Global Environmental Governance and the Clean Development Mechanism as an instrument for tackling Climate Change: a case study of landfill gas recovery projects in the metropolitan area of Buenos Aires

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Acknowledgements

Ever since I started studying Human Geography at the UvA I had the feeling that I would not be able to finish. Language barriers and a study program sometimes aimed at a certain kind of student whose characteristics I happen to miss, made the beginnings of my academic life in Amsterdam a bit bitter. Now I see the white light at the end of the tunnel and that makes me very happy.

Fortunately, the bitter beginnings turned into a very sweet period of my life in which I got to know what I intended to learn from the start: find out more about environmental problems. Moreover, the study program had many pleasant surprises waiting. I got to learn what social science actually is, and I rapidly focused my attention on the link between the environment and poverty related issues (which I personally consider an independent discipline situated in the very crossroad between environmental geography and the political economy of international development). Excitement was granted almost from the beginning, and writing this thesis on such a cutting edge topic as climate change is the evidence of it.

A long time has gone by between my first interest for the Clean Development Mechanism and the completion of this research. On the personal field I have experienced major life changes. Moreover, Climate Change has become an immensely popular item in the news and the public debate. All this has made the final process of writing this thesis very confusing sometimes. Now that I have reached the end, I come to realise that certain people, intentionally or unintentionally, have been accomplice in the successful conclusion of this work. For that I would like to thank them.

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This thesis is dedicated to my little daughter Frida: I hope that the Clean Development Mechanism or other human actions aimed at mitigating the problem of climate change are successful enough to assure you a liveable future. This is a wish that I would like to see fulfilled for you and your generation.
# Table of Contents

## TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIST OF TABLES</td>
<td>III</td>
</tr>
<tr>
<td>LIST OF FIGURES</td>
<td>III</td>
</tr>
<tr>
<td>ABBREVIATIONS</td>
<td>IV</td>
</tr>
</tbody>
</table>

## CHAPTER 1: INTRODUCTION

1.1 Complex Problems Lead to Complex Responses .................................. 1
1.2 Climate Policy in Action ............................................................... 2
1.3 Argentina: Landfill Gas Recovery in the Buenos Aires Region ............... 4
1.4 Significance of This Study ............................................................ 6
1.5 Structure of the Thesis ..................................................................... 7

## CHAPTER 2: CLIMATE CHANGE AND HUMAN RESPONSES

2.1 The Problem: Enhanced Greenhouse Effect .......................................... 9
2.2 The Consequences: Environmental and Social Effects ......................... 13
2.3 The Human Response ........................................................................ 15
   2.3.1 Kyoto: mitigate and adapt ....................................................... 16
   2.3.2 The CDM: mitigate and develop ............................................. 17
2.4 The CDM in Practice ........................................................................ 18
   2.4.1 The Rules of the game ............................................................. 18
   2.4.2 Who is involved? .................................................................... 20
   2.4.3 How emissions are reduced ..................................................... 20
   2.4.4 Contribution to sustainable development ................................. 22

## CHAPTER 3: THEORETICAL FRAMEWORK

3.1 Governance and Global Environmental Governance ............................... 25
   3.1.1 Governance ............................................................................. 25
   3.1.2 Global Environmental Governance ........................................... 28
3.2 Analytical Reflections on Climate Change ......................................... 29
   3.2.1 A problem of disturbance ....................................................... 29
   3.2.2 Common-pool resources: from tragedy to struggle ..................... 30
   3.2.3 Analytical framework ............................................................ 32
3.3 Institutions and Sustainable Development ......................................... 33

## CHAPTER 4: RESEARCH QUESTION AND TECHNICAL ASPECTS

4.1 Research Design ................................................................................. 37
   4.1.1 Research Question ................................................................... 38
   4.1.2 Operationalisations and Conceptual Model ................................. 39
4.2 Technical Aspects ............................................................................. 43
   4.2.1 Nature of the research ............................................................. 43
   4.2.2 Research strategy: case study research ...................................... 44
   4.2.3 Data collection methods .......................................................... 46
   4.2.4 Analysis .................................................................................. 48
4.3 Reflection on the Methods .................................................................. 49

## CHAPTER 5: ARGENTINA AND THE CDM

5.1 Argentina ......................................................................................... 53
   5.1.1 Geography and history ............................................................. 53
   5.1.2 The AMBA and its Solid Waste ................................................ 58
List of Tables

TABLE 2.1: HUMAN-DERIVED SOURCES OF FOUR PRINCIPAL GREENHOUSE GASES ............................................. 10
TABLE 2.2: GHGS AFFECTED BY HUMAN ACTIVITIES (PRE-INDUSTRIAL AND 1998 CONCENTRATIONS) .......... 11
TABLE 4.1: OPERATIONALISATION OF THE EX ANTE OUTCOMES .................................................................. 42
TABLE 4.2: LIST OF STAKEHOLDERS CONSULTED AND DATA COLLECTION METHODS USED .................. 47
TABLE 4.3: DATA MATRIX .......................................................................................................................... 48
TABLE 5.1: TERRITORIAL LEVELS, POPULATION IN 2001, AND AREA .......................................................... 56
TABLE 6.1: EX ANTE OUTCOMES OF THE CDM PROJECT OF VILLA DOMÍNICO ........................................... 69
TABLE 6.2: PROJECT SELECTION CRITERIA OF THE IFC ............................................................................ 77
TABLE 7.1: EX ANTE OUTCOMES OF THE CDM PROJECT OF NORTE III ..................................................... 93

List of Figures

FIGURE 1.1: DISTRIBUTION OF CDM PROJECTS AROUND THE WORLD ...................................................... 4
FIGURE 2.1: VARIATIONS OF THE EARTH’S SURFACE TEMPERATURE ......................................................... 10
FIGURE 2.2: THE DEVELOPMENT OF CLIMATE MODELS, PAST, PRESENT AND FUTURE ......................... 12
FIGURE 2.3: GLACIER PHOTOGRAPHED FROM THE SAME LOCATION IN AUGUST 1941 AND IN AUGUST 2004 ........................................................................................................ 14
FIGURE 2.4: PROJECT LIFE-CYCLE .............................................................................................................. 19
FIGURE 2.5: DISTRIBUTION OF REGISTERED PROJECT ACTIVITIES BY SCOPE ........................................ 21
FIGURE 3.1: PARTICIPANTS IN THE SYSTEM OF GLOBAL ENVIRONMENTAL GOVERNANCE .................. 28
FIGURE 3.2: GENERAL PRINCIPLES FOR ROBUST ENVIRONMENTAL GOVERNANCE ............................ 32
FIGURE 4.1: CONCEPTUAL SCHEME ........................................................................................................... 42
FIGURE 4.2: TYPES OF CASE STUDY DESIGNS ......................................................................................... 44
FIGURE 4.3: MULTIPLE-CASE STUDY DESIGN WITH EMBEDDED UNITS OF ANALYSIS ......................... 45
FIGURE 5.1: ARGENTINE REPUBLIC: POLITICAL AND TERRITORIAL DIVISION ..................................... 53
FIGURE 5.2: MAPS OF THE DIFFERENT TERRITORIAL DIVISIONS OF BUENOS AIRES ............................... 57
FIGURE 5.3: SANITARY LANDFILLS AND TRANSFER PLANTS IN THE AMBA ........................................... 59
FIGURE 5.4: THE OAMDL .......................................................................................................................... 61
FIGURE 5.5: EXPECTED AVERAGE ANNUAL CERS FROM REGISTERED PROJECTS BY HOST PARTY .......... 62
FIGURE 5.6: OVERVIEW OF CDM PROJECTS HOSTED IN CEAMSE’S LANDFILLS ...................................... 63
FIGURE 5.7: METHANE COMBUSTION REACTION ..................................................................................... 65
FIGURE 5.8: TECHNICAL PROCESS OF DEGASSING .................................................................................. 66
FIGURE 6.1: VIEW OF THE SANITARY LANDFILL VILLA DOMÍNICO FROM AN EYE ALTITUDE OF 10 KM AND 23,5 KM ........................................................................................................... 68
FIGURE 6.2: DEGREE CENTRALITY, PERSPECTIVE OF INVOLVEMENT, AND SCALE LEVEL IN THE VILLA DOMÍNICO PROJECT ........................................................................................................ 85
FIGURE 7.1: VIEW OF THE SANITARY LANDFILL NORTE III FROM AN EYE ALTITUDE OF 10 KM AND 23,5 KM ....................................................................................................................... 91
FIGURE 7.2: PROTEST POSTER ASKING RESPONSIBILITIES FOR THE DISAPPEARANCE OF DIEGO DURANTE ............................................................................................................................ 92
FIGURE 7.4: DEGREE CENTRALITY, PERSPECTIVE OF INVOLVEMENT, AND SCALE LEVEL IN THE NORTE III PROJECT ............................................................................................................... 100
Abbreviations

AIJ: Activities Implemented Jointly
AMBA: Área Metropolitana de Buenos Aires
CBOs: Community Based Organisations
CDM: Clean Development Mechanism
COPs: Conference of Parties
CEAMSE: Coordinación Ecológica Metropolitana Sociedad del Estado
CDA: Critical Discourse Analysis
CERs: Certified Emission Reductions
CPRs: Common-Pool Resources
DNA: Designated Nacional Authority
DNV: Det Norske Veritas
DOE: Designated Operational Entity
ECOTAM: Ente Coordinador de Transporte Metropolitano
EIA: Environmental Impact Assessment
EIT: Economies in Transition
ERPA: Emission Reduction Purchase Agreement
ET: Emission Trading
ETOSS: Ente Tripartito de Obras Y Servicios Públicos
GDP: Gross Domestic Product
GEG: Global Environmental Governance
GHGs: Greenhouse Gases
IFI: International Financial Institution
IGO: Intergovernmental Organisations
INDEC: Instituto Nacional de Estadística y Censos
IOB: Inspectie Ontwikkelingsamenwerking en Beleidsevaluatie
IPCC: Intergovernmental Panel on Climate Change
JGM: Jefatura del Gabinete de Ministros
JI: Joint Implementation
NGO: Non Governmental Organisation
NIMBY: Not In My Back Yard
OAIC: Oficina Argentina para la Implementación Conjunta
OAMDE: Oficina Argentina para un Desarrollo Limpio
OECD: Organisation for Economic Co-operation and Development
PPPs: Public Private Partnerships
SAyDS: Secretaría de Ambiente y Desarrollo Sustentable
SRES: Special Report on Emission Scenarios (SRES)'
SGS: Société Générale de Surveillance
SMBs: Small and Medium-sized Business
UNFCCC: United Nations Framework Convention for Climate Change
UNCED: United Nations Conference on Environment and Development
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Chapter 1: Introduction

1.1 Complex problems lead to complex responses

“The most important contemporary environmental challenges involve systems that are intrinsically global (e.g., climate change) or are tightly linked to global pressures (e.g., timber production for the world market) and that require governance at levels from the global all the way down to the local”

This quotation is taken from the article “The Struggle to Govern the Commons”, jointly written by Thomas Dietz, Elinor Ostrom, and Paul C. Stern. It was published in the scientific journal *Science* in the year 2003 and it has become one of the main sources of inspiration that has led me to decide which research path I would follow in order to round off the Research Master's in Human Geography, Planning and Development Studies at the University of Amsterdam. Making the decision of obtaining such an academic degree was not a fully rational decision due to my lack of knowledge about the content of the study program. But nevertheless, the decision was made because this master was one of the few degrees that offered students with a limited background in natural sciences, the opportunity of specialising in a branch of science fully dedicated to acquiring a thorough knowledge about environmental problems.

During my days as a bachelor student of human geography, I was present in many discussions on the nature of human geography as a scientific discipline. The master years have been no exception. Simply put, and avoiding going into deeper discussions, these years as a student have made me understand that human geography is all about what humans do to the environment, what the environment does to humans, and last but not least, how these two processes take place and interrelate. All of this became very clear at a very early phase of the bachelor years when the following books were used during an introductory course on environmental geography: *The Human Impact on the Natural Environment*, by Anthony Goudie, and *Society and its Environment; An Introduction*, by Egbert Tellegen en Maarten Wolsink. The first title provides an extensive account of all the possible ways in which humans exercise pressure on natural resources and ecosystems, and the second is more focused on the way humans organise themselves in order to cope with the environmental problems originated by their own actions.

As soon as my knowledge in this field started becoming a bit more extensive, global environmental problems and the way humans respond to them became issues that gained my special interest. At the end, global climate change and the creation of the United Nations Framework Convention for Climate Change (UNFCCC)¹ and the Kyoto Protocol as responses to this problem, became the issues that captured my attention and inspired me to conduct the present research.

However, I must say that another field within the human geography has also helped me identify into which direction I wanted to move when writing my master thesis. This was the geography of developing countries. While large portions of the earth population live under extreme poverty conditions without access to essential services like sanitation, education, water, or energy among others, efforts to overcome these major problems have often resulted in increasing pressure on natural resources and severe environmental problems. Even though recent research has brought new insights to the perception of the tension between the environment and development (De Haan, 2000: 359), environmental problems are generally considered as an inevitable result of the double-edged, human-led process of economic development. Nowadays, climate change and the human responses to it seem to be at the core of the discussion on international development. Developing countries are the most vulnerable to the problem and at the same time they have a dramatic lack of economic capacity to adapt to the changes brought about by the problem, and mitigate its effects (Gómez-Echevarri, 2000: 309). The way humans try to solve these challenges

¹ From now on I will refer to the UNFCCC as ‘the Convention’.
Global Environmental Governance and the CDM

and organise themselves in order to take action present research possibilities that I really want to explore.

1.2 Climate policy in action

These considerations on my personal academic interests provide the reader only with contextual information about this research. Up to this point, it is only known that this work will deal with the topic climate change and the human responses to it. What kind of academic work can be expected in the coming pages is yet to be clarified, as well as where the main focus of the research will be. For this purpose I would like to take a look back at the quotation that opens this chapter and link climate change with two inspiring and relevant aspects mentioned there: the intrinsically global character of contemporary environmental problems, and the requirement of multiple levels of governance in order to tackle them.

