are needed"* (FAO, 2011). Note that climate change is not mentioned in this context. Next to that, none of the interviewees mentioned standard-setting in relation to FAO climate change work.

It can therefore be concluded that FAO did not have any significant influence in the UNFCCC through standard-setting.

Side-events – Standard setting is not the only way to have normative influence. Side-events can be another source. Influencing the negotiation process through raising awareness by means of organizing side-events has been very difficult, according to several interviewees both within and outside FAO. In December 1998, FAO was for the first time officially represented at the 4th session of the COP to the UNFCCC in Buenos Aires. Since then, FAO has been participating with official statements and side-events at the different sessions of the COPs and subsidiary bodies of the UNFCCC. Interviews reveal that until the COP-13 meeting in Bali 2007, the focus of these activities was on the role of forests in climate change adaptation and mitigation, and on the establishment of UN-REDD. The foundation for the UN-REDD process was laid at this conference, in which FAO forestry department played a large role. In general, results from interviews show that the forestry branch of FAO has been quite involved and active in the UNFCCC process since the late 1990s. Only after the Bali Roadmap was adopted and REDD was being developed, FAO shifted its focus towards addressing the possible contribution of agriculture to climate change adaptation and (especially) mitigation.

Towards COP-15 in Copenhagen increasingly more events during UNFCCC meetings were (co)organized by FAO, all emphasizing that *"Food security and climate change are intrinsically linked in the agriculture sector and if they are to be addressed effectively, they will need to be addressed together, rather than in isolation from each other*" (FAO, 2010b). This reflects the emerging frame on the link between climate change and agriculture, as discussed in chapter4. The main events by FAO during the Copenhagen summit were a side event on *"Unifying commitment and action to meet climate change and food security challenges"*, two thematic days (Agriculture Day and Forestry Day) and a joint FAO-CGIAR-IFAD-World Bank side event which brought all three events together (FAO, 2009a). After Copenhagen another side event – "*Demonstrating agricultural mitigation: Examples from the field"* was co-organized by FAO, IFPRI, CGIAR, CCAFS, IFAP, the World Bank and the Global Donor Platform on Rural Development. Presentations tried to make clear that agricultural mitigation and climate financing to smallholders is possible and underway in some cases[13] (FAO, 2010e). For a complete list of FAO (co)organized side-events, see Annex V.

Side events (and exhibits) were originally established as a forum for admitted observer organizations to highlight diverse climate change issues in a different environment from the negotiation process itself. But the large number of scheduled side-events during negotiations make the impact of an individual event relatively small. During COP-15 there were 560 applications for side events, for around 250 slots (UNFCCC, 2010b). Furthermore – and probably as a result of the amount of side-events to choose from – they mainly attract people already interested in the subject.

There was a difference in perceptions of FAO employees and people outside the organization on the influence of side-events. Within FAO, interviewees generally thought of side-events as being effective in informing and convincing people on the importance of agriculture for the UNFCCC. Outside the organization, many considered side-events as a waste of time if the objective is to influence the negotiation process. A few, including some UNFCCC negotiators, mentioned that the overwhelming amount of different events results in less attention and therefore less influence. However, when high-level attendance is guaranteed – as was the case for the FAO side event during COP-15 which was among others attended by the US Secretary of Agriculture, the Danish Minister of Agriculture and the Director-General of FAO (FAO, 2010e) – people feel that side events can be a meaningful way of raising awareness and influencing negotiations. In the period 2007-2010, there were only very few events with high-level attendance.

It was repeatedly noted by interviewees that working together with other (authoritative) organizations – whether UN organizations, research institutes or civil society organizations – results in more attention for the message. One message supported by FAO, World Bank, CGIAR and IUCN, for example, has more impact than if FAO itself wants to convey that message. According to the head of the FAO delegation to the UNFCCC, the organization increasingly cooperates with other international organizations on raising awareness on the link between climate change and agriculture.

Advocacy activities - FAO delegations to the UNFCCC meetings have been successful in establishing (close) contacts with negotiators responsible for agriculture[14]. They are able to do so because the FAO has an observer[15] status at the UNFCCC. Interviews with FAO staff reveal that especially since COP-13 in Bali,

[13] As shown in the section on cognitive influence, FAO has in 2010 started two projects on this topic

[14] In general, the large majority of country delegations to the UNFCCC comes from the environment ministries. In many OECD countries delegations (who can afford to have large delegations, unlike developing countries), they are supplemented with civil servants from other ministries, such as for agriculture or finance.

[15] Several categories of observer organizations attend sessions of the COP and its subsidiary bodies. These include representatives of United Nations secretariat units and bodies, as well as its specialized agencies and related organizations.

December 2007, FAO representatives have been very active at UNFCCC meetings. A driving factor behind this advocacy activities was the head of the FAO delegation to the UNFCCC – who was appointed in 2007 – which shows that personal capacities also had an effect on FAO influence in the climate change negotiations.

Advocacy activities have been mainly directed towards convincing negotiators that there should be an important role for agriculture in the climate agreements. This resulted in an extensive network and close links with the (agriculture) negotiators, making it possible to present the FAO view, lobby for the 'agriculture case' and forming alliances and partnerships, both with representatives from countries as well as other international organizations and CSO's. The FAO submissions to the UNFCCC and other policy documents on various issues helped FAO officials in their communication with stakeholders and were an important source of awareness raising (see the section on cognitive influence for a discussion of submissions and annex IV for an overview of FAO submissions and policy briefs to the UNFCCC).

FAO did not involve or inform its members on its work on the link between agriculture and climate change in the UNFCCC, apart from a short informal presentation during the FAO Council. This presentation summarized the state-of-play at the UNFCCC in the areas of interest to FAO. Most of the attention was devoted to forestry issues (UN-REDD) and FAO's involvement in that area. Very little information was given on agriculture in the UNFCCC negotiations, and only FAO's technical assistance and two of the FAO submissions were mentioned. In the end, some time was devoted to the prospects of agriculture in the climate change agreements, but there was no possibility for member states to make statements or ask questions. This meeting did not provide any information on FAO advocacy activities in the UNFCCC. Furthermore, in the UNFCCC FAO worked with country negotiators (generally working in their capitals) rather than with its members at its headquarters in Rome. This contributed to a situation in which FAO member states are not really aware of what the organization is doing at the UNFCCC, other than the provision of some technical support and expertise. In general, country representatives in Rome do not know that FAO is engaged in other that 'neutral'[16] technical support.

Regarding the content of FAO's activity in the UNFCCC, adaptation has until recently been the primary focus of FAO. Results from interviews with FAO staff show that mitigation in the agriculture sector has for many years been of lesser importance to FAO than mitigation in the forestry sector, but since 2007 agricultural mitigation is the primary focus of FAO in the UNFCCC.

However, FAO wishes to profile itself as a neutral mediator and technical supporter to the negotiating parties. This is not consistent with its idea that a larger role for agriculture in the agreements is of paramount importance to prevent dangerous climate change and ensure food security. This could call for a stronger FAO position in the negotiations. FAO considers this topic to be very important, considering that in its profile for climate change "strengthening the agriculture, forestry and other land-based sectors in climate change negotiations and international agreements" is one of the priority areas for mitigation. In fact, FAO is doing more than supporting, clarifying and providing options. Lobbying with agriculture officers to emphasize the need for agriculture in a binding agreement cannot considered to be neutral. Even when repeatedly saying that *"…should the parties wish to pursue this"*, suggesting a 'work programme on agriculture' is not neutral either.

In the running-up to the Copenhagen negotiations, one of the senior FAO officials was working together with the New-Zealand country negotiator. Often, they chaired (informal) meetings together, and shared the same view – *of the possibility of agriculture to contribute to climate change adaptation and*

Observer organizations also include intergovernmental organizations (IGOs), such as the OECD, along with non-governmental organizations (NGOs). Over 1,297 NGOs and 83 IGOs are admitted as observers to the UNFCCC.

[16] Neutrality and to what extent it is possible or necessary to be neutral as an international bureaucracy is discussed in chapter 6

mitigation, while increasing food security and development – on the contribution of agriculture to the UNFCCC. At some point, they were named "the evil twins". Since the FAO itself cannot take part in the negotiations, the New-Zealand negotiator who was able to make statements, often carried out the FAO message. And in many cases, there was consultation with FAO when drafting statements. This shows that international bureaucrats can have influence, even if they are not part of the negotiations themselves. It is very difficult to determine the exact effect of these personal contacts, but it is likely that FAO was able to gain some influence through this approach.

This inconsistency between the desire to keep an image of neutrality and the 'behind the scenes' work is caused by the difficulty the organization faces in finding a balance between the interests of its members, as discussed in chapter 3.3. Climate change is still a politically sensitive issue – especially for mitigation – and there are member states who do not want FAO to engage in this issue on a global level, while others encourage FAO to do so. The result is that the organization is 'locked' somewhere between the image of neutrality and its wish to (strongly) advocate for agriculture in the climate change agreements.

Recapitulating on the normative influence of FAO in the UNFCCC, it can be concluded that FAO is in general considered to be influential through its normative work and international standard setting in issues on food and agriculture, but that at first sight it has not been able to yield much influence in the UNFCCC negotiations. No decisions on the inclusion of agriculture in the agreements have been taken, so it can be concluded that FAO did not shape political outcomes or convinced parties to agree on specific measures. The Earth Negotiations Bulletin, which reports independently and on a daily basis on negotiations on 26 international environmental agreements, does not contain many references to FAO in the period 2007-2010. Most of the references to the organization in these reports describe the input of FAO (policy briefs, presentations, side-events) or requests for and expressions of gratitude to input from FAO. What becomes clear from the Earth Negotiations Bulletin is that FAO did to a certain extent facilitate the negotiations by providing technical advice. This mainly concerned forestry/UN-REDD issues. Agriculture is not mentioned, apart from a side-event and a discussion of one of FAO's submissions.

However, before FAO started to address the link between agriculture and climate change in 2007 there was not much discussion on this topic at all in the UNFCCC. Although FAO was not able to influence the UNFCCC negotiations up to a point where agriculture was taken up in the agreements, the organization was able to start up discussions on the topic. Other organizations and NGO's had also part in this, but in 2007 FAO was one of the first to address the potential role of agriculture in the UNFCCC. Revealing the increasing attention for agriculture in the climate change debate, Ivo de Boer (UNFCCC secretary) in his last press conference during the Bonn climate change talks in June 2010 pointed to agriculture as an issue of critical importance to developing countries that had "moved up the agenda" in the negotiations (FAO, 2010e).

As the United Nations specialized agency on food and agriculture, FAO has a significant level of moral authority and expertise. Although there is no clear evidence of FAO normative influence in the UNFCCC negotiations through decisions taken, or measures adopted, it is clear that FAO was (co-)responsible for increased attention for the link between agriculture and climate change. This shows that there was *some* normative influence. This is evidenced by 1) FAO's submissions being discussed in meetings, 2) an invitation to attend and participate in a meeting (which is quite uncommon), 3) the ability to guarantee high-level attendance at a side-event, and 4) close links with country negotiators through which the FAO viewpoint could be expressed.

Communication and awareness raising during UNFCCC meetings by FAO focused initially on forestry issues. After COP-13 in 2007, that shifted to addressing the need for and possibility of integrating agriculture in the climate agreements, using the observer status at the UNFCCC. An important finding is that mitigation in agriculture as part of a possible climate agreement 'lagged behind' in FAO's thinking. After COP-13, FAO started to try to close this 'gap', by investing much energy in convincing UNFCCC stakeholders of the need and potential role of agriculture in climate agreements. Adaptation in agriculture was already part of FAO's activities in the UNFCCC at least since the development of the Nairobi Work Programme.