The transboundary nature of environmental problems should be interpreted as a phenomenon with a spatial and a temporal dimension because their negative and positive effects can be felt and reacted upon far away from their origin in space and time. Climate change, as it will become clear in the coming pages, is probably the most transboundary environmental problem existing nowadays, and its effects (negative and positive) will be felt around the whole planet and also in the years to come. As to the requirement for multiple governance levels, I would like to point out that this intrinsically global character of contemporary environmental problems that I just illustrated makes any attempt of collective response very complex to organise. Since a wide variety of human actions are responsible for environmental problems, and many different actors will be affected by its environmental effects, multi-level organisational structures that can form a solid base for facing global environmental challenges are required. Organising these structures requires very complex agreements in which all the different interested parties will wish to be involved when it comes to deciding how a problem should be solved and who will bear the costs of doing this. Again, climate change is an example of how multifaceted organisational structures have had to be designed in order to cope with the high complexity of the problem. There is a multitude of parties from all the layers of society having something to say within the Convention and the Kyoto protocol, from nation states to corporations or non-governmental organisations (NGOs). Summarising, climate change is an intrinsically environmental problem with worldwide environmental effects for which human responses have taken the form of complex multi-level governance structures.

Taking the intrinsic complexities of climate change, and the organisational complexities of the human response to it as a starting point, I would like to indicate that this research will be placed in the realm of Global Environmental Governance (GEG). The policies proposed by the Kyoto Protocol, and specially the enforcement of one of its instruments: the Clean Development Mechanism (CDM), offer research possibilities that can generate more knowledge on how complex organisations aimed at facing global environmental challenges work in reality, and in this way contribute to enlarging the already broad body of literature on GEG.

But, how is it possible that conducting research on the enforcement of the CDM will bring extra insights to the discussions on GEG? In order to answer this question two things should be done: explaining what the environmental problem of climate change actually is, and providing detailed information about the Kyoto Protocol and the CDM. Even though a more exhaustive explanation of these issues will be given in the next chapters, it is now necessary to briefly clarify them.

Climate change refers to an increase of the surface temperature on earth due to high concentrations of greenhouse gases (GHGs) in the atmosphere. These high concentrations would have been instigated by the large scale human-led process of burning of fossil fuels that has been taking place around the world since the intensification of the industrial revolution two centuries ago. The increase of temperature will enhance the greenhouse effect of the atmosphere,
which will result in the following transboundary, global and complex environmental effects among others: rising sea levels, floods, water shortage or desertification (Tellegen & Wolsink, 1999: 228-29). The organised human response to this environmental problem begins around the nineteen nineties of the twentieth century, when most countries joined an international treaty (the Convention) in order to consider what could be done to reduce global warming and to cope with whatever temperature increases are already inevitable (http://unfccc.int). Out of this treaty the Kyoto Protocol was born in 1997 with the goal of establishing a legally binding framework for mitigating the overall emissions of GHGs. Because of the complex and different pattern of responsibilities with regard to the creation of the problem, some countries have to do with quantified emission reduction obligations and some others do not. One of the policy instruments of Kyoto is the CDM. As defined in article 12 of the protocol (UNFCCC, 1998: 11), the CDM offers countries with reduction obligations the chance of meeting these by implementing projects that reduce GHGs emissions in countries without reduction obligations. Once the reductions have been verified, certified reductions (CERs) are generated, and the implementing parties are allowed to buy them and use them to meet their domestic reduction targets. Furthermore, the CDM has an extra goal, and this is that the implemented projects must assist the countries in which they are implemented in achieving sustainable development.

After this concise explanation of the kind of environmental problem we are dealing with and the human response to it, I can provide an answer to the question posed before. This was: how can research on the enforcement of the CDM bring more insights to the discussions on GEG? I already made clear that the CDM is aimed at achieving two goals: the mitigation goal and the sustainable development goal. In order to put them into practice, all kind of social actors engage into partnerships and participate in the enforcement of the CDM. These actors are nested in many different levels of the administrative ladder going from the transnational, to the national and finally to the local, or they can be free of ties to a specific spatial environment: national governments, project developers, NGOs, transnational financial institutions, municipalities, community based organisations, environmental auditors, and a very long etcetera of institutions (Streck, 2004, p.308). Even though all the actors are tied to the rules as established by the Protocol and by the national governmental institutional arrangements and legislations concerning the CDM, the implementation of the mechanism is characterised by a strong multi-level actor interaction that opens a space for new forms of environmental governance. Thus, the CDM becomes a practical example of how society is attempting to solve a global environmental problem, and how this requires complex multi-level governance arrangements. Because of this, doing research on the way it is enforced can bring extra insights to a discussion about the way humans organise themselves in order to face global environmental challenges.

The main focus of this research lies in exploring the organisation of the CDM in Argentina, which implies that a careful look will be taken into the institutional arrangements regarding this mechanism, and how and by whom these are organised. As I already pointed out, the CDM has two goals: mitigation and sustainable development. Tracing the procedures by which decisions have been made about how these two goals are to be met by the projects is one of the main objectives of this research. Since the stakeholders taking part in the CDM are involved in the implementation of the projects from many different perspectives, and operate from different geographical locations and administrative levels, the main question of this study concentrates on the interaction between them, and on the role they play in the organisation of the CDM in Argentina. This question is phrased as follows: \textit{How have stakeholders organised the governance of the Clean Development Mechanism in Argentina?} The objective is to focus on how multilevel interaction takes place, which is considered by leading scholars as an understudied issue (Ostrom et al. 2001: 15). Nevertheless, it should be noted that these scholars focus on how multilevel interaction affects performance. In the case of the CDM, and because the implementation phase has not yet reached completion, it is not possible to conduct an evaluation research that tries to establish whether the intended goals have been achieved or not,
Global Environmental Governance and the CDM

and hence draw conclusions on the effects of multilevel interaction in the performance of the projects. However, the fact that the mitigation and sustainable development goals of the projects are defined *ex ante*, enables me to conduct a kind of procedural and interpretive research focused on the way decisions regarding the achievement of these goals have been made.

1.3 Argentina: Landfill gas recovery in the Buenos Aires region

When I started looking for a topic for my master thesis in November 2005 and I came across the CDM, only 77 projects had reached the implementation phase. In less than a year this number is almost 12 times higher. At the moment that I am writing these lines (December 2007) there are 881 projects registered and being implemented in 49 of the 149 eligible countries that have signed and ratified the Kyoto Protocol. The distribution of the projects among the eligible countries is rather skew, being the Asian/Pacific and Latin American/Caribbean countries the countries that host the majority of the projects hosting 540 and 310 projects respectively. The African countries only account for 24 of the total number of projects and countries belonging to other regions only host 7.

![Figure 1.1: Distribution of CDM projects around the world](http://cdm.unfccc.int/Projects/MapApp/index.html (24-12-2007))

Even though it is not possible to appreciate where every project is located I have chosen this map (figure 1.1) because it offers a very general geographic distribution of the CDM in only a small glimpse. We can see that there is a high concentration of projects in India, Brazil, and Mexico. African countries host a considerable lower amount of projects. Without entering the discussion about how this distribution is possible, I would just like to refer to Jung (2006: 2173-2184) who claims that three factors determine the attractiveness of a country for hosting CDM projects: the amount of potential expected reductions of GHGs, the institutional capacity of the countries hosting the projects, and the general investment climate.

When this research started getting its actual shape, I was confronted with having to choose from one of the 49 countries where CDM projects are implemented. Because of previous academic experiences in South America and because of my own linguistic background, I decided to choose one of the cases in that region. But it was the recent writing of two papers on the role that the Argentine government plays in protecting the environment, and on the relation between the CDM and poverty alleviation, what finally pushed me to choose for Argentina as the place

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2 *Ex ante* is a Latin term meaning "beforehand". Source: Webster dictionary.
3 The colours of the dots indicate if the projects are large or small scale, and if they have one or more locations.
Introduction

where my research would be conducted. Three revealing findings from these two papers, outlined
below, determined this choice.

In the first place, Argentina has always been on the lead of the countries without reduction
obligations when it comes to taking steps towards the mitigation of climate change. Before the
definitive CDM rules and procedures were even established by the Convention in 2004, Argentina
had already created a government office in 1998 with the purpose of stimulating and
identifying projects that could be implemented under the CDM in the coming years
(medioambiente.gov.ar). In addition, in the year 1998 Argentina became the first country without
reduction obligations to voluntarily commit to set specific targets for the reduction of emissions
of GHGs (Thielen, 2002: 65). Secondly, after the financial crash of the year 2002, when the
legitimacy, efficiency, and transparency of the whole Argentine political system and institutions
were severely questioned, and in order to regain the trust of its citizens and the international
community, the elected government in 2003 embarked on a wave of institutional (re)construction
aimed at regaining allocating power, which affected all the dimensions of the state. Regarding
environmental policy, a new environmental national agenda was formulated with the main goal
of getting the functions of the state back by giving the state the capacity to regulate and mitigate the
problems that market forces bring about (Bases para una agenda ambiental nacional, 2005: 7). The
consequences of this for climate policy were reforms in existing governmental institutions and
the creation of new ones with the purpose of dealing with climate change and organizing the
CDM, as it will be seen in chapter 5 of this thesis. Finally, unlike other countries in similar
circumstances like India or South Africa, Argentina has not developed a specific set of indicators
for appraising the sustainable development contribution of the CDM. Even though a very
sophisticated general system of sustainable development indicators for environmental policies
was created in 2004, it remains unclear against which indicators CDM projects are assessed when
determining whether the project will assist in achieving sustainable development or not.
Moreover, how this assessment actually takes place is a question that remains unanswered.

Summarizing, the Argentine government is highly committed to the cause of tackling climate
change, there are important institutional efforts being made in order to manage the CDM, and
there is a lack of clarity about how the contribution of the CDM to sustainable development is
defined. These three factors make the Argentine situation a very interesting case for conducting
research on the enforcement of the CDM, and have finally inspired me to make the choice for
this country.

Ten CDM project activities have reached the implementation phase in Argentina, being landfill
gas (LFG) recovery the most successful modality. The proof of this is that six of these are project
activities are of this kind⁴. Even though a technical description of the projects will be given later,
it is now relevant to mention that the projects will effect the reduction of GHGs emissions
through the recovery, capture and combustion of methane contained in the biogas stored in the
landfill sites where they take place. If the projects would not take place, the landfill would sooner
or later release the methane into the atmosphere and this would contribute to climate change.
Hence, the degassing of the landfills reduces anthropogenic (human produced) emissions.
Because of the geographical proximity between of the degassing projects in the metropolitan area
of Buenos Aires and their similar modality characteristics, the research is focused on them. An
extensive detailed description of the concerning projects and their respective stakeholders will be
given later in this thesis.

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⁴ The remaining projects will reduce emissions by using alternative energy sources such as biomass or wind power in
different sites of Argentina. There is also one project of capture and decomposition of Hydro-fluorocarbon.
1.4 Significance of this study

**Academic significance**

As I already pointed out in paragraph 1.2, multilevel interaction is considered by leading scholars as an understudied issue within the field of GEG. By focusing on the interaction between multiple levels of management this study will acquire academic significance, which will result into a modest contribution to the body of knowledge on GEG that has been developing in the last years. A great deal of this knowledge has been published in the scientific journal Global Environmental Policy, where Volumes 3 and 4 are almost entirely devoted to GEG issues. Yet, the focus here is very much on the discussion about the need for a World Environmental Organisation and on the role of globalisation and resistance processes, which is a different approach than the one I am taking.

Another aspect that makes this study academically significant is that the CDM rules and procedures do not present any definition of sustainable development and it is the prerogative of host countries to confirm whether a CDM project activity assists in achieving it (http://unfccc.int). This offers social researchers belonging to different disciplines the possibility of exploring how social aspects such as culture, politics, or economy, give a real shape to the much discussed notion of sustainable development. Since one of the purposes of this thesis is to explore how consensus is achieved regarding the sustainable development goal of the CDM in Argentina, place specific insights will be added to this controversial discussion within the social sciences.

Finally, the fact that the CDM projects are being implemented in 49 different countries with different social, legal, political and economic characteristics and traditions, can be considered as a source of inspiration for any social researcher (especially human geographers) interested in exploring the diversity of the policy process around the world in a comparative manner. Fuhr and Lederer (2005: 1-23), are planning to conduct a long-term research on evolving modes of environmental (multi-level) governance based on CDM experiences from Brazil, China and India. Since they focus on a cross-country comparison, which is a much more ambitious endeavour than the one I pursue here, data from my research is scientifically significant because it adds extra empirical material to their future comparative conclusions.

**Societal significance**

The societal relevance of this research is linked to three different aspects directly connected to the topic we are dealing with. The first is the enforcement of Kyoto Protocol in itself, the second is the domestic institutional situation of Argentina, and the third is the Dutch policy concerning the CDM.

Rubio de Urquía (2006: 97-8) considers the Kyoto Protocol as a reference for international cooperation and he claims that it is one of the few examples of a transnational environmental treaty having significant effects. It combines regulations with market instruments, and it integrates national governments, IGOs (intergovernmental organisations), NGOs, and the private sector, which is a very innovative way of responding to an environmental problem. For this reason it is relevant to generate scientific knowledge about the enforcement of such a treaty, which eventually could be used by policy makers when taking future decisions. Even though this research is limited to the CDM, I still consider that it is relevant enough because the survival of the Protocol depends very much on an effective functioning of its mechanisms, and this research creates more understanding about the functioning of the CDM in practice.

Like I said before, the quality of the Argentine institutions was severely damaged during the financial crash of 2002. The Argentine scores on the World Bank governance indicators that measure the regulatory quality of a government show its lowest values in 2002 and 2004
(Kaufman et al., 2005: 11). This research can provide an update to these indicators within the field of Argentine climate policy, where several governmental institutions have been created recently as we will see later. By looking at how these institutions participate in global climate policy, interacting with the rest of the participants, relevant useful information about these institutions can be collected and subsequently placed at the disposal of all the parties involved, and of the parties who would wish to invest in a CDM project in Argentina in the future.

The CERs generated by one of the projects that will be studied in this research have been bought by the Dutch government. As a student at a Dutch university, I consider including this project in my research very exciting. Recently, the Dutch House of Representatives has asked some questions to the government about the contribution of the Dutch projects to sustainable development. As a result of this, the Inspectie Ontwikkelingsaanwerking en Beleidsevaluatie (IOB) of the Dutch Ministry of Foreign Affairs has included a research on this issue into its evaluation program for 2005-2009, which shows that my research has an important level of societal relevance in the Netherlands. The IOB research was supposed to be finished in 2007 but has not been released yet. Having a look at the terms of reference of this research shows remarkable similarities with my own research, i.e. a special stress on how the sustainable development goals of the projects are defined (De Kemp, 2006: 16). In the case that the IOB does not include the Argentine projects of this thesis in its research, my research will provide them with an extra case study. If this is not the case, my research will offer comparison material.

1.5 Structure of the thesis

Chapter one - This chapter has given a general introduction to the thesis. Firstly, it has become clear that my personal academic interests, as well as the acquired academic experience during the last five years, have been the crucial factors which have determined that GEG and the organisation of the human responses to climate change becomes the subject of the thesis. Next, we have seen that because of the global character of climate change, complex multilevel governance structures are needed to face the problem. The CDM, aimed at mitigating the emission of GHGs and contributing to sustainable development, is one of these complex multilevel structures within the framework of the Kyoto Protocol. Afterwards it has become clear that the main focus of this research is exploring how the different stakeholders involved in the CDM in Argentina organise its enforcement. Finally, the choice for the Argentine case has been justified and the academic and societal relevance of the research have been outlined.

Chapter two – In a more detailed manner than in the introductory chapter, this chapter will present an examination of the environmental problem of climate change and the human responses to it. For obvious reasons, thorough attention will be given to clarifying the Kyoto Protocol and especially to the CDM policies and procedures.

Chapter three - This chapter will introduce the theoretical framework from which the research derives its foundation. A conceptualisation of the governance notion will be given: first, an account of the evolution of the notion within the social sciences will be given, and second, because of the wide disciplinary scope of the notion, the necessary demarcations will be established by linking the concept to the governance of global environmental problems and the relevant literature on GEG. Secondly climate change will be discussed from an analytical perspective which will offer us the proper transition to the presentation of the analytical framework of this research. Finally some relevant theoretical concepts and their relevance for this research will be discussed.

Chapter four - The technical part of the research will be discussed in this chapter. Firstly, a short epistemological mention will be done. Next, the main research question will be presented as well
Global Environmental Governance and the CDM

as the secondary working questions. Also, the main concepts of the research will be properly
defined, made operational and discussed in the light of the possible relationship between them.
This chapter will conclude with an extensive outline and justification of the research strategy, the
data collection and data analysis methods used to generate knowledge, and a reflection on them.

Chapter five - This chapter will be fully focused on the presentation of the context in which the
research is conducted. Attention will be drawn to relevant information about Argentina, and
especially about the metropolitan area of Buenos Aires, which is the location of the sanitary
landfills hosting the CDM projects studied in this thesis. Waste collection and disposal in this
geographic area, and the social conflicts inherent to these activities, will be discussed due to the
importance of this topic for the research. Afterwards attention will be given to the CDM
situation of Argentina. How the national administration has organised itself in order to
participate in the CDM will be discussed. In the last section, some technical information about
sanitary landfills will be given, as well as some technicalities related to the technology used to
combust the methane present in the landfills and responsible for the reductions of emissions of
this gas.

Chapters six & seven - The objective of these chapters is to present and analyse the collected
data in order to provide an answer to the research questions. Since the data has been collected
from two different CDM projects its presentation will be done in two separate chapters. Based
on a careful analysis of these data, the empirical findings of the research will be presented, which
will result in an accurate view of the how the different stakeholders organise the governance of
the CDM in Argentina. Due to the shorter dimensions of the seventh chapter, the general
empirical conclusions of the whole research will be also presented here.

Chapter eight - This chapter will start with a reflection on the research process. Answer to the
research questions will also be given here, and afterwards the relevant links between the findings
of the thesis and the theoretical framework will be made. In the final sections of this chapter,
research and policy recommendations will be formulated and some personal reflections about the
CDM as a tool for governing the global atmosphere and achieving sustainable development will
be made.
Chapter 2: Climate Change and Human Responses

As explained in the first chapter it is now time to provide exhaustive information about the environmental problem that concerns us and the way humans have organised themselves in order to deal with it so far. I consider this as a necessary step that will enable the reader to acquire a deeper understanding of the reality studied in this research before I link it to the theories about GEG that will be exposed in the theoretical framework. Firstly, I will proceed to explain the environmental problem of climate change from a technical perspective. The causes of the problem and the evidences of its existence will be indicated. Because of the controversy generated by the issue, special attention will be given to the way the science of climate change has been practised. In the second section, I will shortly explain the consequences of climate change for the physical and social environment. This will present a logical transition to the third section where the human actions that have been designed with the purpose of tackling climate change will be thoroughly discussed. I am referring to the Kyoto Protocol and specifically to the central topic of this research: the CDM. Finally, the fourth section of this chapter will provide an exhaustive description of the CDM by paying attention to its operational rules, the parties involved, and the mitigation and sustainable development goals of the mechanism.

2.1 The problem: enhanced greenhouse effect

In the first chapter of this thesis I already introduced a brief definition of the environmental problem climate change, which certainly requires the necessary broadening that I will provide in this section. This will be done from my modest position as a social researcher and strongly relying on the works of two natural scientists: the climate scientist Jerry D. Mahlman and the physical geographer Andrew Goudie, and on the materials provided by the Intergovernmental Panel for Climate Change (IPCC)\(^5\).

The basic principle of the introduced definition was simple: due to an increase of human produced emissions of GHGs into the atmosphere, the greenhouse effect of the earth will be enhanced, causing a global rise of temperatures that will unleash enormous environmental effects. Nevertheless some questions still remain unanswered: what is the greenhouse effect? In which way is it disturbed by human actions? Why will its disturbance have such far reaching environmental effects? An answer will be given in the coming lines.

In his article “Science and Nonscience Concerning Human-Caused Global Warming”, Mahlman explains that the earth is strongly heated on a daily basis by incoming solar radiation which is counterbalanced by an equally strong infrared radiation leaving the planet (Mahlman, 1998: 85). Three components present in the atmosphere (clouds, H\(_2\)O and CO\(_2\))\(^6\) have the capacity of absorbing this infrared radiation keeping the earth’s surface temperature at levels that make life possible as we know it. This process is what we call the greenhouse effect, and it owes its name to its similarities with the way greenhouses are warmed up by solar light. The materials greenhouses are made of (mostly glass or plastic) capture the heat that is reflected from the ground and warm their interior facilitating the cultivation of plants.

The existence of the greenhouse effect is crucial for human life. If we imagine a situation in which the three infrared absorbers were absent, the global mean surface temperature would be 33º C colder than it is today because the infrared radiation would not be absorbed. Life as we know it today would be impossible. Yet, not the depletion of these absorbers but their higher concentration in the atmosphere is the problem we are dealing with. As table 2.1 shows, human

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\(^5\) The IPCC was established in 1988 by the World Meteorological Organisation (WMO) and the United Nations Environmental Program (UNEP) to provide independent scientific advice on all aspects relevant to climate change (www.ipcc.ch). More information about this panel will be given in the last section of this chapter.

\(^6\) H\(_2\)O and CO\(_2\) are Water Vapor and Carbon Dioxide respectively.
activities based on the burning of fossil fuels aimed at the production and consumption of goods by humans, and other activities like agriculture, forestry or waste management, are responsible for the release of extra CO$_2$ and other trace gases (the so-called GHGs) into the atmosphere. This release of GHGs is what we called anthropogenic emissions and it reinforces the natural emissions of GHGs also shown in table 2.1.

**Table 2.1: Human-derived Sources of four principal greenhouse gases**

<table>
<thead>
<tr>
<th>Gas</th>
<th>Natural sources</th>
<th>Human-derived sources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carbon dioxide (CO$_2$)</td>
<td>Terrestrial biosphere</td>
<td>Fossil fuel combustion, Cement production, Land-use modification</td>
</tr>
<tr>
<td></td>
<td>Oceans</td>
<td>Fossil fuels (natural gas production, coal mines, petroleum industry, coal combustion)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Enteric fermentation (e.g., cattle)</td>
</tr>
<tr>
<td></td>
<td>Natural wetlands</td>
<td>Rice paddies</td>
</tr>
<tr>
<td></td>
<td>Termites</td>
<td>Biomass burning</td>
</tr>
<tr>
<td></td>
<td>Oceans and freshwater lakes</td>
<td>Landfills</td>
</tr>
<tr>
<td>Methane (CH$_4$)</td>
<td>Oceans</td>
<td>Animal waste</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Domestic sewage</td>
</tr>
<tr>
<td></td>
<td>Tropical soils (wet forest, dry savannas)</td>
<td>Nitrogenous fertilizers</td>
</tr>
<tr>
<td></td>
<td>Temperate soils (forest, grassland)</td>
<td>Industrial sources</td>
</tr>
<tr>
<td></td>
<td>Nil</td>
<td>Land-use modification (biomass burning, forest clearing)</td>
</tr>
<tr>
<td>Nitrous oxide (N$_2$O)</td>
<td>Oceans</td>
<td>Cattle and feed lots</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Rigid and Flexible foam</td>
</tr>
<tr>
<td></td>
<td>Tropical soils (wet forest, dry savannas)</td>
<td>Aerosol propellants</td>
</tr>
<tr>
<td></td>
<td>Temperate soils (forest, grassland)</td>
<td>Teflon polymers</td>
</tr>
<tr>
<td>Chlorofluorocarbons (CFCs)</td>
<td>Nil</td>
<td>Industrial solvents</td>
</tr>
</tbody>
</table>

Source: Adapted from Goudie 2006: 200

This process represents a major change in the heat balance of the earth. As Mahlman (1998: 86) puts it, the emission of extra amounts of GHGs is like adding another ‘blanket’ to the atmosphere. This process will enlarge the atmosphere’s capacity to absorb heat causing an increased downward infrared radiation that otherwise would not take place. As a result of this, a rise of the global temperature on earth is expected to happen, or actually, if we believe the scientific evidence as presented by the IPCC, I should correct these last words and indicate that the global increase of temperature is already happening, as figure 2 shows.

**Figure 2.1: Variations of the Earth’s surface temperature**

Comparing the average temperatures registered on the earth surface since the year 1860 with average temperature from the period comprised between 1961 and 1990 (horizontal line in figure 2.1), shows that the registered temperatures have been almost constantly on the rise since the beginning of the twentieth century, reaching their warmest peak in the last years of the nineteen nineties.

If we take into account that the concentrations of GHGs were relatively constant during the millennium before the industrial era, and that they have substantially increased since this era began (table 2.2), we can conclude
Climate Change and Human Responses

that there is a link between the human activities described by table 2.1, the increase of atmospheric GHGs concentrations, and the increase of surface temperature. The IPCC is very clear on this: “Most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations” (IPCC, 2007: 10).

| GHGs Affected by Human Activities (Pre-industrial and 1998 Concentrations) |
|---------------------------------|--------|--------|--------|--------|--------|
| CO₂ (Carbon Dioxide)            | CH₄ (Methane) | N₂O (Nitrous Oxide) | CFC-11 (Chlorofluorocarbon-11) | HFC-23 (Hydrofluorocarbon-23) | CF₄ (Perfluorocarbon) |
| Pre-industrial concentration    | about 280 ppm | about 700 ppb | about 270 ppb | zero   | zero   | 40 ppt |
| Concentration in 1998           | 365 ppm | 1742 ppb | 314 ppb | 268 ppt | 14 ppt | 80 ppt |
| Rate of concentration change    | 1.5 ppm/yr | 7.0 ppb/yr | 0.8 ppb/yr | -1.4 ppb/yr | 0.55 ppb/yr | 1 ppb/yr |
| Atmospheric lifetime             | 5 to 200 yr | 12 yr | 114 yr | 45 yr | 260 yr | >50,000 yr |

Source: Adapted from Houghton et al. 2001: 38

Nevertheless, it would be unfair to continue with this elucidation without mentioning that a general and dominant feeling of uncertainty has always been inherent to the science of climate change. This feeling is rooted in the fact that the scientific community has acknowledged significant remaining uncertainties in the projections of possible future climate changes (Mahlman, 1998: 98). If this is the case, the acceptance of the environmental effects of climate change and the subsequent policy interventions and attempts to tackle the problem are at stake. But before I get into these issues it is necessary to explain why scientists have acknowledged the existence of uncertainty. It can be said that scientific uncertainty is related to the following two elements: (a) the research tools available to scientist studying the climate system, and (b) the high level of complexity of the system that they study.

The way knowledge on climate change is generated has created uncertainties concerning its interpretations. The science of climate change is based on observational and modelling research and a combination of both. Mahlman (1998: 89) defines climatic modelling as “computer-based simulations of various phenomena based on numerical solutions of the theory-based equations governing the phenomena under investigation”. This means that the climate system can be translated into bits and bites so that a computer can understand it. Afterwards one can simulate how this computerised climate system would react over time when exposed to also computerised variables like higher concentrations of GHG’s, increased temperatures, or less precipitations, and in this way predict and create future climate scenarios. The same logic can be used in order to reconstruct climatologic periods in the past and then compare the results of the computer model with the real observations registered in the same period of time. Divergences between this sort of reconstruction models and real observations of the past can provide valuable information about the reliability of the computer models when making future projections.