5.2 Cognitive Influence

Cognitive influence is about changing the behavior of actors by changing their knowledge and belief systems (Biermann et al., 2009a). Knowledge is a powerful tool, and can have significant influence on international regimes. Communities of scientists ('epistemic communities') often strengthen the knowledge base on which regimes are designed and operate. Brown Weiss and Jacobson (1998) found that '*the greater the size, strength and activism of epistemic communities, the greater the probability of both implementation and compliance'.* The more scientific and technical information, the higher the pressure on governments to act is. Since the FAO is an specialized UN agency, it has a large knowledge base. In theory FAO could thus have a large cognitive influence on the agriculture – climate change link within the climate regime. Indicators for cognitive influence can be the use of information from FAO (e.g. press declarations, reports, databases, strategy papers, etc) in public debates or media, by decision-makers in making policy, by scientists in the IPCC assessment reports or by negotiators in climate negotiations. The use of information from FAO in public debates and media or by policymakers and scientists can also result in (indirect) influence in the UNFCCC since it can work as an 'eye-opener' or external pressure.

Did FAO act as a knowledge broker that was able to (partly) set the UNFCCC agenda?

FAO has been trying to exert cognitive influence through the raising of awareness and the advancement of a specific frame – of agriculture as a significant sector for both adaptation and mitigation through the UNFCCC negotiations – in national and international debates. All interviewees, both within and outside the organization, regard FAO as *the* authority and leading actor in the field of food and agriculture. This part will examine the cognitive influence of FAO in the UNFCCC by looking at the use of information such as (statistical) data, publications, submissions and policy briefs from FAO (by policymakers, scientists, the media and UNFCCC negotiators) and FAO contributions to the IPCC reports. Since the IPCC reports have been of great influence in the climate change talks, FAO contribution to the IPCC could have had influence in the UNFCCC as well.

Use of information provided by FAO - Interviews reveal that information from FAO is very often used in (agricultural) policy making, especially in developing countries. In fact, it is sometimes the case that policymakers prefer to use FAO data on agriculture and food related to their country instead of the government's own data. To provide governments with the support they need, FAO relies on the specialized expertise of its core staff as well as highly qualified external experts. FAO serves as a knowledge network, that uses the expertise of its staff to collect, analyse and disseminate data that aid development (FAO, 2010).

Through its knowledge base – that can be accessed through its online knowledge portal – FAO shares its knowledge and expertise. A million times a month, someone visits the FAO internet site to consult a technical document (FAO, 2010). Visits to the FAO website increased from around 10 million per year in 2001 to over 40 million per year in 2006. The fact that in 2010 one million technical documents a month were consulted shows that the organization is seen as an expert in its field of work. FAOSTAT, FAO's statistical database, receives more than 3000 individual unique visits per day and 50 million records are downloaded yearly. It represents more than a quarter of the visits to FAO's site each day and most of the FAO bandwidth. This is a hundred fold increases just over the last 5 years (FAO, 2010).

Mainly through its flagship publications[17] the organization contributes to scientific understanding of issues related to food and agriculture. Between 1996 and 2010, almost 1000 academic articles quoted one of FAO's "The State of...." documents, according to the SCOPUS database (www.scopus.com). This number has been increasing over the last five years, and shows that the organization is regarded as an expert in its field of work. Through the initiation, generation, synthesis, and dissemination of scientific knowledge on the link between agriculture and climate change, FAO could have influenced international negotiations. However, FAO flagship publications that focus (partly) on the link between agriculture and climate change are not as much referred to and were not discussed or used in the UNFCCC.

Furthermore, when more closely examining FAO's online knowledge platform it becomes clear that the link between climate change and agriculture is not (yet) a major topic. Neither in the 'Best Practices', 'Knowledge Networks' or 'Ask FAO' portals, climate change is a theme. Data on the link between agriculture and climate change is spread over different categories, such as 'natural resource management' and 'crop production system'. Even in FAOSTAT, climate change data related to agriculture are hard to find. There is not so much data or information on the link between agriculture and climate change as compared to other fields of work of the organization. This limits the use of information or data on climate change and agriculture by policymakers.

In its submissions and policy briefs to the UNFCCC – both individually and together with other organizations – FAO has highlighted the need for agricultural mitigation and adaption within the UNFCCC (see annex IV for an overview of FAO submissions and policy briefs to the UNFCCC). It propagated the need to look for synergies between food security, adaptation an mitigation. However, the need to focus on mitigation in smallholder agriculture – with appropriate financing/incentive mechanisms – and the high potential of soil carbon sequestration have been the main emphasis of the different submissions (see annex IV for a complete list of FAO submissions to the UNFCCC). Four are discussed below.

The first '*The carbon sequestration potential in agricultural soils'* (FAO, 2008) aims to show UNFCCC parties an overview of the potential of soil as a carbon sequestration option. It draws the attention to the fact that the Clean Development Mechanism considers only afforestation and reforestation as acceptable sequestration activities. In this input to the UNFCCC negotiations, FAO suggested that soil carbon storage could be recognized as an eligible carbon sink in all land use systems, and that this will benefit future agreements. Incentives for carbon sequestration and for reducing greenhouse gas emissions (GHG) from agricultural soils, would according to FAO encourage smallholders to adopt improved management practices. This leads to an increased productivity while it also contributes to reversing degradation and desertification, conserving biodiversity, and *mitigating* and *adapting* to climate change. This is an example of the synergies between food security, adaptation and mitigation FAO is propagating. In this submission, the organization furthermore stated that *"The soil carbon sequestration potential is large and deserves to be incorporated into the post-Kyoto regime*" (FAO, 2008).

The submission '*Enabling agriculture to contribute to climate change mitigation*' (FAO, 2009f) highlights how the mitigation potential of smallholder agriculture can be realized under a future global climate change agreement. It addresses quantifying mitigation and dealing with uncertainty issues associated with soil carbon sequestration, enabling institutional and policy environments required to link carbon finance to mitigation from smallholder agricultural sector and modalities/mechanisms needed to effectively link carbon finance to agricultural sources of mitigation, including financing options for agriculture, including smallholder agriculture. The focus of the submission is on soil carbon sequestration in view of its high mitigation potential, relevance to smallholders, and its current exclusion from the CDM.

[17] FAO flagship publications include: The State of Food and Agriculture (SOFA), The State of World Fisheries and Aquaculture (SOFIA), State of the World's Forests (SOFO), The State of Food Insecurity in the World (SOFI), The State of Agricultural Commodity Markets (SOCO).

The policy brief *'Harvesting agriculture's multiple benefits: Mitigation, Adaptation, Development and Food Security'* (FAO, 2010b) exclusively focused on showing UNFCCC parties the multiple benefits farming practices can have on cost effective and early action on climate change in developing countries. These practices – who are already available – can have benefits for mitigation, adaptation, sustainable development and food security. To accelerate them, FAO urged UNFCCC parties to consider climate financing mechanisms that target agriculture, reward 'synergistic action' and stimulate up-scaling. FAO therefore advocated the establishment of a work programme on agriculture within the UNFCCC process.
The latest submission '*Towards a work programme on agriculture*' (FAO, 2010c) builds on this work programme and underlines the importance of early discussion on the scientific, technological, and methodological aspects of agricultural mitigation within the Subsidiary Body on Scientific and Technological Advice (SBSTA) to the more policy-focused work on agriculture under the AWG-LCA. It also looks at readiness action at country level, funded through fast start resources. This submission aims to support UNFCCC Parties *"...in their consideration of possible future work on agricultural mitigation through possible elements of a future work programme, should Parties wish to pursue this"* (FAO, 2010c).

What stands out from the FAO submissions to the UNFCCC is the fact that there were none before 2007. This shows that before that time, the UNFCCC was – for agriculture – not really included in the frame on the link between agriculture and climate change. Interviews with FAO staff from the team tasked with the UNFCCC negotiations confirm this. After it became clear that FAO's participation in the UN-REDD was successful, senior FAO management appointed a senior official to lead FAO's agriculture contribution to the UNFCCC. Since then, FAO submissions and policy briefs were drawn up for almost every important UNFCCC meeting.

According to FAO staff, submissions have been an important way to raise awareness of negotiators about the potential role of agriculture for adaptation and mitigation. However, there have not been any decisions on taking up agriculture in the UNFCCC agreements. Up until now, parties are only *talking* about agriculture. For example, after the negotiations in Copenhagen and during the climate talks in Bonn from 31 May to 11 June 2010, FAO suggested the negotiating partners to develop a work programme on agriculture within the UNFCCC. Several delegations (partly) based their interventions on– but not entirely supported – the FAO submission, including Malawi as chair of the G77. During a parties-only informal consultation, comments were made on the FAO submission. At another meeting, delegates actually discussed the paper and then invited FAO to the room, which is an exception and usually never happens to non-UNFCCC parties. According to the FAO delegation, it was likely that the organizations was invited due to its submission (See Annex II for a complete list of FAO submissions and policy briefs). Although this is a sign of normative influence, FAO's suggestion was not taken up by the parties. This is thought to be largely due to a lack of political will on the part of states, but it also shows that FAO was not able to completely convince parties of the need to incorporate agriculture in the agreements[18]. Most interviewees – within and outside the organization – confirm that FAO's message of "agriculture has a large potential for both climate change mitigation and adaptation" is reaching but not convincing the UNFCCC country negotiators.

The organization was not able to provide strong examples that confirm the benefits and feasibility in adaptation and mitigation in agriculture through the UNFCCC, while simultaneously contributing to food security and economic development. Although it co-organized a side-event during the Copenhagen negotiations that tried to show that agricultural mitigation and climate financing to smallholders is

[18] Some countries (e.g. New Zealand, Australia, Ireland, Canada, USA) supported FAO's input in the UNFCCC during the Copenhagen negotiations and thereafter. Others were more critical and felt that the organization should be mainly concerned with its 'on-the-ground' development activities and technical advice (e.g. Egypt, Afghanistan, Mexico, Brazil, China). Another reason for not taking up agriculture in the UNFCCC through a work programme was a strategic one. Interviews with FAO employees revealed that many countries prefer one 'package' of agreements, rather than several separate agreements.

possible and underway, this is not the same as examples of both adaptation and mitigation, while also increasing food security and economic development. It is likely that FAO's message would have been stronger if there were clear examples. This aspect was identified by a few interviewees within the organization as the main obstacle to convincing negotiations of the need for agriculture in the UNFCCC.

FAO is also active in the media, and quite often information from FAO is used by journalists and other newsmakers. Additionally, the organization is present in the social media (e.g. Facebook and Twitter) and occasionally launches global campaigns. Although FAO activities in the media can have influence in the UNFCCC as well, there is little attention for FAO activities on climate change in the media. When information from the organization is used, it often relates to food prices or trade in agricultural products, not to climate change and its link with agriculture. Some FAO employees mentioned that the organization is hesitant to make too strong statements on climate change in public. Reason for this is the wish to maintain an image of neutrality.

FAO contribution to IPCC reports – FAO has contributed to the IPCC by providing experts (as authors, contributors or reviewers) and by providing data and literature. As shown in chapter 4.4, FAO data is used in the IPCC assessment reports, mainly in the sections on impacts, adaptation and vulnerability. Looking at use of FAO publications for the mitigation part of IPCC's work, one can see that these are used significantly less. It can be concluded that according to the scientists involved in writing the assessment reports, FAO's expertise is mainly considered to be in the adaptation domain, rather than in mitigation. Furthermore, it becomes clear that mainly the organization's flagship publications (e.g. The State of Food and Agriculture or The State of the World's Forests) are used. These seem to have more impact and authority than other FAO publications.

However, although the IPCC assessment reports mention the potential of agriculture for both adaptation and mitigation, this has not led to an uptake of the sector in the UNFCCC. This shows that not all countries consider agriculture as a sector that fits in the climate agreements.

Recapitulating on the cognitive influence of FAO in the UNFCCC, it can be concluded that the organization was not able to gain much influence through changing the behavior of actors by changing their knowledge and belief systems, as Biermann et al. (2009a) define cognitive influence. It was not able to get negotiators convinced of the need for agriculture to be included in the climate change agreements through the initiation, generation, synthesis, and dissemination of scientific knowledge. Some influence was exerted through submissions to the UNFCCC, which have – according to FAO staff – been an important way to raise awareness of negotiators about the potential role of agriculture for adaptation and mitigation. This is reflected in the fact that FAO submissions were incidentally discussed during the negotiations, and that some countries (partly) based their interventions on these documents.