It should be noted that non-climatic models based on social factors are also used to create future scenarios. In its Special Report on Emission Scenarios (SRES), the IPCC has created 40 scenarios grouped into 6 scenario families covering a wide range of the main demographic, economic, and technological driving forces of GHG, that sketch a different future for our planet (IPCC, 2000: 3). Assessments of the possible impacts of climate change are based on scenarios created by both climate and non-climatic models, which makes the practice of the science even more complex.

7 When the IPCC says very likely, they mean a likelihood between 90 and 95 per cent using expert judgement (IPCC, 2007: 3).
8 The abbreviations ppm., ppb., and ppt. mean particle per million, billion and trillion particles present in the atmosphere respectively. The abbreviation yr. means year.
The development of computer technology has been crucial for the veracity and validity of the conclusions that can be drawn out of the models. Nowadays this technology has become much more powerful and relatively inexpensive than in the second half of the twentieth century, which has made possible that most of the variables that scientists consider to be relevant for climate change are finally included in the models. Much of the uncertainty has vanished in the last years but there is still a long way to go. Figure 2.2 provides a clear image of the evolution of climatic models in the last three decades by showing how the amount of relevant factors included in the models has considerably increased. Nevertheless, the IPCC admits that even though confidence in the ability of models to project future climates has increased, a certain model uncertainty still remains.

Figure 2.2: The development of climate models, past, present and future

Source: www.ipcc.ch/present/graphics.htm

The other source of scientific uncertainty is that the object of study of the science of climate change is the earth’s climate system as a whole. One of the purposes of this science is creating different future climate scenarios in order to predict the mean and variability of surface variables such as temperature, precipitation and wind on a long term basis. Based on the calculated scenarios, conclusions about the possible environmental effects are drawn. This is not an easy task if we consider that the climate system has five highly complex major components: atmosphere, hydrosphere, cryosphere, land surface and the biosphere, and that they present an intense level of interaction (Houghton, 2001: 788-9). The influence of many natural phenomena that are present in the climate system, and the difficulty of including them in the climatic models, has been responsible for countless headaches within the scientific community studying climate change. Without going into too much detail and with the purpose of illustrating the complexities of the climate system, I would shortly like to comment on three of these natural phenomena: these are the albedo effect, the impact of clouds, and the impact of aerosols:

- According to Goudie (2006: 205) the albedo is the proportion of the incident radiation that is reflected by a surface and it measures the ability of the surface to reflect radiation into the atmosphere. Radiation is absorbed or reflected in different degrees by different surfaces, and this can affect temperature and precipitation patterns. Clouds, surface snow cover, ice surface or desert lands reflect much more energy back to the atmosphere than land covered by plants. Different land-use types also have different albedo levels, i.e. agricultural grasslands reflect much more energy than tall rain forest, which means that humans can and have already produced albedo changes. Some scientist claim that these changes are practically undetectable but some others claim that the effects of albedo changes like the reduction of vegetation cover in the Amazon region are already felt in precipitation and evaporation levels of that area (Goudie, 2006: 206). If we believe the future climate scenarios calculated the IPCC where sea ice levels will decrease and desertification will be intensified, we can expect major albedo changes with temperature and precipitation effects that are difficult to predict.

-Clouds are a major source of uncertainty in the science of climate change. Since clouds also act as absorbers of radiation, Mahlman (1998: 88) explains that an increase of CO₂ in low clouds would have negative feedback to global warming producing a cooling effect of the earth’s surface, while the same increase in higher clouds would provide a positive feedback adding absorptive capacity to the atmosphere. So far scientists have been unable to exactly determine
what impacts clouds will have in a future world in which concentrations of CO₂ are substantially increased.

- Aerosols are finely divided solid or liquid particles dispersed in the atmosphere. They have the direct effect of scattering and absorbing infrared radiation causing a cooling effect by preventing this radiation from reaching the earth’s surface, but they also have the indirect effect of affecting cloud formation, which can result in positive and negative feedback to global warming (Goudie, 2006: 202). Measuring the aerosols present in the atmosphere and quantifying their direct and indirect effects in the cooling or heating of the earth remains a complicated task for scientists (Mahlman, 1998: 88).

Scientific uncertainty based on the limitations of the way the science of climate change is practised and on the high complexity of the climate system, has caused that the future climate scenarios calculated by climate models and its corresponding environmental effects are hard to believe for some. Moreover, there has been a widespread scepticism based on the belief that global warming can be a natural process because humans do not have the capacity to modify the climate. Yet, there is a wide international scientific and political consensus that has accepted the opinion of the IPCC when it concludes that: “In the light of new evidence and taking into account the remaining uncertainties, most of the observed warming over the last 50 years is likely to be due to the increases in greenhouse gas concentrations” (Mitchell, 2001: 30). Obviously, the increase of GHG concentrations is due to the human activities described by table 2.1. Even if we take this statement of the IPCC for granted, it is still not clear which environmental and social effects climate change will have, and this is because the only thing scientists can do is make predictions based on models. Depending on the variables used in the models, different future environmental scenarios are created. Also, depending on how these become interpreted different social effects can be expected. Next section will comment on this.

2.2 The consequences: environmental and social effects

The environmental effects of climate change are not only negative. Very often, the consequences of the increase of surface mean temperature in Northern European latitudes is used as an example that illustrates how there will be some winners if climate change really kicks off. It is expected that agricultural yields will increase for most Northern European crops as a result of increasing atmospheric CO₂ concentrations (Manning & Nobre, 2001: 53). The occurrence of this positive effect, among others, tells us that the use of the term ‘environmental effect’ does not only refer to negative effects. Nevertheless, climate change is considered by humans as a problem that must be mitigated, which means that its negative effects weight heavier than the positive. As Mahlman says (1998: 102): “It is likely there would be many losers and some winners”. The IPCC corroborates this opinion when it says that for small amounts of change some benefits for some regions or sectors can be projected, although the majority of the affected human systems will be adversely affected. In the case of larger amounts of change the few projected benefits diminish and the damages increase (Leary, 2001: 1-22). If we thought that climate change was good for us we would let it happen or we would increase the positive feedback of the anthropogenic activities that are responsible for it. Thus, whenever I refer to the environmental effects of climate change in this thesis I mean the negative effects that have pushed us to organise ourselves with the purpose of tackling something that we interpret as a problem.

In the report ‘Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change’, the IPCC makes an extensive outline of the projections about the environmental impacts of climate change. Even if we limit ourselves to this more than thousand pages long report, we see that the list of environmental effects is a long one. All-embracing natural systems like water resources, terrestrial and fresh water ecosystems, or coastal zones and marine ecosystems will be severely affected by
an increase of temperature. It would take too long to thoroughly describe how these natural systems would be affected and yet the occurrence and the intensity of the effects would depend on the models and scenarios used to make the descriptions. Summarizing, it can be said that a global warming of the earth’s surface temperature would mean a substantial retreat of northern hemisphere sea ice, a sea level rise to more than a meter over the next several hundred years, a sharp reduction of the overturning circulation of the North Atlantic Ocean, an overall alteration of precipitation patterns, an increase of the intensity of tropical hurricanes, and a long list of environmental changes that would put a lot of pressure on the existence of society and its organisation as we know it today (Leary, 2001: 1-22). Moreover, some natural systems like hydrologic and glacier systems have already been altered by the temperature change experienced in the last century. Figure 2.3 provides a very graphic example of this.

Figure 2.3: Glacier photographed from the same location in August 1941 and in August 2004

Source: Un Tsunami a cámara lenta. Diario El Mundo (01-21-2006)

The underlying question is why the existence of society will be so severely threatened? If we take all these environmental effects and we check what they might mean for human systems like water resources, agriculture, forestry, fisheries, human settlements, industry, energy and financial systems, we come to conclusions that might seem apocalyptic if we use worst case scenarios of imminent occurrence. According to an extreme worst case scenario formulated by experts of the Pentagon (Schwartz & Randall, 2003: 1-22) with the purpose of analysing the possible implications of climate change for United States national security, coastal cities like The Hague will be under water in the year 2007, and the carrying capacity of the earth will be outstripped, resulting in massive migrations waves in South Asia and oil related conflicts in the Middle East. The consequences would be open global warfare.

Whether we believe the worst case scenarios or not, food and water security, incomes and livelihoods, human health and infrastructures, will be largely distressed (Leary, 2001: 1-22). The following are just a few examples of this distress: (a) a sea level rise of more than a meter won’t have any major impact on countries without a coastline like Switzerland or Bolivia. On the contrary low-lying countries like the Netherlands or Bangladesh, all coastal regions where human activities take place, and small island states like the Maldives or the Republic of Tuvalu, with a highest location of less than five meters above sea level, might see a large percentage of their surface disappear under water, if not all of it. This represents a major threat for all the humans systems named before and present in these areas. They might be either radically altered or destroyed. (b) Altered patterns of rainfall in arid and semiarid regions where water is scarce and agriculture is the main source of income, might be responsible for decreased crop yields. The livelihoods of the communities that inhabit these kinds of areas will be put under stress and

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9 It is not relevant for this thesis to discuss the intention of the makers of this report for the domestic environmental political situation of the United States. I just use the report to show one of the worst case scenarios of abrupt climate change.
episodes of famine, armed conflict or massive migration are expected to happen. (c) Increased intensity of tropical hurricanes can be disastrous for the regions that every summer have to suffer the destructive power of such natural phenomena. We could assume that, as a consequence of climate change, the intensity of the majority of the storms that will take place in the future will reach destructive levels similar to hurricane Katrina, which caused the destruction of almost the entire city of New Orleans in the summer of 2006. Once again, it should be said that some human systems have already been altered by the warming that has been occurring in the last hundred years. The amount of weather related losses has become ten times higher than in the 1950s, and the IPCC relates this directly with climate change (Leary, 2001: 1-22).

If we imagine a world in which islands and coastal regions disappear under water and in which drought causes the death of thousands of people, and the destructive power of tropical hurricanes gets even bigger, we could conclude that existence of society as we know it today will indeed be severely threatened by climate change. Still, the environmental and social effects of climate change are in most of the cases predictions that depend on the climate scenarios used to make an estimation of their reach. If environmental effects are difficult to predict, how humans will exactly react to these changes becomes an even more difficult task. This adds to the complex nature of the problem and makes policy making such a challenging activity.

### Short historical mention

If we look at the science climate change from an historical perspective, we see that one of the first academics who claimed that the temperature on earth could rise because of the increase of CO2 produced by fossil fuel burning was the Swedish chemist Svante August Arrhenius (Mahlman, 1998: 85). His work ‘On the Influence of Carbonic Acid in the Air Upon the Temperature of the Ground’ published in 1896 in the Philosophical Magazine started creating the acceptance among scientist that the emission of CO2 into the atmosphere could modify the temperature on the earth’s surface. Reading this article one realises that other authors had already written about this issue. Actually the article opens like this: “A great deal has been written on the influence of the absorption of the atmosphere upon the climate” (Arrhenius, 1896: 237), and proceeds by giving examples of the works of other contemporary scientist like Tyndall, Fourier, Pouillet and Langley, who were already aware of the absorptive capacity of the atmosphere and its possible influence upon ground temperature. But according to Mahlman (1998: 85), the first research that quantified the human enhancement of the greenhouse effect was the work of Manabe and Wetherald published in 1967 ‘Thermal Equilibrium of the Atmosphere with a Given Distribution of Relative Humidity’. This was the starting point that was followed by an enormous amount of research up until present days. The establishment of the IPCC in 1988 and the release of its first report in 1990 expressing the concerns of more than 400 leading scientists have given the issue a place of preference in the international political agenda.

### 2.3 The human response

The proposed solutions to climate change so far, point in the direction of rearranging the activities that have caused the problem. This is the moment when politics actively enter de arena of climate change. It happens very often that some countries trivialize the consequences of climate change and tend to believe that the problem is not so serious, showing what Mahlman (1998: 99) defines as an ‘ostrich’ attitude. It can also be that other countries, even without relying on scientific evidence, are strongly concerned about the consequences. These are called by the same author ‘chicken littles’. These two attitudes might be provoked by the fear of the economic consequences of rearranging the activities responsible for the emissions of GHGs, and also by the different degree of seriousness that climate change will have for the different natural and human systems all around the world. Despite the conflicts raised between the parties sharing these two attitudes, humans have managed to reach an internationally widely accepted consensus
and to organise themselves in order to tackle the challenges posed by climate change. The fundamental ideas behind this are two: mitigation of the emissions of GHGs and adaptation to its effects.

It all started with the establishment of the IPCC in 1988, the Earth Summit\textsuperscript{10} being held in Rio de Janeiro in 1992, the subsequent creation of the Convention in 1994, and the birth of the Kyoto Protocol in 1997 in Japan. As I pointed out in section 2.1, the IPCC was established in 1988 by the WMO and the UNEP with the purpose of providing independent advice on all the issues related to climate change. Regardless of the scientific uncertainty mentioned before, the growing evidence of the existence of climate change within the scientific community lead to the creation of the IPCC. Within the IPCC there are three working groups that assess the scientific aspects of the climate system and climate change, the vulnerability of the different natural and social systems, and the possible options for reducing the emissions of the different GHG’s (www.ipcc.ch). The information and assessments provided by the IPCC together with the active presence of civil society groups at the summit in Rio, influenced the participants to include climate change in the agenda of issues that should be dealt with during the summit and afterwards. As a result, the Convention was formed and the first steps towards the Kyoto Protocol were given (CDMwatch, 2003: 7). The ultimate objective of the Convention is “stabilising greenhouse gas emissions at levels that would prevent dangerous anthropogenic interference with the climate system”, which will be pursued by setting an overall framework for intergovernmental efforts aimed at sharing information on GHGs emissions, and launching strategies for mitigation and adaptation (http://unfccc.int). The 189 countries that have ratified the Convention have been meeting on a yearly basis since its creation in the so-called Conferences of Parties (COPs). It was during the COP 3 in 1997 in the Japanese city of Kyoto that the Kyoto Protocol was created with the purpose of strengthening the commitments agreed upon by all the parties of the Convention, as we will see next.