Although it did not result in influence in the UNFCCC, the organization did contribute to the scientific understanding of the link between agriculture and climate change. This was done through the IPCC – by contributing with experts, data and scientific publications – and through FAO's flagship publications. "The State of ..." publications are often used in scientific literature.

The use of FAO publications in academic literature did however not change UNFCCC negotiators' way of thinking about climate change, and the role of agriculture therein. The organization's message that agriculture can and should contribute to climate change mitigation and adaptation, while at the same time contributing to economic development and increased food security was not taken up. In other words, there is still no consensus at the UNFCCC whether agriculture can and should contribute to the agreements. If there was consensus, agriculture would likely have been included.

A possible explanation is the fact that the organization did not provide clear and convincing examples of the benefits and feasibility in support of its ideas. Although FAO was involved in the (agriculture and food parts of the) IPCC reports, this did not have significant effect at the UNFCCC negotiations. The IPCC reports were not able to change the negotiators' minds either. It can therefore be concluded that FAO did not act as a knowledge broker that was able to (partly) set the UNFCCC agenda through the provision and dissemination of (scientific) knowledge. However, as the specialized UN organization for food and agriculture, it has a significant potential for cognitive influence in the UNFCCC, keeping in mind that only since 2007 it started to address the link between climate change and agriculture. Furthermore, FAO was not yet able to provide clear examples or case studies that confirm their message that agriculture can contribute to climate change adaptation and mitigation while at the same time increasing food security and economic development.

5.3 Executive Influence

Executive influence is the reshaping of national interests through the direct assistance to countries in their effort to implement international agreements. Training programs for civil servants in a specific country might shape national policies through the ideas, concepts and policies that international bureaucracies propagate (Biermann et al., 2009a). Technology transfer, financial support or (trans)national partnerships supported by the bureaucracy can be other ways to wield influence. Policy diffusion by international bureaucracies can also be of importance, since a successful policy from one country can be spread to other countries (by the bureaucracy or by countries themselves). Indicators for executive influence can among others be the adoption of new laws, programs or agencies, or new instruments and practices to protect the environment (Biermann et al., 2009a).

Did FAO through direct assistance act as a capacity builder making the UNFCCC negotiations on the link between agriculture and climate change work?

71% of FAO's 2.1 billion dollar budget is spent on technical and emergency (including rehabilitation) assistance to governments, linked to its results framework. This is mainly done through its network of local and regional offices. Most of FAO field projects and training programmes are considered to be rather effective, and are in general appreciated by the receiving country. The organization puts a lot of effort in building capacity at local, regional and national levels in developing countries. The FAO statistics division, for example, supports national statistical agencies with training programmes, knowledge and financial support (FAO, 2010).

As a specialized UN organization on food and agriculture, FAO provided technical advice to the UNFCCC secretariat, experts and country negotiators. This support might have shaped national policies and/or country negotiation positions. FAO support to the UNFCCC mainly concerned:

- Provision of a neutral forum for technical discussions, such as ;
- Provision of data and analyses on soil and water conditions, biomass and crop and cropping systems. Among others, FAO provided background information on climate change adaptation discussions at COP-12 in Nairobi, which led to the Nairobi Work Programme;
- Development of methodologies and guidelines on land use assessments, bio-energy, extreme weather impact assessment, forestry, carbon storage, conservation agriculture
- Contribution towards reconciling definitions for technical issues, such as provision on information on forest related definitions and soil carbon sequestration. (FAO, 2010)

Evidence from interviews with FAO staff show that in the 1990s most of the technical support to the UNFCCC was focused at (increasing knowledge on) climate change risks, impacts and variability, followed by forestry issues (mostly mitigation) around 2000 and adaptation in agriculture starting around 2003. After COP-13 in Bali, 2007, mitigation in agriculture became one of the highlights of FAO technical support to the UNFCCC. See Annex III for an overview of FAO support to the UNFCCC.

Other than the advocacy and awareness raising activities described earlier, FAO technical support to the UNFCCC is considered to be neutral by the organization itself, providing state of the art expertise on various matters. Other than with the not 'neutral' activities at the UNFCCC, the organization was not hesitant to show that it was involved in this technical support and provision of expertise. As described before, during the only (informal) briefing of the organization's involvement in the UNFCCC, emphasis was put on FAO's technical assistance to the negotiations. No attention was devoted to other – more politically sensitive – activities such as advocacy.

Furthermore, within the UNFCCC context the organization participated in the Nairobi Work Programme which was developed to help countries improve their understanding of climate change impacts and vulnerability and to increase their ability to make informed decisions on how to adapt successfully. It is an international framework implemented by Parties, intergovernmental and non-governmental organizations, the private sector, communities and other stakeholders which contains nine areas of work, such as 'methods and tools', 'socio-economic information' and 'research' (FAO, 2010a).

The programme is linked to other related UNFCCC adaptation activities such as the National Adaptation Programmes of Action for least developed countries. FAO provides support to this programme, on relevant fields as: agro-biodiversity; water management; agro-climatic data; conservation agriculture; organic farming; sustainable livestock management; fishing and aquatic food production; forest management, and pests and diseases assessment and management (FAO, 2010a). Furthermore, within the UNFCCC framework FAO is also supporting member countries with their National Adaptation Programmes of Action. The demand for FAO assistance is very high according to the Assistant Director-General during his informal briefing to the FAO members, especially on 'Measuring, Reporting and Verification' systems. However, the Nairobi Work Programme as well as the National Adaptation Programmes of Action aim at adaptation only, there are no similar programmes on mitigation within the UNFCCC that FAO participates in.

Policy support – which is one of FAO's core objectives – is part of this work, and has the potential to shape national policies and country positions in the UNFCCC. The organization has been assisting governments at the domestic level to implement the climate regime, but this work has been aimed mainly at adaptation. Results from interviews do not show that this has resulted in the adoption of new policies or the creation of institutions that helped to build support for FAO's message at the UNFCCC. This can be explained by the fact that the focus of this FAO assistance has been on adaptation – as with the Nairobi Work Programme and the National Adaptation Programmes of Action – while the organization is trying to convey the message of the potential of agriculture to contribute to adaptation as well as mitigation.

However, apart from an online tool that can help experts appraise the potential environmental impacts of development projects, FAO did not provide much policy support on climate change mitigation. More importantly, there have not been many projects or training programmes in which FAO showed (smallholder) agriculture in developing countries can and should contribute to climate change mitigation and adaptation, while at the same time increasing economic development and food security.

The only example of a FAO training programme that was aimed at agricultural climate change mitigation is the EX-ACT (Ex Ante Appraisal Carbon-balance Tool), that was jointly developed from three FAO divisions. It is aimed at providing simple, cost efficient and practical ex-ante estimations of the impact of agriculture and forestry development projects on GHG emissions and carbon sequestration, indicating its effects on the carbon balance. The FAO used this tool to show local policymakers the importance of incorporating climate change considerations in (agricultural) development projects. However, there is no evidence that this led to (increased) acceptation of FAO's idea that agriculture should be incorporated in the UNFCCC agreements, to be able to use the sector's potential for increasing food security and economic development while contributing to climate change adaptation and mitigation.

Looking beyond training programmes, there are only two projects specifically aimed at showing that there is a possibility of integrating climate change mitigation and adaptation, as well as food security and development concerns. These started at the beginning of 2010. They are supposed to test at country and field level how adaptation and mitigation promoting techniques can be integrated into agricultural practices, and can contribute to (local) food security and economic development. Since these projects have been running for only one year, there are no reported results yet. It does show however, that FAO is

moving towards showing that their idea of linking climate change and agriculture is possible. One of the senior officials in the FAO UNFCCC team stressed the importance of this issue.

The lack of these kind of projects is identified by many FAO employees as a major obstacle to influencing the UNFCCC negotiations to the extent that agriculture is taken up in the agreements. In other words, there were no concrete 'on-the-ground results' that showed country negotiators – either through FAO directly or through local or national policymakers that agriculture is indeed a sector that should be considered in the UNFCCC framework. This can increase cognitive as well as executive influence of FAO at the UNFCCC. By generating and disseminating (scientific) knowledge the behaviour and belief systems of negotiators can be changed (cognitive influence), while field projects can reshape national interests through the direct assistance to countries (executive influence).

The fact that there were no 'up and running' or finalized field projects, training, technology transfer or (trans)national partnerships on the link between agriculture and climate change (and their synergies with food security and development), it was nearly impossible for FAO to have any executive influence in the UNFCCC. In other words, without being able to show that an idea really works, you cannot really have executive influence.

This can be explained by the fact that only since 2007, FAO started to address the possible role of agriculture in the UNFCCC. Before that time the UNFCCC was not used as a forum for FAO's activities on agriculture, which can be explained by the 'lagging behind' of agriculture compared to forestry. FAO's message of agriculture as an important sector for the climate change agreements is propagated only since 2007 as well. The period 2007-2010 was too short to gain much executive influence, since that kind of influence is dependent on 'on-the-ground' activities such as projects, training and policy support. There was simply not enough time for the organization to set-up those kind of activities, and consequently executive influence was limited.

The organization itself also realizes this, and in a document on FAO's Effectiveness at Country Level it states that *"in the crucial areas of land governance, natural resource management and forestry, the Organization did not sufficiently pursue opportunities to shape policies and strategies for the future*" (FAO, 2010d). A stronger FAO presence at national, state or provincial levels is identified as necessary to increase FAO's strategic role in advocacy, policy support, institutional strengthening and capacity development (FAO, 2010d).

> *Recapitulating on the executive influence of FAO in the UNFCCC,* it can be concluded that the executive influence of FAO has been the weakest compared to the cognitive and normative influence. FAO's 'on-the-ground' activities have not resulted in the adoption of new policies or the creation of institutions, mainly because they were aimed at adaptation only (Nairobi Work Programme and National Adaptation Programmes of Action. With two projects aimed at showing the potential of (smallholder) agriculture for climate change adaptation and mitigation, while at the same time contributing to food security and (economic) development that started in 2010, the future of FAO's executive influence looks more promising.

The overall picture of the influence of FAO in the UNFCCC negotiations - FAO has contributed to the growing awareness of the important role agriculture can play in combating climate change, by providing information, highlighting the possibilities and underlining the importance of agriculture for climate change adaptation and mitigation. This was done both formally (submissions, side events, etc) and informally (close contacts with negotiators). Awareness about the link between agriculture and climate change is increasing, and is certainly higher than before FAO started to advocate for the incorporation of the sector in the UNFCCC agreements. However, results from interviews indicate that agriculture is still a relatively unknown sector for its adaptation and mitigation potential. It comes nowhere near transport, energy supply, industry or even forestry in terms of attention, even though FAO has been trying to convince parties that it contributes to climate change in the same order or magnitude and is therefore worthwhile to include in the UNFCCC.

So, although increasing, FAO influence in the UNFCCC negotiations has been rather weak on all levels, especially compared to the influence (and authority) the organization has in other fields of its work. This can partly be explained by the fact that only since 2007 FAO has been involved in the UNFCCC process on the link between agriculture and climate change. There was simply not much time to convince the parties of the need to incorporate agriculture in the climate change agreements. Building networks, establishing personal contacts with negotiators and developing field projects simply takes time. However, the FAO – at times part of a larger group of organizations – was able to partly set the UNFCCC agenda. Agriculture receives increasingly more attention and is viewed as especially important to developing countries, evidence by the statement made by the UNFCCC secretary during the climate change talks in June 2010.

Looking at FAO's authority in other fields of food and agriculture, results from interviews show that there is a significant potential for FAO to have a stronger influence in the UNFCCC. This can be explained by looking at FAO authority. FAO's delegated authority is the most 'basic' authority, and is the authority that is delegated to the organization by its member states. In the case of FAO, members charged FAO with the task to to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy. The organization uses its mandate to engage in climate change work related to agriculture and food security. This is also the case for the organization's moral authority, since it (claims to) serve widely shared principles. International bureaucracies are in general seen as defenders of values of the international community (Barnett and Finnemore, 2004).