2.3.1 Kyoto: mitigate and adapt

Due to the characteristics of the Kyoto Protocol, much has been said in the light of what such a treaty means for international politics and cooperation in times of globalisation. It is very remarkable that a great amount of countries around the world has agreed to sign and ratify an environmental legally binding treaty that punishes those who do not comply with their obligations, which did not happen very often before (Rubio Urquía, 2006: 97). It is also very remarkable that the chosen path to tackle climate change is that of multilateral action and also that of mixing classic regulations with market-based mechanisms. But, since this thesis is focused on exploring the vicissitudes of the implementation of one of the mechanisms of the treaty, I won’t stop here to comment on the virtues and shortcomings of the treaty itself and the good and bad lessons that we can learn from the long negotiation process that has been taking place since COP1 in 1995. Considerations of this kind will only be made in relation to the CDM, whose governance in a real setting is the subject matter of this thesis. Next, using information provided by the website of the Convention (http://unfccc.int), I will proceed to generally explain how Kyoto works.

The fundamental ideas of mitigation and adaptation are reflected in the Kyoto Protocol as the way to strengthen the agreements of the Convention. But before explaining the proposed activities belonging to these two domains, the principle of common but differentiated responsibilities should be clarified. This principle refers to the way obligations are balanced within the treaty and it is based on the following three pillars: (a) some countries have been emitting GHGs for a much longer time (the so-called historic emissions), which means that their contribution to the creation of the problem has been bigger, (b) some countries’ current

\textsuperscript{10}The real name of this summit was the United Nations Conference on Environment and Development (UNCED).
emissions of GHGs are way much higher than the emissions of others, and (c) some countries possess a higher financial capacity to tackle climate change and to adapt to its environmental and social effects. Because of the complex transboundary nature of the problem all the ratifying parties have the common responsibility of tackling the problem, but due to the financial and historical differences among them only a group of countries will have to accept severe and imminent commitments. This is the reason why the Convention has divided the parties into two groups: Annex I and non-Annex I countries. Annex I countries include industrialised countries with high historical and current levels of emissions and with a superior financial capacity to mitigate and adapt. These are the members of the Organisation for Economic Co-operation and Development (OECD) and countries with Economics in Transition (EIT) including the Russian Federation, the Baltic States and some Eastern European States. Non-Annex I countries include developing countries with a much lower financial capacity to mitigate and adapt.

On 16 February 2005 the Kyoto Protocol entered into force. This was made possible because, as the protocol self requires, at least 55 parties of the Convention ratified the treaty and among these parties there were Annex I countries that accounted for more than 55% of the emissions of GHGs. Within the domain of mitigation, what Kyoto proposes is that Annex I countries are required to achieve a determined emission reduction target for the period of 2008 to 2012 so that the overall level of concentrations of GHGs in the atmosphere goes back to levels 5% lower than levels in 1990. Non-Annex I countries are only required to report on their emission situation by submitting national communications to the Convention, being free of any binding mitigation commitment. Regarding adaptation, Kyoto proposes that there must be economic, technological and intellectual cooperation between parties in order to prepare for the impacts. Also, a subcategory of the richest countries within the Annex I (Annex II countries), has the extra obligation of assisting developing countries in meeting the costs of adaptation. The specific actions that non-Annex I must take concerning adaptation are limited to reporting their adaptation plans to the Convention through the submitted national communications.

Rearranging all the activities that cause the emissions of GHGs in order to meet the emission reduction targets is a costly activity for the countries that embark on such an enterprise. The Kyoto Protocol has designed the so-called ‘flexibility instruments’, which offer these countries the opportunity of meeting their emission reduction obligations in a more flexible and cost-effective manner. This is based on the assumption that reducing emissions of GHGs can be less costly in some places than others. These instruments are the Joint Implementation (JI), Emission Trading (ET), and the CDM. Under JI, Annex I countries may implement a project that reduces emissions in the territory of another Annex I country. Under ET, Annex I countries may transfer some of the emissions under their assigned amount to other Annex I countries that find it more difficult to meet their emission targets (UNFCCC, 2000: 12). More extensive considerations about the inner workings of these two flexible instruments are not relevant for this thesis. However, the CDM deserves a more detailed explanation.

2.3.2 The CDM: mitigate and develop

A short definition of the CDM was introduced in the first chapter. This definition was not broad enough if we really want to understand what the CDM is about and how it will relate to the governance of a transboundary environmental good such as the climate. Even though the rules and procedures of the CDM will be explained later, now I want to provide more detailed contextual information about the mechanism.

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11 In the first chapter I already referred to these countries as countries with or without emission reduction obligations. From this moment I will use the term Annex I and non-Annex I countries, being Annex I countries the ones that have obligations and non-Annex I countries the ones without them.

12 The last count of parties of the Convention that have ratified the Kyoto Protocol rises up to 177 in January 2008.
I should start by reminding that the CDM is purely a mitigation instrument. The CDM offers Annex I countries that have signed and ratified the Kyoto Protocol the possibility of implementing project activities to reduce emissions of GHGs in non-Annex I countries. After a project is validated and the reductions of emissions are certified, CERs are generated, and they become property of the non-Annex I country that hosts the project. Annex I countries can buy the CERs from the host country and use them to meet their domestic emission targets as set by the Protocol. One CER is equivalent to one metric tonne of CO₂.¹³

The mechanism was born at the end of the COP 3 in Kyoto, and it has often been called the ‘Kyoto Surprise’ because it was negotiated in the last days of the COP 3 without major prior consultation (Matsuo, 2003: 197; Streck, 2004: 300). It originates from the Activities Implemented Jointly (AIJ), which were a sort of test for project-based mitigation activities and were being implemented since COP 1. Annex I countries showed a lot of interest in including the AIJ in the future Kyoto negotiations, but this interest was not shared by non-Annex I countries. According to Streck (2004: 300) these activities were partly interpreted by non-Annex I countries as a new form of colonialism, and moreover, evaluations of the AIJ projects were not yet complete at the beginning of COP 3, which did not provide reliable evidence of the benefits. At the end, the concept of CDM came to life based on a combination of proposals coming from Brazil and the United States. The Brazilians had proposed the creation of a Clean Development Fund (CDF) which would be financed by the economic sanctions put on Annex I countries non-compliant with their emission reduction commitments. This fund would help non-Annex I countries finance mitigation and adaptation strategies. Parallel to this, the United States made a proposal for JI that was very much focused on increasing flexibility in order to avoid as many domestic economic measures as possible, and that already included a sustainable development goal. With the creation of the CDM taking aspects from the CDF and the United States proposal for JI, the establishment of a CDF was given up. Non-Annex I countries gained a new source of funding through the project activities and the generation of CERs that they could sell, and they also saw the inclusion of a sustainable development goal in the CDM projects. Annex I countries gained increased flexibility in meeting their reduction obligations, and they saw non-Annex I countries included in the mitigation efforts (Matsuo, 2003: 197-98; Streck, 2004: 301). The CDM would take its final operational form in 2001 during the COP 7 in Marrakech, where the CDM Executive Board was created as the standardised institutional framework determining the operational rules to follow.

2.4 The CDM in practice

The description of the CDM which has been given is a very superficial one and it does not reflect the complexities which are inherent to implementation of the mechanism. It is therefore necessary to examine some issues that will help the reader gain a better understanding how the mechanism works in a real setting. This will be done by going deeper into the operational rules of the CDM, by presenting the potential stakeholders of a CDM project, and by giving a short description of some matters relevant to the mitigation and sustainable development goals of the projects.

2.4.1 The Rules of the game

The CDM is a project-based activity that, like many others, has very specific operational rules. As it has been already said, these rules took their final form in 2001 during the COP 7 in

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¹³ In the case of projects that effect mitigation by reducing the emission of other GHGs, reductions are reported on a CO₂ equivalent basis. Every GHG has a determined global warming potential, which makes possible to convert metric tonnes of a GHG other than CO₂ into one metric tonne of CO₂.
Marrakech, where the CDM Executive Board\textsuperscript{14} was created. This organisation “supervises the CDM, under the authority and guidance of the COP” (UNFCC, 2001: 27). Even though the operational procedures were originally established in Marrakech, their last update can be found in the documentation published following COP 11 in Montreal in 2005 (UNFCC, 2005: 6-93). If we want to understand how projects work, which parties are involved and why they participate, it is wise to give a short overview of these rules now. In UNFCC (2005: 6-93) we can see the guidelines and the conditions that a project must follow and comply with to be formally registered as a CDM project activity. This document shows that a project must follow a life-cycle of eight stages which involves: design, host country approval, validation, registration, implementation and financing, monitoring, verification and certification, and issuance of CERs. All these activities are performed by different actors that I would like to define now:

- A Project proponent (owner): a project proponent is generally a private company that has the idea of the project and the capital to finance it. This actor must fill in a Project Design Document (PDD) where a description of the project must be given (UNFCCC, 2006: 1-8): location, participants, technology employed, funding, duration of the project, environmental impacts, methodologies to follow, comments from stakeholders, and a long etcetera of data, which I will discuss later in this section due to its relevance. This actor is also responsible for the implementation of the project.

- A Designated National Authority (DNA): this is the state agency that handles all the matters related to the CDM. During COP 7 it was established that all the countries participating in the CDM must designate a national authority (UNFCCC 2001: 32). In the case of the host countries DNAs must grant or deny approval to proposed CDM and confirm their contribution to the sustainable development of the country.

- A Designated Operational Entity (DOE): this is an external consultant accredited by the Executive Board that has the task of validating whether the project, as proposed in the PDD, complies with the rules. After implementation, a different DOE verifies and certifies the reductions.

- The Executive Board: this is the Convention’s office devoted to supervising the CDM. During the project life-cycle the Executive Board must formally accept the projects as CDM project activities and issue the CERs when these have been verified and certified by a DOE.

Figure 2.4 provides a graphic overview of the time sequence of the project life-cycle and of the moments when the different parties are called to intervene in the process.

Before I move to the next section, I will take the PDD as starting point to make some remarks about three issues that will help us gain a deeper understanding about the procedural technicalities of a CDM project activity, and about all the potential parties involved in such an activity. These considerations refer to the descriptions that the PDDs give of the participants and stakeholders of a CDM, the technical rules to follow in order to reduce emissions of GHGs, and the sustainable development goal that a CDM project must deliver.

\textsuperscript{14} In the rest of this work I will refer to the CDM Executive Board as Executive Board.
2.4.2 Who is involved?

The PDD must indicate who is participating in the CDM project activity. In the simplest cases there are three participants in a CDM project: (a) the project proponent, (b) an Annex I country that has already agreed in acquiring the CERs, and (c) a non-Annex I country hosting the project. But the reality tells us that this basic scenario tends to be considerably more complex. Some Annex I countries do not only buy CERs through bilateral agreements with host countries. They entrust intermediary organisations such as International Financial Institutions (IFIs), banks, or funds with the identification of projects and the actual purchase of CERs. It is also possible that a project is started and that no Annex I country, or intermediary on its behalf, has agreed to buy the CERs. In this case the project proponents may sell the CERs in secondary markets accessed by companies trading with CERs and by Annex I countries. On top of project proponents, Annex I, and non-Annex I countries, intermediaries and private companies trading in CERs should be also added to the list of potential stakeholders of a CDM project.

Finally, it must be pointed out that the PDD must include the stakeholders’ comments to the project. This means that there are individuals or groups of people potentially affected by the projects and that they are given the chance to react to the projects. Who these individuals or groups are obviously differs per CDM project, and how they are given the possibility to react depends on the framework provided by the DNA of the country hosting the concerning project. The list of potential stakeholders is therefore enlarged when we include these individuals or groups.

All these remarks try to clarify that the list of potential stakeholders of a CDM project activity is always larger than what the definition of the CDM and the project life-cycle suggest.

2.4.3 How emissions are reduced

If we want to understand how a CDM project reduces emissions of GHG we have to explain three important matters: the so-called baseline scenario, the additionality principle, and the concepts of project boundary and leakage:

- The baseline scenario is the GHGs emission scenario that would take place in the absence of the CDM project.

- The additionality principle can be clarified by the next quotation: “Projects must result in a reduction in anthropogenic emissions by sources of greenhouse gases that are additional to any that would occur in the absence of the proposed project activity” (UNFCCC, 2005: 14). Therefore a project is additional if the activities it performs deliver higher emission reductions than in the most probable scenario that would occur in the absence of the project. This has technical and legal implications. On the technical side, proponents must calculate the baseline scenario and show that the technique employed in the project must deliver lower emissions than the ones of this scenario. On the legal side, a legal framework governing the activities performed by a CDM project in the concerning host country should not exist. If such a framework existed, the project would not be additional because these activities would already be performed by someone else under the national regulation.

- The concepts of project boundary and leakage refer respectively to the possible emissions directly attributable to the project, and the possible emissions that are indirectly attributable to the project. CDMwatch provides clear examples of this. Emissions within the project boundary are emissions that are caused by the activities of the project. For example, a biomass plant that utilises agricultural waste instead of coal to generate electricity and therefore reduces emissions of GHGs, must also quantify the emissions caused by the transport of the transport of the waste to the plant. This activity is within the boundary of the project and its emissions must be taken into account when calculating the total amount of reductions that will be claimed. In the case of leakage, these are emissions that take place outside of the project boundary but are
Climate Change and Human Responses

attributable to the project. For example, a large energy efficiency project may result in reduced electricity prices leading to increased usage and greenhouse gas emission (CDMwatch, 2003: 4-5).

In short, a CDM project will be considered as such if the project proponent is able to show that the project really reduces the emissions of GHGs. This is done by demonstrating that the project scenario is additional to the baseline scenario, that there is no legal framework that demands that the activities of the CDM project are performed anyhow, and that there are no extra emissions within the project boundary or a result of the leakage effect. The Executive Board has approved certain methodologies\(^{15}\) that can be applied to the different project-types and that must be used by all the proponents in order to prove the validity of the projects. These methodologies also include the monitoring actions that proponents must carry out if they want to receive verification and certification by a DOE.

Even though it might sound redundant, it is also important to mention that the CDM achieves mitigation by implementing projects related to the different scopes of human activities that cause the actual emissions of GHGs.

Figure 2.5: Distribution of registered project activities by scope

![Figure 2.5: Distribution of registered project activities by scope](http://cdm.unfccc.int/Statistics/Registration/RegisteredProjByScopePieChart.html (24-12-2007))

The main sector that produces large emissions of GHGs is the industrial sector because it depends on the combustion of fossil fuel that releases CO\(_2\). It is no wonder that the majority of the registered projects belong to this sectoral scope, as figure 2.5 shows. Some practical examples of these projects are the generation of electricity from mustard crop residues, hydroelectric

\(^{15}\) A project proponent must use an existing methodology approved by the Executive Board or propose a new methodology for its own project. In this last case the methodology will have to be approved by the Executive Board (http://cdm.unfccc.int/methodologies/index.html, accessed 20-02-07).
Global Environmental Governance and the CDM

projects, generation of energy from wind, sun or thermal energy, or the generation of electricity from waste heat. Figure 6 also shows that waste handling and disposal is the second biggest scope within which CDM projects are implemented. These kinds of activities involve the incineration of waste by using technologies that prevent emissions from occurring, or the destruction of methane coming from sanitary landfills. This last activity is very relevant to this research since the projects that have been studied in this research achieve mitigation through the capture and destruction of this gas. An extensive technical explanation of how this exactly happens will be given in chapter 5. Some other practical examples of projects that belong to the rest of the scopes are: the destruction of N₂O (Nitrous Oxide) generated in acid plants (belonging to the scope chemical industry), or the capture and destruction of methane coming from swine manure (within the scope of agricultural activities).

2.2.4 Contribution to sustainable development

The rules of the CDM state that CDM projects must help host countries in achieving sustainable development, and that it is the prerogative of these countries to confirm whether a project assists them in achieving it or not. The project proponents must describe in the PDD in which way the project activity contributes to sustainable development.

The existence of multiple scenarios in which the sustainable development goal of the CDM becomes neglected has made this one of the hottest discussion issues in the academic literature about the CDM. On top of the absence of a common standard of a project’s contribution to achieving sustainable development, some scholars state that the market-based character of the CDM pushes host countries to relax their sustainable development criteria in order to attract CDM projects more focused on the maximisation of benefits (Mendis & Openshaw, 2003: 190). Also, the lack of consensus on this issue between host countries and potential project proponents might scare investors and keep CDM projects away (Markandya & Halsnaes in Zwart et al., 2003: 29; Kim, 2004: 202). Furthermore, there is a complete lack of monitoring of the contribution of projects to sustainable development.

This kind of discussions has raised concerns within some civil society organisations that have decided to take actions aimed at strengthening the sustainable development goal of the CDM. Examples of these are NGOs such as SouthSouthNorth, CDMwatch, or Helio-International, which try to enhance the participation of potential stakeholders affected by CDM project activities, and have designed a set of standard indicators of sustainable development and a whole methodology that can be used for appraising the sustainability of projects. The core idea is that projects should also be additional in their contribution to sustainable development. Based on this, other NGOs have created a special kind of PDD that includes this sustainable development methodology: this is the Gold Standard PDD.16 The Dutch founded NGO SouthSouthNorth has even established a matrix able to assess the sustainable development contribution of CDM projects against a set of performance indicators. There is no data available about how seriously these attempts to foster a reliable contribution to sustainable development are taken into account by the countries hosting projects and project proponents.

The purpose of giving this information about the discussion on the sustainable development goal of the CDM is to provide a more detailed context to the empirical information which will be analysed later. We should not forget that tracing the procedures by which decisions have been made about the sustainable development contribution of CDM projects in Argentina is one of the main goals of this research.

Summary

In this chapter we have seen the practical side of the environmental problem of climate change. Firstly, I have made clear how the greenhouse effect of the earth is becoming intensified by anthropogenic activities that sustain our way of living. After reviewing the evidence of the existence of the problem and mentioning the uncertainties that have been inherent to the science of climate change, we have seen how nations have been able to reach a reasonable consensus and have proposed solutions oriented towards rearranging the activities that have caused the problem. The result of this consensus is the creation of the Convention and the adoption of the Kyoto Protocol by a majority of the parties signing the Convention. The idea behind these two institutions is to mitigate and to adapt to climate change. Based on the principle of common but differentiated responsibilities, Annex I countries are committed to reduce their emissions of GHGs and non-Annex I countries are called to plan actions to mitigate and adapt in the future. In an effort to make mitigation efforts economically attractive, Annex I countries are given the chance to reduce their emissions participating in project-based emission reduction activities outside of their national borders, where these activities might be less costly. An example of this is the CDM, the main topic of this research, by which Annex I countries can realise a part of their emission reduction targets by investing in projects that reduce emissions in non-Annex I countries, and that help host countries in achieving sustainable development. We have seen that the CDM is a project-based activity that follows a life-cycle of eight stages in which several potential stakeholders might be involved. Projects effect reductions of GHGs by applying a baseline methodology that demonstrates their additionality. Industrial activities and waste handling and disposal are by far the most attractive scopes where CDM projects can be realised. Finally, it has become clear that the contribution of the CDM to sustainable development is a subject of much academic and social controversy.

I will now proceed to open the third chapter of this thesis, where the problem of climate change will be linked to the most relevant theories about the governance of global environmental goods. The framework that will function as theoretical base for this research will now be constructed.
Chapter 3: Theoretical Framework

In the previous chapters it has become clear that climate change is a global environmental problem that requires complex social organisational efforts if a certain degree of satisfactory management is to be achieved. Trying to solve the problem of climate change means trying to manage and govern the natural resource that is at stake. In reality, this means that by using the mechanisms created by the Kyoto Protocol, the way in which we make use of the global atmosphere becomes governed. Since this research is focused on the implementation of one of these mechanisms, the scientific debate that will work as theoretical framework is that of Global Environmental Governance: GEG.

This chapter will be divided into three sections. Because of its importance for this research, the first section will thoroughly discuss the concept of ‘governance’, and it will link it to the more specific discussion on GEG. The purpose of the second section is presenting the framework for analysis that has been used in this research. But before doing this, climate change will be approached from an analytical perspective, paying attention to the kind of environmental problem climate change actually is, and linking it to a central concept that has been at the centre of the scientific debates on human ecology and the study of the environment for more than forty years: the commons. The last section of this chapter will briefly define a number of important theoretical concepts that will become part of the familiar vocabulary used in the rest of this work.

3.1 Governance and Global Environmental Governance

3.1.1 Governance

The key concept of this theoretical framework is the concept of Governance. According to Nuijten (2004: 123), governance refers in one way or another to processes of steering, ordering, ruling and controlling situations. The concept has its origins in the organisational and political science but it has acquired a relevant role in many other disciplines. Nuijten (2004: 103-04) points out that governance is a central concept in institutional economics, organisational studies, political science, international relations, development studies and public administration. The important role that governance plays in all these disciplines makes it a rather vague concept with multiple meanings that depend on the scientific perspective from which the notion is conceptualised. Therefore it is not worth to present all the different definitions and conceptualisations of governance belonging to the different scientific disciplines. In the following lines I will briefly mention the origins of the term and I will discuss the dimensions that are the most relevant for the present work.

The way Nuijten refers to governance does not differ much from the etymology of the concept. The concept comes from the Latin word *gubernare* meaning ‘to direct, rule, guide or steer’. It was introduced into the English language via the French word *gouvernance* and it first occurred in English popular literature in the fourteenth century. Social science has always attributed the actions that governance etymologically refers to exclusively to the formal institutions of the state: the government. It has been only in the last three decades that there has been a shift from the term government to the term governance. According to Jessop (1995: 309), governance as an intellectual concept, represents a major paradigm shift in the social sciences. This shift took place in the early 1980s because of theoretical and practical reasons. On the practical side, the shift stems from “*new problems (…) across a growing range of phenomena on many different social scales*”. On the theoretical side, it “*stems from growing dissatisfaction with a number of dominant approaches in conventionally

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18 Government can be understood as the formal institutions of the state that perform the action of governing based on their monopoly of legitimate coercive power within a demarcated territory (Stoker, 1998: 17).
Global Environmental Governance and the CDM

demarcated mainstream social science disciplines” (Jessop, 1995: 309). In other words, contemporary societal problems shaped by processes of globalisation (the practical side) have required a more suitable analytical framework than what the concept of government is able to offer (the theoretical side). This more suitable analytical framework is provided by the concept of governance. The new institutions and power structures that, together with the government or independently, participate in the process of governing, have been the focus of scholars such as Bob Jessop himself, James N. Rosenau, R. A. W. Rhodes, Gerry Stoker, and Jan Kooiman. These authors have participated in many research programs related to this matter and have delivered an extensive body of literature that has coined the concept of governance as a new paradigm in the social sciences. Important works by some of these authors are: “Governance as Theory: Five Prepositions” (Stoker), “The New Governance: Governing without Government” (Rhodes), or “Governance without Government: Order and Change in World Politics” (Rosenau).

As I mentioned before, governance has multiple meanings depending on the dimensions of the concept that we consider relevant. With the purpose of illustrating what I consider relevant for this research I have chosen the work by Bovaird (2005: 218-219). He traces an evolution of the concept since its origins in the 1980s and comes to the conclusion that the concept emerges from three scientific debates within the organisational and political science. These three debates can be clearly understood as an illustration of the new problems and the analytical dissatisfaction which Jessop refers to, and which have caused the paradigm shift. The first debate, Corporate Governance, makes reference to the codes of conduct that have been set up in the last decades in order to tighten up the ‘foot-loose’ behaviour of large corporations that started escaping the regulatory regime imposed by their shareholders and the national regulations of the countries in which they operated. The second debate, Local Governance, focuses on the decrease of the role of the local government and the inclusion of civil society actors in the processes of urban change and regeneration in some parts of the USA and Europe. The third debate, Multi-level Governance, stems from the growth of the scale of complexity of the workings of the European Union and the subsequent linkages between supra-national, national and sub-national public agencies and other non-public actors when designing and implementing policies. From these three examples we can already extract the core underlying idea that is common to all theoretical discussions about the concept of governance. This idea refers to a shift in the process of management of situations in which decisions are not only made by public sector bodies, but by a wider spectrum of formal and informal institutions within the scope of the private sector and civil society organisations at all spatial administrative levels. This shift has taken place in terms of (a) who manages, (b) how management takes place, and (c) where management takes place:

**Who -** There has been a shift towards the inclusion of civil society and private sector parties in the process of management of situations. Kooiman (in Nuijten, 2004: 105) refers to governance as “new forms of public management in which civil society and the private sector share management responsibilities in order to increase governability”, and Bovaird (2005: 220) defines it as “the ways in which stakeholders interact with each other in order to influence the outcomes of public policies”. In practice this means that not only governmental authorities but also NGO’s, consumer organisations, or firms become involved in a wide variety of public issues such as urban planning or environmental management. They do this from the perspective of the stakeholder. This concept, emerging from the strategic management literature in the eighties, makes reference to groups or individuals who can affect or be affected by a corporation’s managerial decision. Since the outcomes of public policies might affect and be affected by individuals or groups, the notion of stakeholder acquires major relevance when discussing governance issues.

**How -** The common practice was that governmental regulations were the only ones responsible for the formulation and implementation of policy. The inclusion of civil society and private sector actors in the policy process means a transition towards the use of other kinds of
regulations rather than those proposed by the government. The World Bank sees governance as “the traditions and institutions by which authority in a country is exercised” (Kaufman et. al. 2005, p.130). A wide body of literature is built on the notion of institution itself and on whether governance only refers to formal institutions or also to more informal forms of rule (Nuijten, 2004: 104). Thus, the transition towards other kinds of regulations, rather than only governmental ones, creates a space for new forms of interaction between the different actors involved in the governance process, and changes the nature of their relations and the institutions that govern them. This would be the case of the creation of networks of stakeholders. When involved stakeholders interact we can see for example NGOs taking up state tasks or even becoming market actors, and market actors taking up task that have been traditionally performed by the state (Mol & Van den Burg, 2004: 318).

Where - In this case ‘where’ does not really refer to a specific location in space, but it is a matter of scalar regulation. In a context of globalisation where the nation state loses some of its traditional functions (Moll & Van den Burg, 2004: 320), the possibility has been opened for new forms of interaction between actors along and across all levels of the administrative scale. Nowadays, it is not rare to see local governments and NGOs bypassing national regulations and engaging into partnerships with global players (Nuijten, 2004: 106), or IGOs trying to tackle complex transnational problems that countries are not able to solve employing traditional nation state politics.

Governance seen from this perspective is considered by many scholars belonging to different disciplines as a positive development that increases the governability of situations that require steering, ordering, ruling and controlling. Reinicke (1999: 46) argues that creating networks of stakeholders generates knowledge and promotes collaboration between potential conflicting parties. Nuijten (2004: 116) elaborates on the idea of multi-stakeholder platforms as solution for environmental management and sustainability issues. Van de Kerkhof (2004: 22-3) states that stakeholder participation improves decision making and enhances the legitimacy and accountability of the decisions that are made. Finally, Dietz et al. (2003: 1910) introduce the principle of institutional variety as a key element for effective management of common pool resources. In this way governance could be considered as a panacea that can solve all kind of conflicts, including environmental ones. But the concept is not exempt of conflict. Nuijten (2004: 109) shows the dichotomy between an instrumentalist and an analytical approach to governance. From an instrumentalist point of view the goals of the process are set out in advance, which implies that the practice of governance is an act of purposive behaviour focused on the achievement of common or shared goals. Along these lines, it is very often the case that power relations between stakeholders are downplayed because the common or shared goals that must be achieved are defined by stakeholders with higher decision power. On the contrary if we approach governance from an analytical perspective we will not focus on the achievement of common or shared goals, but we will rather analyse how things are, or as Doornbos puts it, we will be “concerned with developing a better understanding of the different ways in which power and authority relations are structured” (in Nuijten, 2004: 109). Here, there might be a difference between the governance practitioner and the governance researcher: while the first might ignore power relations in some cases the second is focused on depicting them. This is also the case in this research, in which a rather instrumentalist discourse focused on the achievement of certain predefined goals will be approached from an analytical perspective.