But more than delegated and moral authority, FAO draws on its expertise as a basis for authority since it has detailed, specialized knowledge about its field: food and agriculture. All interviewees identify FAO as an authority in its field, with a wealth of knowledge and expertise, and an extensive network and experience in field projects. FAO is generally thought of as the most suited actor to address the link between agriculture and climate change at the UNFCCC.

However, people within and outside the organization see that FAO is not able to get its message across very well. As will be explained in section 5.4, this is likely due to the fact that the organization is very careful to make politically sensitive statements, and thereby unleashing a debate within its membership on how to engage in climate change work. This is expected to result in less independence and flexibility for the organization.

5.4 Implications for the ability of FAO to exercise influence in the UNFCCC negotiations

FAO chose to refrain from developing an official climate change strategy and clearly framing the link between agriculture and climate change. It was felt that this would result in more independence and flexibility for the organization to go its own way (both 'on the ground' as well as in the UNFCCC). However, it is questionable if this is indeed the case. As a result of not involving its member states in its climate change work, FAO was not able to clearly carry out a strong (more political) position[19] on climate change since it was felt that (part of) its members might have disapproved this message and intervened in the organizations' activities. Not being able to clearly communicate this message might have had consequences for FAO's influence in the UNFCCC. In other words: because of the organization's fear for its members, it had a hard time getting convincing negotiators of the need to include agriculture in the UNFCCC agreements. This could be one of the reasons that FAO influence in the UNFCCC was less than in other fields of work of the organization. Another explanation for this is that the organization started addressing the link between climate change and agriculture at the UNFCCC only since 2007. The short amount of time available limited FAO's influence in the negotiations as well.

It is possible that when FAO had more clearly framed the link between agriculture and climate change, and developed an official climate change strategy, it would have been easier to get the message across. If the organization had tried to more clearly frame the issue, its member states might have intervened. This could have decreased manoeuvring space and independence, or might even have led to the organization being pushed in a different direction. This might have had significant implications for its influence in the UNFCCC negotiations as well. If, for example, the FAO membership had decided that it was not part of the organization's mandate to get involved in the UNFCCC negotiations other than with technical support, FAO's influence would have been marginal. On the other hand, at the moment FAO's influence is marginal as well. Chapter 6 will further explore this issue.

Looking at the previous chapters, a few implications for the (future) ability of FAO to exercise influence in the UNFCCC negotiations can be identified. Of course, there is the broader political and institutional context outside FAO's scope that can have implications for the organization's influence at the UNFCCC as well, but these will be discussed in the next chapter.

First of all, previous chapters have shown that it makes sense for FAO to continue addressing climate change on a global policy level. The available technical expertise, knowledge and information, the inter-disciplinarity, the experience in policy support and in the development of international instruments, norms and standards make the FAO well-positioned to link climate change with agriculture on the global policy level. Additionally, since climate change will likely have large impacts for food and agriculture, fulfilling FAO's mandate does imply working on the link between agriculture and climate change, both 'on-the-ground' and at global policy level.

Second, for increasing FAO influence at the UNFCCC, getting the right message to the right people is very important. This proved to be very difficult, but can possibly help to increase agriculture's contribution to both adaptation and mitigation. Various options exist for more effectively communicating FAO's message. One should ask the following questions to find these options:

1) **Is the FAO message clear?**

With its submissions and policy briefs, FAO has developed quite a clear message. Adaptation and mitigation in agriculture is possible and necessary, and can simultaneously increase food security and development. Although this message is quite clear, the organization has not been able to 'back this up' with examples that show the benefits and feasibility in support of this message. The actual provision of

[19] As shown in previous chapters, FAO's current position or frame is that adaptation and mitigation through agriculture is possible and necessary, while simultaneously increasing food security and economic development.

examples that confirm this message might be a tool to increase influence and convince UNFCCC negotiators. Some interviewees outside FAO mentioned that the potential of (smallholder) agriculture to contribute to adaptation and mitigation is great in theory, but that there are very few actual projects or concrete results that show the feasibility of smallholder contribution to reducing GHG emissions while also increasing food security and development. Clear examples that support the benefits and feasibility of agriculture as a relevant sector can work as an eye-opener (see also box 3). In this light, FAO's policy support, field projects and training for policymakers can result in the mobilization of support for its message at the UNFCCC. More projects that show the value of FAO's message will likely help to build support. However, it should be kept in mind that influence through side-events is generally only possible if high level attendance can be guaranteed. Side-events are costly and results from interviews show that they do not really reach stakeholders outside agriculture.

2) **Is FAO's position clear?**

Another option for FAO is to make its position more clear. A more clear position would likely increase FAO's influence in the negotiations. Results from interviews show that it is sometimes unclear what FAO stands for, and what role it takes up. Is it a purely technical organization that supports the UNFCCC negotiations by providing information and data, or is it trying to influence the negotiations to a point where agriculture is taken up? Currently, there is inconsistency between the desire to keep an image of neutrality (towards its members) and the wish to push for a larger role of agriculture in the UNFCCC agreements. It can be argued that FAO is the most appropriate organization to address the link between agriculture and climate change on a global level, and in view of its mandate should therefore not need to pursue (the image of) neutrality. More strongly advocating for agriculture as a sector for adaptation and mitigation could in that sense be justified, enhancing the capacity to advocate for a stronger role for agriculture. However, it is questionable if the FAO membership is willing to accept this broader interpretation of the organization's mandate. If so, FAO and its members could consider addressing climate change more explicitly in the next strategic plans, which can provide the organization more guidance and space to get involved in climate negotiations. When this is not possible, there are still other ways of exercising influence. One could think of finding partners – such as like-minded member states, UN organizations or civil society organizations – who can convey the message, while FAO supports behind the scenes. Partnerships are already important (as shown by the case of UN-REDD, see box 3), and will likely become even more important in the future.

3) **Is there a clear messenger?**

As became clear in chapter 4, there is no climate change focal point in FAO. This makes it difficult for people within and outside FAO interested in the agriculture – climate change link to quickly get in touch with the right expert. A (high-ranking) FAO officer could be a focal point which can be useful in providing contacts between the outside world and FAO. Such a focal point can also ensure the delivery of a more clear and coherent message. This would provide a clear 'messenger' to the outside world.

4) **Does the message reach the right people?**

To convince UNFCCC negotiators of the need to include agriculture in the climate agreements, to start with the message should at least reach the delegations. As shown, FAO tried to accomplish this mainly with side-events, submissions & policy briefs, advocacy or lobbying activities. Side-events can be useful, but unless high-level attendance is guaranteed they mainly reach people already interested in the subject, while it is important to also get the attention of and provide 'eye-openers' for other people. According to interviewees at FAO, submissions and policy briefs have been an effective way to inform negotiators about FAO's message. To a certain extent this is true, since FAO submissions have been discussed during meetings at the UNFCCC and interventions have been partly based on FAO input. However, delegations to the UNFCCC receive an enormous amount of information prior to negotiation rounds. Some interviewees

stated that this amount is overwhelming, which makes it difficult for FAO to 'stand out of the crowd'. These challenges aside, it makes sense for FAO to continue providing input in the form of side-events and submissions & policy briefs since that did yield some influence.

The most promising way to reach the right seems to be the FAO's lobbying activities through contacts with negotiators. These delegations have been successful in building an extensive network, and establishing close contacts with country negotiators. Results from interviews show that personal qualities of certain delegation members were of great significance to FAO's advocacy activities.

Apart from the issue of reaching the right people with the right message, it makes sense for FAO to continue participating in the UNFCCC process. Although slow, it is still the only platform to agree on globally binding agreements. The Copenhagen Accord does offer some opportunities for agriculture in the international agreements. The 'Fast Track' funding of $30 billion, the potential of soil carbon sequestration for mitigation, national adaptation and mitigation plans and private sector financing provide opportunities for agriculture to contribute to adaptation and mitigation. Furthermore, as shown before, attention for the link between agriculture and climate change is increasing at the UNFCCC, (partly) as a result of FAO efforts. It makes sense to continue work on this.

However, it should be realized that the UNFCCC is not the only way to address the link between agriculture and climate change. It is worthwhile exploring the possibilities of non-UNFCCC pathways. Projects, networks or partnerships independent of the UNFCCC can create a window of opportunity at the UNFCCC by providing examples of commitment, feasibility and success stories. Additionally, FAO could play an important role in the development of well-functioning voluntary carbon markets with its expertise in developing international instruments, norms and standards, combined with the technical expertise and policy support capacity. This is something the Agricultural Development Economics Division within the Economics and Social Development Department is already working on.

Box 3: Comparing agriculture with forestry - Learning from UN-REDD?

When looking at the implications for the ability of FAO to exercise influence in the UNFCCC, one could compare the case of agriculture to the one of forestry. Deforestation and degradation of tropical rainforests are the second largest source of global greenhouse gas emissions, accounting for 12–20% of total anthropogenic carbon emissions (Sala et al, 2000; Houghton, 2008). The IPCC noted that reducing and/or preventing deforestation and preventing the release of carbon emissions into the atmosphere is the mitigation option with the largest and most immediate carbon stock impact in the short term per hectare and per year globally (IPCC, 2007).

Reducing Emissions from Deforestation and forest Degradation (REDD) is a mechanism that aims to reduce carbon emissions from deforestation by providing financial incentives to conserve rather than exploit forests (Ebeling and Yasue, 2008; Miles and Kapos, 2008). Originally, reducing emissions through avoided deforestation was excluded from the Kyoto Protocol due to political and technical obstacles (Kanninnen et al., 2007). The agenda item on *"Reducing emissions from deforestation in developing countries and approaches to stimulate action"* was first introduced into the COP agenda at its eleventh session in Montreal, December 2005 (UNFCCC, 2011). It was then promoted by the Coalition for Rainforest Nations. The proposal was that industrialized countries compensate developing countries for lost income associated with reducing deforestation rates relative to a historical baseline. The carbon credits thus generated from emissions savings in developing nations could be purchased and used by developed nations to meet their emissions reduction targets (Ghazoul et al., 2010).

Parties to the UNFCCC process recognized the contribution of greenhouse gas emissions from deforestation in developing countries to climate change and the need to take action to reduce such emissions. After a two-year process, at COP13 in Bali, Indonesia, parties adopted a decision on *"Reducing emissions from deforestation in developing countries: approaches to stimulate action"* (Decision 2/CP.13). This decision provided a mandate to further strengthen and support on-going efforts, explore the possibilities for new actions and to mobilize resources (UNFCCC, 2011). During the Copenhagen negotiations, REDD+ was recognized and essentially signed onto by the United States, China, India, Brazil, and South Africa. REDD+ is an extension of REDD, and includes reforestation and afforestation programs (Parker et al., 2009)

The UN-REDD programme is a collaborative partnership between FAO, the United Nations Development Programme (UNDP) and the United Nations Environment Programme (UNEP) and builds on the expertise of these organizations. UN-REDD works in nine pilot countries. Norway is the UN-REDD Programme's first and largest donor. Since the Programme was launched in September 2008, Norway has committed US$52.2 million for 2008-2009, and another US$31 million for 2010 (UNFCCC, 2011). Although it too early to judge the effectiveness of the UN-REDD programme, it is considered by many to be rather successful.

It is seen as one of the most cost-effective ways to combat climate change, while supporting the livelihoods of a large number of indigenous peoples and forest-dependent communities as well providing essential ecosystem services such as habitat for biodiversity and provisioning clean water supplies. Furthermore, it makes the private sector part of the solution by providing the kinds of market signals, mechanisms and incentives to encourage investments that conserve recourses instead of mining them. But above all, it is recognized within the UNFCCC that – unlike agriculture – forestry is a sector of (key) importance in combating climate change. Jordan (2010) states that "*REDD is an unmistakably reasonable solution to global climate change on paper*".

Interviewees involved in the UN-REDD process identified several success factors for the development of and decision to adopt UN-REDD in the UNFCCC. These are:

5) The presence of a *'donor champion'* that provided financial resources and support in the UNFCCC negotiations. This donor champion is Norway.
6) The presence of a '*developing country champion*', that realized the potential and necessity of reducing emissions from deforestation and forest degradation and was willing to provide support in the UNFCCC negotiations. This developing country champion was identified as Papua New Guinea, but this country had the broader support of the Coalition for Rainforest Nations.
7) The existence of *pilot projects* that supported the message of the donor and developing country champions.
8) The authoritative partnership of FAO, UNEP and UNDP and their bundled expertise.

Comparing this to the case of agriculture in the UNFCCC, one can observe that none of these success factors are met in the current effort of FAO to get agriculture included in the climate change negotiations. At the moment there are no parties – either developed or developing – that are strongly committed to include agriculture in the UNFCCC. Neither does FAO very actively work together with other UN organizations or NGO's, or is it able to show that its message is realistic through concrete pilot- or field projects. Of course, agriculture cannot be compared to forestry one-on-one. However, it should be possible to learn from the success factors of the UN-REDD process and use them in FAO's effort to get agriculture recognized as an important sector for the UNFCCC.

6. Conclusions

The research objective of this thesis was two-fold. First, it aimed to provide insight in how the FAO framed the link between agriculture and climate change in the period 1992-2010 by looking at its activities in this area. Second, it tried to describe what the effect of problem framing was on the influence of FAO in the UNFCCC by looking at three areas of influence: normative, cognitive and executive. This already resulted in the identification of implications for the ability of FAO to exercise influence in the UNFCCC negotiations in the previous chapter.

This chapter summarizes briefly the main findings of this thesis, and will further discuss the contribution of this thesis to knowledge on the processes and dynamics of problem-framing, the link between framing and influence, and the influence of international bureaucracies in global environmental politics. This thesis started with the underlying assumption that FAO is the appropriate organization to address the link between agriculture and climate change on a global level. It can be concluded that this is indeed the case. The need for FAO to work on global climate change policy is implicitly reflected in its mandate, vision, global goals and strategic objectives of the organization. This *implicit* reflection should not prevent the organization from engaging in this work. The available technical expertise, knowledge and information, the inter-disciplinarity, the experience in policy support and the development of international instruments, norms and standards make the FAO well-positioned to link climate change with agriculture on the global policy level.

For some reason, FAO – and its involvement and influence in the UNFCCC negotiations – is neglected by academic literature. There is currently little literature on FAO and its institutional and political context. This study did answer some of the questions on the framing of the link between climate change and agriculture by the FAO, as well as the (effect of this framing) on the influence of the organization in the UNFCCC. It has shown that FAO tried to secure autonomy and flexibility on its activities on agriculture and climate change in the UNFCCC keeping its members outside politically sensitive issues as much as possible.

6.1 Main findings on FAO framing and influence

Framing the agriculture-climate change link – Looking at the framing of the link between agriculture and climate change in the period 1992-2010 by FAO, this thesis shows that the need to consider the interests of its members influenced the way FAO framed the link between agriculture and climate change. Its voting and funding structure make it, in combination with the different positions on climate change and agriculture (mainly a North-South divide), at times very difficult for the organization to find a balance between the interests of the members and its own will. Since the members have the power to block or steer FAO activities and strategies, the organization has to take into account the different views and positions of its members.

Overall, it can be concluded that it is not possible to identify one clear frame that was used over the period 1992-2010. At first sight, it has been a rather random and chaotic process. However, four general conclusions on the framing of the climate change – agriculture link can be drawn. *First*, the analysis has shown that climate change has received increasingly more attention within FAO over the years, showing the increased importance attached to the issue. *Second*, over time climate change has been mainstreamed into FAO's activities and organizational structure, but no official strategy on FAO's climate change work has been developed. However, since 2007 a new frame emerges that incorporates agricultural adaptation and mitigation, as well as food security and development issues. This frame will likely be more easily accepted by the FAO membership, since it is a very holistic and integrated approach that includes all of the main issues around agriculture and climate change. *Third*, this thesis has shown that there is a difference between what FAO does on the ground (mainly adaptation related) and the

message it wants to convey since 2007 at the global politics level (mitigation related). *Fourth*, looking at FAO's involvement in the international climate change negotiations over the years 1992-2010, until 2007 the UNFCCC was not really used as a forum for FAO's activities on agriculture. Before 2007, the UNFCCC was – for agriculture – not really included in the frame on the link between agriculture and climate change. Before that time, FAO mainly provided technical advice to the UNFCCC when requested, and was involved in establishing and promoting UN-REDD.

Influence of FAO in the UNFCCC, and implications for the ability of FAO to exercise influence – Working through the framing process, the political and institutional context within FAO did very likely have implications for the organization's influence in the UNFCCC climate negotiations. Although growing, it can be concluded that FAO influence in the UNFCCC negotiations has been rather weak on all levels, especially compared to the influence (and authority) the organization has in other fields of its work. The UNFCCC did not decide on including agriculture in the agreements, nor was FAO able to change negotiators' views on the need for agriculture in the UNFCCC through 'on-the-ground' activities or the generation and dissemination of (scientific) knowledge. However, FAO *did* contribute to the growing awareness of the potential role agriculture can play in combating climate change.

The low level of influence can partly be explained by time restrictions (on agriculture, FAO has been involved in the UNFCCC process with the objective to get agriculture in the climate change agreements only since 2007). Another explanation could be the choice of FAO to refrain from developing an official climate change strategy and clearly framing the link between agriculture and climate change. It was felt that this would result in more autonomy and flexibility for the organization to go its own way (both 'on the ground' as well as in the UNFCCC). It is possible that this was indeed the case, and that FAO was able to more broadly interpret its mandate and work on climate change issues at the UNFCCC – other than pure technical support and advice – than when it would have consulted with its members. Although FAO members gave the organization an implicit mandate to work on climate change, in their informal contacts with diplomats FAO employees have witnessed a range of different ideas and views on the link between agriculture and climate change from different countries within its membership, as well as different positions on FAO's involvement in this area on the UNFCCC level. The existence of these different positions and views on how agriculture and climate change should be linked (at the UNFCCC) could have unleashed a debate within the organization. Although is difficult to identify which countries would oppose or support current FAO involvement in the UNFCCC, the fact that FAO chose not to involve its members speaks for itself.

As Biermann et al. (2009) showed, international bureaucracies are able to influence international politics and negotiations. They can have a sizeable autonomous influence in global environmental policy, but this influence varies considerably in both degree and type. This is reflected in the case of FAO. The organization was able to exert some influence in the UNFCCC negotiations, but this was mainly limited to 'getting agriculture higher on the negotiation agenda'. This study showed that there is potential for more FAO influence in the climate negotiations, compared to the influence the organization has in its other areas of work. It also shows that FAO could draw more on its expertise as a basis for authority (and more influence) since it has detailed, specialized knowledge about its work field: food and agriculture. All interviewees identified FAO as *the* authority in its field, with a wealth of knowledge and expertise, and an extensive network and experience in field projects. FAO is generally thought of as the most suited actor to address the link between agriculture and climate change at the UNFCCC, both within and outside the organization.

Due to the political and institutional context within FAO, the organization was not able to more strongly communicate its message or to take a clear (political) position because it was feared that the membership would not agree with that message or position. In order to try to ensure its autonomy and flexibility in the

UNFCCC, the organization chose to not involve or inform its members on its involvement in the negotiations on the more politically sensitive issues, such as its advocacy activities and the focus on mitigation for the agriculture sector.

However, it is questionable whether keeping the member states outside FAO's work in the UNFCCC as much as possible had a positive impact on the organization's influence in the UNFCCC. As a result of not involving its member states in its climate change work, FAO was not able to very clearly carry out its view on climate change since (part of) its members might have disapproved this message and intervened in the organizations' activities. Not being able to clearly communicate this message might have had consequences for FAO's influence in the UNFCCC. In other words: because of the organization's (deliberately) vague position, it was very hard to get its message across and convince negotiators of the need to include agriculture in the UNFCCC agreements. This could be one of the reasons that FAO influence in the UNFCCC was less than in other fields of work of the organization.

It is possible that when FAO had more clearly framed the link between agriculture and climate change, and developed an official climate change strategy, it would have been easier to get a stronger message across. However, this would have meant that the organization had to consult and involve its members. This could have decreased manoeuvring space and independence, it might have led to the organization being pushed in a direction not desired by FAO itself, or it could have meant that any activity other than technical support would have been disapproved. This would have had significant implications for its influence in the UNFCCC negotiations as well. If, for example, FAO members had decided that it was not part of the organization's mandate to get involved in the UNFCCC negotiations other than with technical support, FAO's influence would have been marginal.

What are then the implications for FAO to exercise influence in the climate change negotiations? First of all, the organization has not been able to 'back up' its message with examples of the associated benefits and feasibility. The actual provision of examples that confirm this message might be a tool to increase influence and convince UNFCCC negotiators. Another option for FAO is to make its position more clear. Currently, there is inconsistency between the desire to keep an image of neutrality (towards its members) and the wish to push for a larger role of agriculture in the UNFCCC agreements. It can be argued that FAO is the most appropriate organization to address the link between agriculture and climate change on a global level, and in view of its mandate should therefore not need to pursue (the image of) neutrality.

Furthermore, as became clear in chapter 4, there is no climate change focal point in FAO while such a focal point can ensure the delivery of a more clear and coherent message. This would provide a clear 'messenger' to the outside world. Another question FAO should ask itself is: Does the message reach the right people? As shown, FAO tried to accomplish this mainly with side-events, submissions & policy briefs, advocacy or lobbying activities for country delegation to the UNFCCC. However, it was shown that it is difficult for FAO to 'stand out of the crowd' since the flow of information towards country delegations is overwhelming. However, the most promising way to reach the right people seems to be the FAO's lobbying activities through contacts with negotiators.

Apart from the issue of reaching the right people with the right message, it makes sense for FAO to continue participating in the UNFCCC process. Although slow, it is still the only platform to agree on globally binding agreements. However, it remains to be seen whether a consensus on the role of agriculture in combating climate change will emerge. Climate change is a "malign" problem (Depledge, 2005) that involves high political stakes, and agriculture itself is a complex sector. It covers countless different farming systems and ecosystems and millions of (smallholder) farmers, and is particularly important for developing countries.

Looking beyond FAO, one can ask what circumstances or conditions would be needed to have agriculture included in the UNFCCC agreements? This could be an (emerging) consensus on the need for agriculture to contribute to climate change adaptation and mitigation. More knowledge and insight in the interactions between agriculture and climate change and possibly the development of epistemic communities in this field could be a first step. Brown Weiss and Jacobson (1998) found that '*the greater the size, strength and activism of epistemic communities, the greater the probability of both implementation and compliance'.* This is something FAO can contribute to, through the initiation, generation, synthesis, and dissemination of scientific knowledge on the link between agriculture and climate change. Time will show if FAO will be able to get agriculture to contribute to global climate change adaptation and mitigation efforts, whether it being through the UNFCCC or not, because it should also be realized that there are more ways to address the link between agriculture and climate change other than the UNFCCC alone, and that it could be worthwhile exploring the possibilities of non-UNFCCC pathways.

Many questions remain. It is still unsure what strategy the FAO could best follow to increase its influence in the climate negotiations. Should it stick out its neck and clearly advocate for the inclusion of agriculture in the UNFCCC and explicitly include climate change in its strategy and strategic framework? This means that the organization should include and consult its members in this process, with a high(er) risk of being limited or steered in its work. However, high levels of uncertainty (high risk) are associated with high potential returns. If the organization succeeds in getting an official mandate and support from its members to engage in climate change work at the UNFCCC – other than purely technical support – it will be better positioned to exercise influence in the negotiations. It can be argued that FAO is the most appropriate organization to address the link between agriculture and climate change on a global level. More strongly advocating for agriculture as a sector for adaptation and mitigation could in that sense be justified, enhancing the capacity to advocate for a stronger role for agriculture.

6.2 Contribution of this thesis to knowledge on international bureaucracies

This part of the conclusion discusses what can be learnt from the case of the FAO, and therefore takes the proverbial 'step back'. It looks at the dynamics of problem framing, the link between problem framing and influence and the influence of international bureaucracies in global environmental politics. It answers the thirds and last research question of this thesis.

The dynamics of problem framing

From this thesis, when looking at the results from this thesis three general conclusions on the dynamics of problem framing can be drawn.