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19 This applies only to the case when a researcher is not a participant of the governance process.


3.1.2 Global Environmental Governance

Before providing a conceptualisation of GEG, it is useful to briefly talk about the origins of the concept in the social science. The concept of GEG appears in the mid 1990s in the academic world. Its appearance cannot be understood as a scientific development separated from the paradigm shift that the concept of governance has meant for the social sciences. It can be said that it also stems from the practical and theoretical reasons that Jessop (1995: 309) sketches, and which have been already described in the previous paragraph. The difference with ‘governance’ is that GEG specifically deals with complex contemporary transnational environmental problems. This is the reason why many of the scholars who have done work on GEG are active in disciplines such as political science and international law. Large part of the body of literature produced by these scholars deals with understanding “how the various actors collude, collide, and coalesce in the global space to create a system of global environmental governance” able to tackle transboundary environmental problems (Najam et al., 2004: 25). Figure 3.1 gives an idea of the kind of actors and organisations forming the system of GEG. The interconnectedness of the circles that connect them also provides an idea of the network character of the whole system.

\[\text{Figure 3.1: participants in the system of Global Environmental Governance}\]


Works such as “International Governance: Protecting the Environment in a Stateless Society” (Oran R. Young), or “Global Civil Society and Global Environmental Governance: The Politics of Nature from Place to Planet” (Ronnie Lipschutz and Judith Mayer) are typical examples of the literature produced in the mid 1990s concerning this issue, but there are many more authors who have made a contribution (Paul Wapner, Peter M. Haas). Another author that has made a great contribution to the enlargement of this body of literature is Elinor Ostrom. The focus of her work does not only lie on GEG itself, but the three decades of research and study of the institutions that govern the access to common pool resources at all scale levels, have delivered very useful insights on issues related to GEG as will be explained later in section 3.2.3. What follows now is a conceptualisation of the concept based on more actual literature, which will form the background of this research.

According to Tellegen en Wolsink (1999: 83) the essence of environmental problems is the separation of the benefits and disadvantages resulting from the activities responsible for the

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20 Elinor Ostrom holds the following academic positions: Arthur F. Bentley Professor of Political Science, Co-Director Workshop in Political Theory and Policy Analysis, Professor of Public and Environmental Affairs, and Co-Director, Centre for the Study of Institutions, Population, and Environmental Change.
The theoretical framework

The terms ‘global’, ‘environmental’ and ‘governance’. Do we refer to climate change as a problem. While benefits are acquired by the persons or organisations that perform the activities, the disadvantages are transferred to third parties who are not involved in these activities, and who have little power to stop them. The inability of the state to properly regulate these activities has called for the regulatory involvement of the parties that suffer the costs. The case of global environmental problems is a perfect example of this due to the large amount of social sectors that become affected by the transfer processes that are started by the activities that bring changes to the global environment. If we look at climate change, we see an endless list of interested parties wanting to take part in the process of regulating the use of the global atmosphere and on the solutions of the environmental conflicts that already exist.

This way, environmental social science becomes a perfect milieu for studying governance issues. Even though depending on the interpretations of the terms ‘global’, ‘environmental’ and ‘governance’, different imaginations of GEG might arise, the discussion on the conceptualisation of GEG is not as heated as that on the conceptualisation of governance. Adger et al. (in Paterson et al., 2003: 3) refer to environmental governance as “the resolution of environmental conflicts through the establishment, reaffirmation or change of institutional arrangements, which may either facilitate or change the use of environmental resources”. This definition demarcates the field by presenting the resolution of conflicts derived from the use of natural resources as the specific generator of governance practices. The concept of ‘institutional arrangements’ present in this definition refers to the inclusion of new actors and regulations that have been explained in the previous section. Actually, Patterson et al. (2003: 7) conclude that GEG cannot be understood separately from the broader shifts in authority that have been referred to before.

What makes the discussion on the conceptualisation of GEG a bit more heated is the way in which the term ‘global’ is defined in relation to ‘environmental’ and ‘governance’. Do we refer to global governance as interstate regulations? Or are we talking about processes that occur everywhere? Is it maybe a reorganisation of politics that implies the decline of the relevance of traditional assumptions about territory as a result of processes of modern economic globalisation? In order to put an end to this controversy, I will refer to the quotation that opens this work in the first chapter and that clarifies how ‘global’ relates to ‘environmental’ and ‘governance’. As I explained, contemporary environmental problems are intrinsically global because they have transboundary effects felt and reacted upon far from their origin in space and time, and any attempt of resolution requires complex multiple-level organisational structures that challenge the traditional patterns of scalar regulation. Thus, GEG can be conceptualised as the act of governance as discussed in section 3.1.1, but driven by the resolution of environmental conflicts that have transboundary effects in space and time and that require solutions managed by complex organisational structures.

3.2 Analytical reflections on climate change

With the purpose of justifying why I decided to use the analytical framework that I will present later, I will now look at climate change from an analytical perspective. Therefore, before I begin to elucidate the main considerations that provide this research with a consistent theoretical background, I will clarify what kind of environmental problem climate change is and then I will link it to the concept of the commons.

3.2.1 A problem of disturbance

The natural environment in which humans live is constantly being changed by their own actions. This process of human-induced change has been taking place ever since we populate the earth, and it has been intensified by important historical episodes like the discovery of agriculture thousands of years ago and the process of industrialisation which has been going on during the last two hundred years. This has given humans the possibility of bringing about major changes in
Global Environmental Governance and the CDM

the natural environment whenever they have wanted the environment to suit their necessities. Depending on the different values that people adopt and the interests that they have, these human-led environmental changes can become interpreted as problems, at least by some. Tellegen and Wolsink (1999: 1-14) define environmental problems as “changes of the environment which are both caused and considered as problematic by human beings”. Further, they distinguish among three different types of problems. If we think of the natural environment as a natural resource that we can use, three different types of problems might occur when making use of the resource: (a) Exhaustion: when the natural resource becomes depleted, (b) Pollution, when harmful substances are released into the natural resource, and (c) Disturbance, when natural processes or relationships between different elements of the environment become disrupted.

If we apply this typology to climate change, we come to the following conclusion: the natural resource that becomes used is the global atmosphere and the kind of environmental problem that occurs is not exhaustion or pollution, but disturbance. Climate change is not the result of the depletion of the global atmosphere or the release of pollutants into it. As I explained before, climate change is caused by the addition extra GHGs into the atmosphere, whereby the capacity of the atmosphere to absorb heat is enhanced. This disrupts the process whereby the global temperature on earth is regulated, which eventually disturbs a long list of environmental processes and relationships between environmental elements that have already been named in the previous chapter. Of course, the problem is more complex than this short analysis I just made. The human activities responsible for the disturbance of the function of the global atmosphere are also responsible for the depletion and pollution of other natural resources. Nevertheless, if we only look at the changes caused by the increased absorptive capacity of the global atmosphere, we can only conclude that climate change is a problem of disturbance.

3.2.2 Common-pool resources: from tragedy to struggle

Arriving at the conclusion that climate change is an environmental problem of the disturbance type is only half of the story. The clarification of the type of environmental problem that climate change is, will be completed when we analyse the global atmosphere from the perspective of one of the most inexhaustible debates within the environmental science. This is the debate on the use of Common-Pool Resources (CPRs), also known as the commons. As we will see, the theories and analytical considerations which will be explained later stem from years of study of the field of the commons.

A CPR is a natural resource\footnote{When talking about common-pool resources, one could also refer to human-made resources. This kind of resources are not relevant for this research. Mentioning them in the test is unnecessary.} that is available for use to more than one person and it is subject to degradation as a result of overuse (Ostrom \textit{et al.}, 2001:18). This kind of resources follow the principle of non-excludability because it is difficult, and sometimes even impossible, to exclude users from using it, and at the same time, they are rival resources because the part of the resource that becomes consumed by one user has effects on what remains available to others (Ostrom \textit{et al.}, 2001: 18; Tellegen & Wolsink, 1999: 90). Natural resources like fish, water or timber are considered as CPRs. The global atmosphere is no exception, but as will be explained in the coming lines, this resource is a very special kind of CPR.

The scientific debate on CPRs has its origins in an article published in \textit{Science} by Garret Hardin in 1968 called “The Tragedy of the Commons”. In this article Hardin claims that due to the principles of non-excludability and rivalry that characterise CPRs, and assuming that the economic system compels resource users to take as much of the resource as they can for their own self-benefit, CPRs are doomed to be completely consumed. As Hardin puts it: “\textit{Therein is the tragedy (…)}Ruin is the destination toward which all men rush, each pursuing his own best interest in a society that believes in the freedom of the commons. Freedom in a commons brings ruin to all” (Hardin, 1968: 1244). As a solution to this kind of environmental problem, Hardin proposes mutually agreed upon coercion
in the form of constraints laid down by the government or formed by the privatisation of the
CPR (Tellegen & Wolsink, 1999: 93).

If we would fully accept this assertion made by Hardin, there would be little space for scientific
debate and theory building when dealing with the way humans use CPRs. Fortunately, a great
number of scholars have not been so eager to take Hardin’s views for granted. According to
Ostrom et al. (2001: 11), Hardin’s tragedy is based on his belief that access to CPRs is subject to
open-access conditions where no rules control the use, and on the self-interest of users as the
only motivations. Years of intensive research on CPRs have proven Hardin’s analysis to be
insufficient when we want to understand environmental problems related to CPRs. The tragedy
of the commons can be played and it has been played in CPRs subject to open-access conditions,
but Hardin fails to understand that not all CPRs are subject to this regime and that self-interest is
not always the only motivator for resource users. Institutions that control self-interest, such as
communication, trust, and the ability to make binding agreements, are often present when
regulating use of CPRs (Ostrom et al., 2001: 5). Of course these institutions are no guarantee for
the protection of CPRs. It is obvious that overuse of a natural resource can destroy its
sustainability, but the existence of these institutions ensures that this is not always the case. This
would mean that the inexorable tragedy that Hardin referred to in his article has been proved to
be a constant struggle to govern the commons, where regulating institutions (or their absence)
have led to either happy or tragic endings. This struggle has given researchers the chance to
explore the different forms in which we use different CPRs, and in this way, the study of the
commons has become one of the most prolific scientific debates within the environmental
science.

The natural resource this research deals with is the global atmosphere. Since this resource is
available for use to more than one person and it is subject to degradation because of overuse, we
can consider it as a CPR. But as I said before, this CPR is of a very special kind, which needs
further clarification:

- While most of the environmental problems related to CPRs are caused by subtractability of
resource units, which results in fewer units available for other users, the global atmosphere is a
sink-type of CPR. An environmental problem in a sink-type CPR is created when too much of a
certain pollutant is put into the resource (Ostrom et al., 2001: 19). In the case of the global
atmosphere and climate change, the components responsible for the problems are not pollutants
but GHGs.

- The principle of non-excludability can be applied to the global atmosphere. It is very costly or
almost impossible to exclude others from using this natural resource. On the other hand, until
ten years ago, and as far as the release of GHGs is concerned, access to the global atmosphere
was subject to an open-access regime that allowed overuse and caused the environmental
problem of climate change. The creation of the Kyoto Protocol has changed this open-access
regime by putting restrictions on the quantity of GHGs that are released into the atmosphere.

- The global atmosphere is a global CPR. While many tragedies have been already played at the
local level, due to its transboundary nature and its complexity, the struggle to govern the global
atmosphere is hold at the global arena.

As I said before, I consider the global atmosphere as a CPR of a very special kind. This is
because of its sink-type character, its relatively new access regime, and its global character. The
theoretical implications of this are the following. Firstly, according to Ostrom et al. (2001: 19), a
line of analysis focused on sink-type CPRs is not as well studied as those examining the rest of
the CPRs where subtractability causes the problem. Secondly, the creation of a new access regime
to the global atmosphere has been realised by creating institutions that regulate the access to the
resource. The study of this new access regime and its institutions will help enrich the less
elaborated line of analysis focused on sink-type CPRs. Thirdly, the global character of the
struggle to govern the global atmosphere presents several difficult challenges also inherent to
other global commons. These have to do with the following reasons: the scale of the CPRs and
the scale of the organisational efforts needed to manage them, the cultural diversity of all the parties involved in the concerning environmental problems, the interaction between different CPRs, the accelerating rates of changes global CPRs are experiencing, the requirement of agreement between parties in order to develop a collective rule, and the uniqueness of the global CPRs which makes it impossible to try out solutions in other CPRs (Ostrom et al., 1999: 281).

Summarizing, climate change is a problem of disturbance caused by human-induced changes in the conditions of the global atmosphere, which is a global CPR of a very special kind due to a wide range of characteristics. The analytical framework in which I have placed my research, and that I am about to present, will discuss the main theories on the governance of global environmental goods from the perspective of the commons.

3.2.3 Analytical framework

It is now time to go one step further in order to provide a more specific analytical framework that brings us closer to the purpose of this research: acquiring empirical data that enables us to analyse the governance of CPRs.