First, it has been shown that the process of problem framing is dependent on and can only be understood by looking at the institutional and political context within the organization as well as the global political context. Funding mechanisms, voting structures, organizational cultures, but also the complexity of and high stakes in environmental politics influences the dynamics of problem framing. Furthermore, as shown by the case of FAO, the membership of an international bureaucracy can have a significant influence on how a problem gets framed. If this thesis would not have incorporated the institutional and political context in which the framing of the agriculture-climate change link took place, it would not have been able to understand how FAO has framed this link, and what the drivers of this process have been.

Second, it has become clear that problem framing is not a process that logically goes from A to B, or has fixed results. Over time, a 'new' problem can get framed in different ways. For example, it has been shown that during the 90s FAO framed climate change mainly as a problem that needed more knowledge on the fundamental workings and the identification of risks. Starting from 2000 onwards, it saw mitigation through forestry as fundamental to combating climate change, which changed to agriculture starting from 2007. This shows that problem framing is not a simple, straightforward process. In environmental problems, knowledge on the fundamental workings generally increase over time and uncertainties are significantly reduced as well. This has an effect of the problem framing. An international bureaucracy can for example initially frame the problem merely as a knowledge issue and therefore focus on knowledge on technical matters. In later stages it may shift towards response measures.

Third, it is possible – and sometimes strategically rational – to have different frames at different levels. Although this can appear to be unintentional, chaotic and random, this way of framing can also be perfectly rational and strategic. Different frames at different levels do not have to be incompatible with each other. The case of FAO has shown that on the ground the link between agriculture and climate change gets framed as an adaptation problem, while at headquarters and global politics level the organization mainly emphasizes the mitigation part of this link. For FAO it does make sense to frame the agriculture-climate change link on the ground as an adaptation problem, since most of its activities take place in developing countries. These countries generally favour and benefit more from adaptation projects (since mitigation efforts provide benefits to the entire world and less to single countries). At the global politics level it makes sense for FAO to frame the agriculture-climate change links as a mitigation issue, since there is more money and attention for mitigation (from industrialized countries) at that level. However, these differences are not incompatible and provide the organization with more support for its activities.

The link between problem framing and influence

As assumed in the conceptual framework, the way a problem gets framed has an effect on which activities are developed. Activities (such as projects, research or advocacy activities) partly determine the level of influence an international bureaucracy has on the global politics level. It is clear from this thesis that the way the agriculture-climate change link was framed had an effect on the organization's influence in the UNFCCC. First of all, until 2007 the UNFCCC was not really used as a forum for FAO's activities on agriculture. Before 2007, the UNFCCC was – for agriculture – not really included in the frame on the link between agriculture and climate change. This resulted in virtually no influence of the organization before 2007 in the climate change negotiations. Second, since FAO during the 90s framed climate change link as a problem that needed more knowledge it focused mainly on reducing uncertainties and identifying risks. This resulted mainly in the provision of technical support and expertise to the UNFCCC secretariat, activities that had little influence in shaping the outcome of the climate negotiations. It is thus indeed the case that problem framing shapes an international bureaucracy's activities, that in turn (but not 'one-on-one') determine the level of influence in global environmental politics. However – although not examined – the activities an international bureaucracy employs can also affect its frame. A new insight from a research program might disprove earlier assumptions. The relationship between framing and activities is thus a two-way process.

The influence of international bureaucracies in global environmental politics

This research has shown that FAO had some influence in global climate change politics, and that although currently limited, the potential for FAO influence is significant. This thesis therefore supports the argument made by among others Barnett and Finnemore (2004) and Biermann et al. (2009) that trough their delegated, moral and expert authority, bureaucracies can have normative, cognitive and executive influence in global (environmental) politics. However, there are many challenges for an international bureaucracy to gain influence. This can for example be the political and institutional context within the bureaucracy, the high stakes and complexity of environmental problems, and the wish to keep an image of neutrality by the organization itself.

The effect of the political and institutional context

It was shown that due to the political and institutional context within a bureaucracy, it can be difficult to get the right message to the right people, and as a consequence it will be harder to exert influence. By minimally involving and informing the membership on politically sensitive issues, an international bureaucracy can try to gain some autonomy and flexibility in the political arena (such as the UNFCCC or other multilateral environmental agreements). However, it is questionable whether this keeping the members outside politically sensitive issues has a positive impact on the bureaucracy's influence in global politics. As a result of not involving member states in sensitive issues it can be more difficult to make strong or politically sensitive statements, since (part of) its members can disapprove this message and intervene in the organizations' activities. Not being able to send out strong messages has consequences for an organization's influence in the global politics.

On the other hand, when an international bureaucracy consults and involves its members in politically sensitive issues, this might lead the organization being pushed in a direction not desired. This has significant implications for influence as well. If, for example, members decide that it is not part of the mandate to get involved in certain issues and therefore explicitly limit the organization's involvement, its influence will be marginal.

So it can be concluded that on the one hand it can be beneficial to not involve the membership in politically sensitive issues when it is felt that the (majority) of the members will not agree with the bureaucracy's involvement in these issue. This can allow an organization to get involved behind the

scenes. However, when a bureaucracy would succeed in getting a mandate from its members to also get involved in politically sensitive issues its influence will be much higher. It is then 'backed up' by its members when trying to influence global environmental politics.

The effect of complexity and high stakes in environmental politics

The complexity of and the high stakes in climate change politics – but also in other areas of environmental politics – can make it difficult for an international bureaucracy to exert influence. Scientific uncertainty, unevenly distributed impacts and response capacities, as well as distinct negotiation positions (e.g. 'North vs. South') make environmental problems extremely difficult to tackle. It has been shown that international bureaucracies exert influence in global environmental politics by initiating, generating and disseminating scientific knowledge on the issue, but that this needs to be backed up by real world examples in order to be influential.

The wish to pursue neutrality

On the issue of neutrality, Barnett and Finnemore (2004) state that international organizations are often confronted with the problem that neutrality is often, probably always, impossible. This is because international bureaucracies always serve a social purpose or set of cultural values, *"...even when they are shrouded in myths of impartiality or value-neutral technocracy"* (Barnett and Finnemore, 2004, 21). As shown in previous chapters, this has been a challenging issue for FAO as well and has affected the problem-framing process as well as its influence in the UNFCCC. Since climate change will very likely have a large impact on agriculture and food security in developing countries mainly, FAO cannot and should not be completely neutral. Its mandate "*...to raise levels of nutrition, improve agricultural productivity, better the lives of rural populations and contribute to the growth of the world economy"* (FAO, 2010) requires incorporation of climate change issues and advocacy activities to get agriculture recognized as an important sector for responses to climate change.

As evidenced by the example of FAO, the question if international bureaucracies should stay neutral and provide technical help and expertise only is therefore not very relevant. Looking at FAO, this thesis provides results to convincingly argue that other international bureaucracies in the realm of global environmental politics do not have pursue neutrality, since that is impossible. The fact that they are given a mandate by member states – a mandate that generally embodies a widely shared set of principles, values or goals – makes neutrality undesirable as well. The purpose of the establishment of an international bureaucracy is the fulfilling of its mandate, which should ideally not be hampered by political games or the need to be 'neutral'.

Simply stated, members of an international bureaucracy delegated some of their own authority to the bureaucracy which is thought of as being better equipped for 'doing the job'. They therefore have the obligation to give the organization manoeuvring space, even if that means that it does not always act as desired by individual countries. International bureaucracies in turn have the responsibility to fulfil their mandate, even if that sometimes means to shed off the image of neutrality. However, it does not imply that an international bureaucracy should do whatever it thinks what is best without consulting its members. Since the membership delegated tasks to the organization, it can also decide to limit or even take back the bureaucracy's mandate[20]. However, the case of FAO has shown that by not or partially involving the membership in its activities, an international bureaucracy can have autonomous influence even when faced with challenges as different member states positions, the issue of the need to keep a neutral image and the complexity of environmental problems.

[20] However, this almost never happens. When established, many bureaucracies tend to continue operating even when they are not relevant anymore (Reinalda, 2009)

6.3 Directions for future research

This thesis is mainly based on (internal) FAO documents and interviews with FAO employees and representatives of member countries in Rome. There were only four interviews conducted with people outside the 'FAO environment', mainly negotiators at the UNFCCC. It was difficult to determine the actual influence of FAO at the UNFCCC, since the empirical part of this research took place at FAO's headquarters in Rome. There was no possibility to attend meetings at the UNFCCC, to be able to also gather information there. The part on the influence of FAO in the climate change negotiations could have been strengthened by interviews with more country negotiators at the UNFCCC – particularly the ones tasked with agriculture – and by observing UNFCCC meetings and FAO's involvement therein. This thesis has its empirical foundation and focus on the FAO in Rome, which resulted in the need to determine FAO influence at the UNFCCC mostly from experts and employees from FAO. Naturally, they look at their own activities through an 'FAO frame'. It would make sense to link the results from this thesis to a future study of FAO involvement in the UNFCCC based on an empirical foundation at the climate negotiations themselves. This will provide more insight in the influence of FAO in the climate change negotiations, and will result in the ability to better link the FAO context to the FAO involvement and influence in the UNFCCC. Another option is linking the results from this thesis to the results from a possible study into FAO's involvement on forestry/UN-REDD in the UNFCCC. This can be used to improve the current approach for agriculture.

Furthermore, research aimed at other international bureaucracies can also contribute to increasing the knowledge on the processes and dynamics of problem-framing, the link between framing and influence, and the influence of international bureaucracies in global environmental politics. Results from other international bureaucracies working in environmental politics can be 'linked' to the results from this thesis, resulting in an 'umbrella' of knowledge about problem-framing and influence in international environmental politics.

References

Adger, W.N., S. Agrawala, M.M.Q. Mirza, C. Conde, K. O'Brien, J. Pulhin, R. Pulwarty, B. Smit and K. Takahashi (2007) Assessment of adaptation practices, options, constraints and capacity. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 717-743.

Agyeman J., Bullard R.D., and Evans B. (eds.) (2003). *Just Sustainabilities: Development in an Unequal World.* Cambridge, MA: MIT Press.

Andresena, S., and S. Agrawalab (2002) Leaders, pushers and laggards in the making of the climate regime. *Global Environmental Change* (12), pp. 41–51

Bardwell, L. (1991) Problem framing: A perspective on environmental problem solving. *Environmental Management,* vol. 15, pp. 603–612.

Barnett, M.N. (2002) "Authority, Intervention, and the Outer Limits of International Relations Theory," in: *Authorities and Interventions in World Politics*. Callaghy, T., Latham, R. and R. Kassimer (eds.), Cambridge University Press, New York.

Barnett, M.N. and M. Finnemore (2004) *Rules for the World: International Organizations in Global Politics*. Cornell University Press, Ithaca, New York.

Benford, R.D., and D.A. Snow (2000) Framing processes and social movements: An overview and assessment. *Annu. Rev. Sociol,* vol. 26, pp. 611-639

Biermann, F., Siebenhüner, B., Bauer, S., Busch, P., Campe, S., Dingwerth, K., Grothmann, T., Marchinski R. and M. Tarradell (2009a) Studying the Influence of International Bureaucracies: A Conceptual Framework, in: *Managers of Global Change, The Influence of International Environmental Bureaucracies,* Bierman, F. and B. Siebenhüner (eds.). MIT Press, Cambridge, Massachusetss.

Biermann, F., Davies, O. and N. van der Grijp (2009b) *Environmental policy integration and the architecture of global environmental governance*. Int Environ Agreements (2009) 9, pp. 351–369.

Brown Weiss, E., and H.K. Jacobsen (1998) *Engaging countries. Strengthening Compliance with International Environmental Accords.* MIT Press, Cambridge, Massachusetss.

Cox, R.W., and H.K. Jacobson (1973) *The Anatomy of Influence: Decision making in International Organization.* Yale University Press, New Haven, CT.

Depledge, J. (2005) *The Organization of Global Negotiations: Constructing the Climate Change Regime.* London, Earthscan.

Easterling, W.E., P.K. Aggarwal, P. Batima, K.M. Brander, L. Erda, S.M. Howden, A. Kirilenko, J. Morton, J.-F. Soussana, J. Schmidhuber and F.N. Tubiello (2007) Food, fibre and forest products. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson (eds.), Cambridge University Press, Cambridge, UK, 273-313.

Ebeling, J. and Yasue, M. (2008) Generating carbon finance through avoided deforestation and its potential to create climatic, conservation and human development benefits. *Philos. Trans. R. Soc. Lond. B. Biol. Sci.* 363, pp. 1917–1924

FAO (1991) *Report of the 26th Session of the FAO Conference.* Food and Agriculture Organization of the United Nations, 9-27 November 1991, Rome, Italy.

FAO (1994) *The State of Food and Agriculture 1994 – Forest development and policy dilemmas*. Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (1996) *Report of the 111th Session of the FAO Council.* Food and Agriculture Organization of the United Nations, 1-10 October 1996, Rome, Italy.

FAO (1997) *The State of Food and Agriculture 1997 - The agro-processing industry and economic development*. Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (1999) *The Strategic Framework for FAO: 2000 – 2015.* Food and Agriculture Organization of the United Nations. FAO Conference, Thirtieth Session, 12-23 November 1999, Rome, Italy.

FAO (2000) *Medium Term Plan 2002 – 2007*. Food and Agriculture Organization of the United Nations. FAO Council, Hundred and Nineteenth Session, 20-25 November 2000, Rome, Italy.

FAO (2002) *The State of Food and Agriculture 2002 - Agriculture and global public goods ten years after the Earth Summit.* Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2003a) Strengthening coherence in FAO's initiatives to fight hunger (Item 10). Food and Agriculture Organization of the United Nations. FAO Conference, Thirty-second Session, 29 November - 10 December 2003, Rome, Italy.

FAO (2003b) *Interdepartmental Working group on Climate Change*. Food and Agriculture Organization of the United Nations. Director-General's Bulletin, No. 2003/39, September 2003, Rome, Italy.

FAO (2006) *FAO and Climate.* Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2007a) *The Director-General's Programme of Work and Budget 2008-09.* Food and Agriculture Organziation of the United Nations. Thirty-fourth Session of the Conference, 17-24 November 2007, Rome, Italy.

FAO (2007b) *The State of Food and Agriculture 2007 – Paying farmers for environmental services*. Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2008) *The carbon sequestration potential in agricultural soils.* Submission by the Food and Agriculture Organization of the United Nations to the 3rd Session of the Ad Hoc Working Group on Long-term Cooperative Action under the UNFCCC (AWG-LCA3), Accra, 21-27 August 2008.

FAO (2009a) *The state of food insecurity in the world (2009). Economic crisis: impacts and lessons learned.* Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2009b) *Food security and agricultural mitigation in developing countries: Options for capturing synergies.* Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2009c) *FAO & Climate Change*. FAO climate change publications. Food and Agriculture Organization of the United Nations, Interdepartmental Working Group on Climate Change, Rome, Italy. CD-ROM.

FAO (2009d) *Strategic Framework: 2010-2019*. Food and Agriculture Organization of the United Nations. FAO Conference, Thirty-sixth session, 18-23 November 2009, Rome, Italy.

FAO (2009e) *The State of Food and Agriculture – Livestock in the Balance*. Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2009f) *Enabling agriculture to contribute to climate change mitigation*. Submission by the Food and Agriculture Organization of the United Nations. February 2009, Bonn, Germany.

FAO (2009g) *Coping with a changing climate: considerations for adaptation and mitigation in agriculture.* Environment and Natural Resources Management Series, vol 15. Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2010). Website of the Food and Agriculture Organization, climate change section. URL: http://www.fao.org/climatechange/49357/en/. Last accessed on: 17/03/2010

FAO (2010b) *Harvesting agriculture's multiple benefits: Mitigation, Adaptation, Development and Food Security.* Policy Brief to the UNFCCC by the Food and Agriculture Organization of the United Nations. February 2010, Bonn, Germany.

FAO (2010c) *Towards a work programme on agriculture*. A submission to the AWG-LCA by the Food and Agriculture Organization of the United Nations. June 2010, Bonn, Germany.

FAO (2010d) *FAO's Effectiveness at Country Level: A Synthesis of Country Evaluations.* Food and Agriculture Organization of the United Nations. Hundred and Fourth Session of the Programme Committee, 25-29 October 2010, Rome, Italy.

FAO (2010e) *Back to office report on attendance at the Bonn Climate Change Talks, 31 May - 11 June 2010.* Food and Agriculture Organization of the United Nations, Rome, Italy.

FAO (2011a) *Regular Programme Contributions: Largest 25 contributors*. Food and Agriculture Organization of the United Nations. URL: http://www.fao.org/about/18792-036b99744f4e518352f9e4aa44184bc8d.pdf

FAO (2011b) FAO Fact Sheet: Standard setting and other normative work. Food and Agriculture Organization of the United Nations. URL: ftp://ftp.fao.org/docrep/fao/011/i0765e/i0765e05.pdf

FAO (2011c) FAO Fact Sheet: FAO online and knowledge management. Food and Agriculture Organization of the United Nations. URL: ftp://ftp.fao.org/docrep/fao/011/i0765e/i0765e07.pdf

Fletcher, A.L. (2009) Clearing the air: the contribution of frame analysis to understanding climate policy in the United States. *Environmental Politics*, vol. 18, no. 5, pp. 800 – 816.

Foley, J.A., DeFries, R.G., Asner, C. Barford, G. Bonan, S.R. Carpenter, F.S. Chapin, M.T. Coe, G.C. Dailey, H.K. Gibbs, J.H. Helkowski, T. Holloway, E.A. Howard, C.J. Kucharik, C. Monfreda, J.A. Patz, I.C. Prentice, N. Ramankutty, and P.K. Snyder (2005) Global consequences of land use. *Science*, vol. 309, no. 5734, pp. 570-574.

Foucault, M. (1983) *Discourse and Truth: the Problematization of Parrhesia*. 6 lectures given by Michel Foucault at the University of California at Berkeley, Oct-Nov. 1983. Audio on: http://foucault.info/documents/parrhesia/

Ghazoul, J., Butler, R.A., Mateo-Vega, J., and Koh, L.P (2010) REDD: a reckoning of environment and development implications. *Trends in Ecology & Evolution* (25), pp. 396-402

Giddens, A. (2008) The politics of climate change. National responses to the challenge of global warming. *Policy Network*. London, United Kingdom.

Goltz, J. von der (2009) *High Stakes in a Complex Game: A Snapshot of the Climate Change Negotiating Positions of Major Developing Country Emitters*. Working paper number 177.

Houghton, R.A. (2008) *Carbon Flux to the Atmosphere from Land-use Changes: 1850–2005*. Carbon Dioxide Information Analysis Center, Oak Ridge National Laboratory, U.S. Department of Energy.

IPCC (2007) Summary for Policymakers. In: *Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M.Tignor and H.L. Miller (eds.). Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

IPCC (2010) Website of the Intergovernmental Panel on Climate Change, history section. URL: http://www.ipcc.ch/organization/organization_history.htm, last accessed on: 05/02/2010

Ikeme, J. (2003) Equity, Environmental Justice and Sustainability: Incomplete Approaches in Climate Change Politics. *Global Environmental Change* (13): pp. 195-206.

Jordan, B. (2010) *Environmental Justice and REDD: Impacts for indigenous populations in Latin America*. World Forestry (FOR 595), North Carolina State University.
(URL: http://www4.ncsu.edu/~bmjorda2/world_forestry/EnvironmentalJusticeREDDLA.pdf)

Kanninen, M. et al. (2007) *Do Trees Grow on Money: the Implications of Deforestation Research for Policies to Promote REDD,* Center for International Forestry Research (CIFOR)

Keck, M. E., and K. Sikkink (1998) *Activists Beyond Borders: Advocacy Networks in International Politics*. Ithaca, NY: Cornell University Press.

Lamantia, J. (2008) *Text Clouds: A New Form of Tag Cloud?* URL: http://www.joelamantia.com/tag-clouds/text-clouds-a-new-form-of-tag-cloud. Last accessed: 03/11/2010.

Miles, E.L., Underdal, A., Andresen, S., Wettestad, J., Skjaerseth, B., and E.M. Carlin, eds. (2001) *Environmental Regime Effectiveness. Confronting Theory with Evidence.* Cambridge, MA: MIT Press.

Miles, L. and Kapos, V. (2008) Reducing greenhouse gas emissions from deforestation and forest degradation: global land-use implications. *Science* 320, pp. 1454–1455

Müller, B. (2002) *Equity in Climate Change: The Great Divide*. Oxford Institute for Energy Studies. Oxford.

NYTimes (2010) *Climate Talks End With Modest Deal on Emissions.* New York Times. Broder, J.M. Published: December 11, 2010. URL: http://www.nytimes.com/2010/12/12/science/earth/12climate.html?_r=1

Oberthür, S, and H.E. Ott (1999) *The Kyoto Protocol: International Climate Policy for the 21st Century.* Berlin, Heidelberg, and New York: Springer.

Parker, C., et al. (2009). *The Little REDD+ Book: An updated guide to governmental and non- governmental proposals for reducing emissions from deforestation and degradation* (3rd ed.). Oxford, United Kingdom: Global Canopy Programme.

Parry, M.L., Rosenzweig, C., Iglesias, A., Livermore, M., and G. Fischer (2004). Effects of Climate Change on global food production under SRES emissions and socio-economic scenarios. *Global Environmental Change*, vol. 14, pp. 53-67.

Rein, M., and D. Schon (1991) Frame-Reflective Policy Discourse. *In Social Sciences and Modern States: National Experiences and Theoretical Crossroads*, P. Wagner, C. Hirschhorn Weiss, B. Wittrock and H. Wallmann (eds.), pp. 262-289. Cambridge: Cambridge University Press.

Reinalda, B. (2009) Vrijhandel versus milieu en verzorgingsstaat. In: *Collegedictaat international organisaties (Deel 2)*. B. Reinalda. Faculteit der Managementwetenschappen, Politicologie, Nijmegen, pp. 411-428.

Sala, O.E. et al. (2000) Global biodiversity scenarios for the year 2100. *Science* 287, pp. 1770–1774

Siebenhüner, B. (2003) The changing role of nation states in international environmental assessments – the case of the IPCC. *Global Environmental Change* (13), pp. 113–123

Smith, P. (2004) Engineered biological sinks on land. In: *The Global Carbon Cycle. Integrating humans, climate, and the natural world*, C.B. Field and M.R. Raupach (eds.). SCOPE 62, Island Press, Washington D.C., pp. 479-491.

Smith, P., D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O'Mara, C. Rice, B. Scholes, O. Sirotenko (2007) Agriculture. *Climate Change 2007: Mitigation. Contribution of Working Group III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.* B. Metz, O.R. Davidson, P.R. Bosch, R. Dave, L.A. Meyer (eds.), Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA.

Smith, P., D. Martino, Z. Cai, D. Gwary, H. Janzen, P. Kumar, B. McCarl, S. Ogle, F. O'Mara, C. Rice, B. Scholes, O. Sirotenko, M. Howden, T. McAllister, G. Pan, V. Romanenkov, U. Schneider, S. Towprayoon, M. Wattenbach and J. Smith (2008). Greenhouse gas mitigation in agriculture. *Phil. Trans. R. Soc. B.* 363, pp.789-813.

Stern, N. (2006) What is the Economics of Climate Change? *World Economics*, Vol. 7, No. 2. pp. 1-10

Triandafyllidou, A. and A., Fotiou (1998) 'Sustainability and Modernity in the European Union: A Frame Theory Approach to Policy-Making,' *Sociological Research Online*, vol. 3, no. 1, URL: http://www.socresonline.org.uk/socresonline/3/1/2.html

UNFCCC (1992) United Nations Framework Convention on Climate Change, United Nations, New York. United Nations Treaty Collection, URL: www.treaties.un.org.

UNFCCC (2011) Website of the United Nations Framework Convention on Climate Change, United Nations, Bonn. URL: http://unfccc.int/parties_and_observers/parties/negotiating_groups/items/2714.php (Accessed: 17/03/2011)

Young, O.R. (1994) *International Environmental Governance. Protecting the Environment in a Stateless Society.* Cornell University Press, Ithaca, NY.

List of Annexes

Annex I – List of interviewees

Ardenne, Agnes van (2010) Permanent representative of the Kingdom of the Netherlands to the UN Organizations in Rome. Ministry of Foreign Affairs of the Netherlands. Interview 11-03-2010, Rome.

DeYoung, Cassandra (2010) Fishery Planning Analyst. Fisheries and Aquaculture Policy and Economics Division, Fisheries and Aquaculture Department. FAO. Interview: 16-03-2010, Rome.

Duckett, James (2010) Political Officer. Embassy of the United States of America. Interview: 09-03-2010, Rome

Gennari, Pietro (2010) Director. Statistics Division. Economic and Social Development Department. FAO. Interview: 18-03-2010, Rome.

Helderman, Sanne (2010) Policy Adviser. Department for UN and International Financial Institutions. Ministry of Foreign Affairs of the Netherlands. Interview: 12-03-2010, Rome.

Holmgren, Peter (2010) Director. Climate, Energy and Tenure Division. Natural Resources Management and Environment Department. FAO. Interview: 18-03-2010, Rome.

Hoogeveen, Jippe (2010) Technical Officer. Natural Resources Management and Environment Department. FAO. Interview: 27-04-2010

Lambrou, Yianna (2010) Senior Officer. Gender, Equity and Rural Development Division. Economic and Social Development Department. FAO. Interview: 03-05-2010, Rome.

Maetz, Materne (2010) Senior Policy Officer. Policy Assistance Support Service. Technical Cooperation Department. FAO. Interview: 21-05-2010, Rome.

Mann, Wendy (2010) Senior Officer. Natural Resources Management and Environment Department. FAO. Interview: 18-03-2010, 20-04-2010 and 28-05-2010, Rome. (28-02-2011, telephone)

Marshall, A. David (2010) Deputy Director. Statistics Division, Division. Economic and Social Development Department. FAO. Interview: 18-03-2010, Rome.

Martinez Breto, Denise (2010) Natural Resources Management Officer. Natural Resources Management and Environment Department, communication unit. FAO. Interview: 20-04-2010, Rome.

Miscia, Claudio (2010) Deputy Permanent Representative. Permanent Representation of Italy to the United Nations Organizations. Interview: 12-04-2010, Rome.

Muffels, Teddie (2010) Senior Policy Adviser Food Security and FAO Affairs. Ministry of Economic Affairs, Agriculture and Innovation. Interview: 22-03-2010, Rome.

Nelson, Sybil (2010) Junior Professional Officer. Gender, Equity and Rural Development Division. Economic and Social Development Department. FAO. Interview: 03-05-2010, Rome.

Palmer, David (2010) Senior Land Tenure Officer. Climate, Energy and Tenure Division. FAO. Interview: 18-03-2010, Rome.

Swartbol, Rob (2010) Director. UN and International Financial Institutions Department. Ministry of Foreign Affairs of the Netherlands. Interview: 02-06-2010, Rome.

Sessa, Reuben (2010) Programme Officer NRCE. Natural Resources Management and Environment Department. FAO. Interview: 20-04-2010, Rome.

Tapio-Bistrom, Marja-Liisa (2010) Senior Officer. Natural Resources Management and Environment Department, FAO. Interview 02-04-2010, Rome.

Tranberg Morrison, Jesper (2010) Associate Professional Officer. Forestry Department. FAO. Interview: 26-04-2010, Rome.

Vellinga, Theun (2010) Livestock Consultant. Animal production and Health Division. FAO. Interview 11-03-2010, Rome.

Wefers Bettink, Willem (2010) Policy Officer Programme and Change Management. IFAD. Interview: 23-03-2010, Rome.

Annex II - Editions of FAO's 'The State of Agriculture' (SOFA)

2009	Livestock in the balance
2008	Biofuels: prospects, risks and opportunities
2007	Paying farmers for environmental services
2006	Food aid for food security?
2005	Agricultural trade and poverty: Can trade work for the poor?
2003-04	Agricultural Biotechnology : Meeting the needs of the poor?
2002	Agriculture and global public goods ten years after the Earth Summit
2001	Economic impacts of transboundary plant pests and animal diseases
2000	World food and agriculture: lessons from the past 50 years
1998	Rural non-farm income in developing countries
1997	The agroprocessing industry and economic development
1996	Food security: some macroeconomic dimensions
1995	Agricultural trade: entering a new era?
1994	Forest development and policy dilemmas
1993	Water policies and agriculture

Annex III - Support of FAO to UNFCCC and IPCC

The IDWG on Climate Change supported UNFCCC, its secretariat and the Intergovernmental Panel on Climate Change (IPCC) through:

- Continuous communication with and provision of technical information to IPCC and UNFCCC;
- Participation in UNFCCC meetings of the Conference of the Parties (COP) and of the Subsidiary Body for Scientific and Technological Advice (SBSTA) and organization of side events;
- Building upon the close relationship with the IPCC to strengthen forestry sector capacity to comply with their international standards;
- Provision of technical inputs to UNFCCC process on carbon in harvested wood products;
- Lead authorship (FO) covering carbon inventory methods in forests and forest related definitions for the 2006 IPCC Guidelines;
- Lead authorship and contributing authorship for chapters 2 and 5, WGII of the IPCC 4th Assessment Report, review of other chapters;
- Supply of allometric equations to the IPCC emissions factor data bank for use in carbon inventories (FO);
- Initiation of mutual access to data banks of the UNFCCC Secretariat and FAO (FO);
- Submission to UNFCCC in March 2006 and February 2007 on reducing emissions from deforestation;
- Submission of inputs to UNFCCC Nairobi Work Programme on adaptation (February and May 2007);
- Participation at UNFCCC workshops on: Adaptation (September 2006), Climate related Risks and Extreme Events (2007), Adaptation for Small Islands Development States (2007), Data & Tools and Methods & Observations (2008)
- Review of proposed small scale afforestation and reforestation CDM methodologies, and suggestion for a new CDM methodology, proposing the switch from non-renewable to renewable biomass utilization;
- Active participation in the second workshop on reducing emissions from deforestation in developing countries, held in Cairns (Australia, March 2007);
- Co-organization (with UNFCCC) of side event on reducing emissions from deforestation at COFO 2007;
- IPCC Side event on 4th Assessment Report at COAG 2007;
- Hosting, co-organization of and contribution to the UNFCCC workshop on reducing emissions from deforestation in developing countries, held at FAO Headquarters (29 August - 1 September 2006);
- Meeting of Executive Secretary UNFCCC and DG FAO to discuss strengthening of collaboration (20 June 2007);
- Hosting of UNFCCC sponsored workshop on adaptation planning and strategies to climate change (September 2007);
- UNFCCC Submission on Financing Mechanisms (September 2008);
- Through the Global Terrestrial Observing System (GTOS), support the programme area of systematic observations, including the assessment of available standards for the terrestrial ECVs and the development of a terrestrial framework mechanism;
- Support to the implementation of the UNFCCC children and young people climate change project;
- Submission of an information note on the potential of agricultural soils for carbon sequestration to the 3rd Session of the Ad Hoc Working Group on Long-term Cooperative Action under the Convention (AWG-LCA3), Accra, 21-27 August 2008).

Annex IV – List of FAO Submissions and Policy Briefs to the UNFCCC

- FAO 2010. *Towards a work programme on agriculture.* http://unfccc.int/resource/docs/2010/smsn/igo/081.pdf

- FAO 2010. *Agriculture, Food Security and Climate Change in post-Copenhagen processes*. http://foris.fao.org/static/data/nrc/InfoNote_PostCOP15_FAO.pdf

- FAO 2009. *Harvesting agriculture's multiple benefits: Mitigation, Adaptation, Development and Food Security.* ftp://ftp.fao.org/docrep/FAO/012/ak914e/ak914e00.pdf

- FAO 2009. F*ood security and agricultural mitigation in developing countries: Options for Capturing Synergies.* ftp://ftp.fao.org/docrep/fao/012/ak596e/ak596e00.pdf

- FAO 2009. *Anchoring Agriculture within a Copenhagen Agreement.* ftp://ftp.fao.org/docrep/fao/012/k6315e/k6315e00.pdf

- FAO 2009. *Enabling Agriculture to contribute to climate change mitigation.* http://unfccc.int/resource/docs/2008/smsn/igo/036.pdf

Annex V - FAO Activities during COP15 (Copenhagen)

FAO Side Events

- Climate Change and Food Security: Unifying commitment and action in land-based sectors
  10 December 13.00-14.30
  Side event organized by FAO and the Danish Ministry of Food, Agriculture and Fisheries. Climate change, food security, poverty – key challenges that intersect in land-based sectors – connot be addressed in isolation from each other. The World Summit on Food Security and UNFCCC COP15 provide opportunities to promote solutions that manage synergies and trade-offs for multiple benefits.

Side events with FAO participation

- Mountains of the world: Addressing climate change through sustainable mountain development
  12 December 13.00-14.30
  Understanding the impact of climate change on mountain regions of the world, raising awareness and political commitment, exploring the potential for adaptation and developing specific strategies, programmes and projects for enhanced understanding and adaptation.
- PaCFA side event – "Fisheries, aquaculture and aquatic systems in a changing climate
  15 December
  FAO along with 19 international organizations is a member of PaCFA, a Global Partnership for Climate Change, Fisheries and Aquaculture for concerted action on fisheries, aquaculture and climate change.
- GBEP side event: "Greenhouse Gas Emissions from Bioenergy: a new tool for reporting and comparing lifecycle analyses"
  16 December
- Denmark/Norway/FAO/Indonesia side event: "Oceans and Climate Change"
  16 December

Thematic days with FAO Participation

- Agriculture and Rural Development Day
  12 December
  FAO moderated roundtable explored the set of essential policies and institutions, both nationally and internationally, to create the appropriate incentives to enhance agricultural adaptation and mitigation responses
- Deveopment and Climate days
  11-14 December
  FAO presented new research on Gender and Equality.
- Forestry Day III
  13 December
  Sub-plenary on "Forest degradation and restoration" and a learning event on "Measuring and monitoring, baselines and leakage".
- Copenhagen Oceans Day
  14 December
  Oceans Day highlighted the direct link between climate change, the health of the oceans, and human well-being, as well as the need for sufficient funding to support bold mitigation and adaptation actions that will minimize climate change impacts on coastal communities and ocean resources.

Media Coverage of FAO

- 14 interviews - with A. Mueller (ADG NR), W. Mann (NRDD) and L. Lipper (ESA)
- 13 articles in newspapers

Annex VI – Party Groupings at the UNFCCC

Developing countries generally work through the **Group of 77** to establish common negotiating positions. The G-77 was founded in 1964 in the context of the UN Conference on Trade and Development (UNCTAD) and now functions throughout the UN system. It has over 130 members. Because the G-77 and China is a diverse group with differing interests on climate change issues, individual developing countries also intervene in debates,

The **Alliance of Small Island States** (AOSIS) is a coalition of some 43 low-lying and small island countries, most of which are members of the G-77, that are particularly vulnerable to sea-level rise.

The 50 countries defined as **Least Developed Countries** by the UN regularly work together in the wider UN system. They have become increasingly active in the climate change process, often working together to defend their particular interests, for example with regard to vulnerability and adaptation to climate change.

The 27 members of the **European Union** meet in private to agree on common negotiating positions. The country that holds the EU Presidency speaks for the European Union and its 27 member states.

The **Umbrella Group** is a loose coalition of non-EU developed countries which formed following the adoption of the Kyoto Protocol. The Group is usually made up of Australia, Canada, Iceland, Japan, New Zealand, Norway, the Russian Federation, Ukraine and the US. The Umbrella Group evolved from the JUSSCANNZ group, which was active during the Kyoto Protocol negotiations

The **Environmental Integrity Group** (EIG), formed in 2000, comprises Mexico, the Republic of Korea and Switzerland.

(UNFCCC, 2011)