The study of the many aspects of the governance of CPRs has been a prolific field of study since Hardin published his article in Science in the nineteen sixties. In more than two decades, Elinor Ostrom, Thomas Dietz and Paul C. Stern have made considerable empirical contributions to this field and have also developed a comprehensive body of analytical information that can function as a starting point for researchers interested in the field. Since the global atmosphere is a global CPR and the CDM is an attempt to regulate the access to this resource, the ideas of these scholars about the way global commons should be governed, provide a proper framework for analysis. They have proposed a set of general principles that, according to them, help meet environmental governance requirements and facilitate robust governance of environmental resources:

**Figure 3.2: general principles for robust environmental governance**

This figure shows the set of eight principles in the green boxes and the governance requirements in the yellow boxes. The arrows show how they are related to one another. According to the authors, the formulation of these principles is the result of several empirical studies, and they point out that the three principles on the right side of the figure seem to be
Theoretical Framework

particularly relevant for global environmental problems. These are the principles of analytic deliberation, nesting, and institutional variety. Dietz, et al. (2003: 1910) describe them as follows:

- Analytic deliberation refers to the involvement of stakeholders in a well structured transparent dialogue about the rules to be followed. This dialogue should involve scientist, resource users, interested publics, and should deal with key information about the environmental and human systems at stake. This way, trust and consensus will be generated in order to come to effective management.

- Nesting refers to the allocation of decision and decision influencing power in the many layers of the administrative ladder, and to the complexity of these institutional arrangements. This implies getting rid of one-level centralized command or imposed markets, which has often delivered inefficient practices.

- Institutional variety suggests that governance should employ mixtures of institutional types: markets, community self governance, etc. Innovative rule evaders can have more trouble with a multiplicity of rules than with a single type of rule.

These scholars do not really explain why these three principles are particularly relevant for governing global environmental problems. In my opinion, the eight principles have a certain degree of relevance for governing all kind of environmental problems. Nevertheless, analytic deliberation, nesting, and institutional variety make a clear specific reference to multiple authority levels, to mixtures of multilevel organisational arrangements, and to the process of participation of all the (also multilevel) interested parties. In other words, these three principles have a very strong multilevel nature which is not as specifically present in the rest of the five principles. This requirement of multi-level organisational structure present in global environmental problems makes these three principles more relevant when analyzing the governance of a global environmental problem.

Finally, I would like to point out that the World Bank has developed a very sophisticated set of governance indicators which are widely internationally accepted as a valid instrument for measuring governance. It is almost an obligation to clarify why I choose to use different indicators in my research. The World Bank indicators are: voice and accountability, political stability and absence of violence, government effectiveness, regulatory quality, rule of law, and control of corruption. These indicators try to measure three things: (a) the process by which governments are selected, monitored and replaced, (b) the capacity of the government to effectively formulate and implement sound policies, and (c) the respect of citizens and the state for the institutions that govern economic and social interactions among them (World Bank, 2005: 130). Although the World Bank indicators can be very valuable, they are concerned with a much wider and general range of governance dimensions which are actually aimed at testing the political and democratic quality and reliability of nation states, which goes far beyond the scope of my research.

3.3 Institutions and Sustainable Development

This third section will provide a proper definition of the terms institutions and Sustainable Development, as well as their relevance for this research.

Institutions - The discussion about institutions in the social sciences, especially within the fields of economics, is also a very prolific one. There are almost as many definitions as scholars using the term. It is not my intention to deeply unravel this debate, but to provide a widely accepted definition of the term in order to show its relevance for this research. According to Poel (2005: 16), D. North’s ideas have been a great contribution to the development of knowledge on institutions and are widely accepted. North (1991: 97) defines institutions as humanly devised constraints that structure political, economic and social interaction. He distinguished between formal institutions such us rules, constitutions, or property rights, and informal ones like
Global Environmental Governance and the CDM

traditions, customs or codes of conduct. Since this research studies the forms of interaction between the stakeholders involved in implementing the CDM, this concept becomes very relevant.

**Institutional Geography?** - I wish to explain where geography remains in this thesis. After all, I am a geography student and I am supposed to conduct research on a relevant geographic issue.

Human geography makes the study of the specificity of place-related phenomena the very justification of its existence as a scientific discipline. Questions of the sort: what do humans do to space?, or what does space do to humans? have formed the core of geographic research for a very long time. This has been facilitated by the dominant idea that space is a scale of separate political entities that go from the local, up to the regional, national, and international. Therefore, geographical research has been tied to traditional spatial administrative borders.

However, space has changed, or better said, we have changed our perception of space. As Ash Amin (2004: 227) says: Contemporary globalisation has created “a new spatial ontology that thoroughly disrupts the dominant spatial ontology of territorial units of organisation and scalar regulation that we have become used to”. This is very much like saying that the traditional scalar conception of space as a way of shaping the organisational patterns of the world lacks validity nowadays. Although it is my opinion that these administrative scales and territorial units are still important analytic references for social scientists, it must be acknowledged that they are just not able to encompass modern reality. As Amin claims, this inability is rooted in an increasing worldwide interconnectedness, integration and interdependence of all the cultural, political, and economic spheres of life, also known as contemporary globalisation. In this context, the social actors who influence the organisation of space and the organisation of the use of natural resources, have grown in variety and number, which creates a new world of institutions emerging from the interactions between already existing actors and new ones. Therefore, practising human geography (studying the specificity of place-related phenomena) has become more complex, and I dare to say more exciting.

Then, how is geography related to this thesis? The implementation of the CDM is a huge collective partnership that uses a complex mix of the traditional territorial units of regulation and footloose actors, in order to regulate the use of the global atmosphere. Moreover, it offers a context in which stakeholders interact and create institutions to govern this resource. Thus, this study is not focused on the organisation of space, but on the organisation of the use of a natural resource. It highlights the specificity of a place-related phenomenon, which is the organisation of the implementation of the CDM in Argentina. This case is the context where the many involved actors conjunct and create forms of interaction (institutions) that regulate the use of the global atmosphere.

If we take this to a higher level of abstraction, we can say that this thesis is geography because it studies the institutions that organise the regulation of the use of a natural resource in a context of non-traditional spatial administration. This can actually be defined as the practice of institutional geography in a context of globalisation.

**Sustainable Development** - The notion of sustainable development was first used in 1987 by the World Commission on Environment and Development in the famous 'Brundtland report'. It is defined as "a development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs". This rather vague definition has been followed by many attempts to develop specific and operational indicators of sustainable development. The result is that there are three dimensions of sustainable development recognised: economic, environmental, and social (Huq, 2002, p.2). One of the goals that CDM projects must deliver is helping host countries in achieving sustainable development. Tracing how the started projects have been assessed against these three dimensions will enable me to compare the methods and indicators

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This definition has been retrieved from the website of the Division for Sustainable Development of the UN Department of Economic and Social Affairs: http://www.un.org/esa/sustdev/index.html (Accessed: 15-02-2007)
used in Argentina with other widely internationally accepted methods of doing the same, and in this way analyse the governance of the mechanism.

**Summary**

The implementation of climate change policies as established by the Kyoto Protocol is oriented towards governing the way in which we make use of the global atmosphere. The proper theoretical framework that allows us do research on the implementation of such a treaty is that of GEG. We have seen how the concept of ‘governance’ has acquired an important role in several disciplines in the social sciences. This concept is characterized by a shift in the way power is exercised by including other regulators and forms of regulations, rather than those dictated by the government in the policy process. This is interpreted by many scholars as a positive development that increases the governability of problematic situations. The more specific field of GEG becomes demarcated when we take actions oriented towards the solution of global environmental problems as the generator of the process of governance.

The analytical framework that will be used in this research has been described as a framework that suits the kind of problem we are dealing with: a problem of disturbance of a global CPR. Out of many years of research on these kinds of problems, a set of analytical principles has been created by leading scholars. These principles are supposed to be able to indicate the quality of the governance of the use of global CPRs by paying attention to three things: the communication between the stakeholders involved, the distribution of authority between them, and the way they interact with each other. As analytical indicators focused on global environmental problems they will be more useful than other widely international governance indicators like those established by the World Bank.

Finally, due to their special importance for this research the concepts of institutions and sustainable development have been briefly defined.
Chapter 4: Research Question and Technical Aspects

The first chapter of this thesis already introduced the main goal of this research in a very general manner. This is exploring the organisation of the CDM in the Argentine context. The present chapter will be devoted to explaining the specific steps that have been taken to carry out this exploration. Simply put, this is the moment when two essential matters become thoroughly discussed: what we exactly want to know, and what has been done to generate this knowledge.

In the first place, it is relevant to briefly clarify the epistemology of this research. Afterwards, the main research question and secondary questions will be presented. The main concepts of this research will be defined and made operational and their potential relationships will be explained in the conceptual scheme. The second section of this chapter will deal with the strategy that has been followed in order to carry out the research, and it will rationalise the methods and techniques that have been employed to collect empirical data. The concluding section will make a reflection about the use of these methods.

4.1 Research Design

Before the research question is presented, the approach to knowledge that is used in this research will be briefly mentioned. If we want to understand the value of the findings of this work, the epistemological position of the research must be clarified. The concept of epistemology stems from the combination of the old Greek words *episteme* (knowledge) and *logos* (explanation) and it approaches knowledge from a theoretical perspective, making reflections about the nature and scope of it, and about the process that results in its generation (Leezenberg & De Vries 2001: 247). It can be said that there are three dominant and general epistemologies or theories of knowledge23:

- Positivism: the starting point of this theory of knowledge is that there is only one way of generating knowledge about reality. This is done by using systematic empirical scientific methods as the only way of discovering reality. The researcher has no influence whatsoever on the reality that is studied. Hence, the generated knowledge becomes a superior objective truth that can be observed and measured. This philosophy has its origins in natural science and it generates knowledge through the use of quantitative research methods.
- Constructivism: this epistemology focuses on the relation between the researcher and the object of study and it concludes that knowledge is somehow constructed during this process of interaction. Therefore, this philosophy creates a space for values and subjectivities in the process of generation of knowledge. Yet, it is accepted that there is a valid truth in the reality constructed. This approach uses a mix of quantitative and qualitative methods of research.
- Postmodernism: if we were to put all these three approaches in a continuum, we could say that positivism is situated on the left side, postmodernism on the right side, and constructivism in the middle. Postmodernism rejects the fact that a phenomena such as knowledge (as proposed by positivism) actually exists. It rejects the idea that we can attain rational knowledge about things, and that knowledge is objective. There exists only subjectivity based on forms of thought such as ideology, religion or common sense (McLennan, 1992: 331). The only research possible, if any, is the analysis of the discourses that form the subjective reality of the objects of study.

If this research is to be embedded in one of these theories of knowledge, constructivism would be the one that fits it best. The reason for this is the following: the social reality that I have studied is crowded with different actors, whose perceptions, opinions and interpretations of the

23 It is not my intention to describe these epistemologies in depth. I just intend to provide some general insights that can help the reader understand this research’s approach to knowledge. The ideas about positivism are retrieved from Leezenberg & De Vries (2001: 249), and ideas about constructivism come from http://en.wikipedia.org/wiki/Constructivist_epistemology (accessed: 20-03-2007)
organisation of the CDM in Argentina have formed the base that I have used to construct my story. This story has its roots in a qualitative exploration which has been performed through a process of interaction between the objects of study and me as interviewer, and through the analysis of the many public ‘databanks’ (policy documents, websites, letters), which show how they are engaged in the CDM and their views on the mechanism.

4.1.1 Research Question

So far, it has become clear that the main goal of this research is to explore the organisation of the CDM in Argentina. We have seen that the operational rules of the CDM create a participatory space open for a wide range of different parties. We have also seen that Ostrom, Dietz and Stern have developed a set of principles to analyse the organisation of the human response to global environmental problems. The CDM can be considered as such a human response. Taking all these considerations into account, I have formulated the following research question:

**How have stakeholders organised the governance of the Clean Development Mechanism in Argentina?**

A close look at this question shows that there are two main concepts that will function as a starting point in the empirical analysis. These are the concepts of stakeholder and governance. By focusing on characteristics of these two concepts and on the possible relations between them, I intend to create a story that provides the answer to this question. Because of this, a set of working questions that illustrate these concepts in relation to this research must be formulated. These questions contain a number of sub-questions, which when answered, will offer us enough information to study the possible relations between the concepts and will also connect the reality of the CDM in Argentina with the theories presented in the theoretical chapters. The formulated questions are the following:

1. **What kind of stakeholders can be distinguished in the governance of the CDM in Argentina?**
   - From which scale level do they operate?
   - From which perspective are they involved in the projects?

2. **How did the decision making take place to decide about the mitigation and sustainable development outcomes of the CDM projects?**
   - Which mitigation and sustainable development criteria have been used to approve the projects?
   - Who (and how) has established these criteria?
   - How (and by whom) are these criteria applied to the individual projects?

3. **What role do stakeholders play in the implementation of the projects?**
   - What specific steps have stakeholders taken towards participation in the design of project activities?
   - What kind of specific interaction has taken place between stakeholders?
   - Which stakeholders remain involved in the projects once the implementation phase is reached?
   - Which is their specific function?

4. **How do stakeholders perceive the governance of the CDM?**
   - What do stakeholders know about the CDM and climate change?
   - What do they know about each other?
   - Do they think the projects meet the agreed mitigation and sustainable development goals?

But before we move further to the conceptual model where the possible relations between the main concepts of the research question are shown, it is necessary to define the concepts properly and make them operational. By doing this, the reader will gain a better understanding of how the answers to the working questions can generate the relevant information that will eventually
enable me to answer the main research question. After the full operational meaning of the concepts is clarified, their relations in the conceptual model will be thoroughly explained.

4.1.2 Operationalisations and Conceptual Model

As I said, the main research question is founded upon the concepts of stakeholder and governance. Although these concepts have been already defined in general terms in the previous chapters, a definition that relates them to this research in a more specific manner must be given now. Moreover, these three theoretical concepts must be transformed into operational elements that allow us to measure reality, draw conclusions, and link these conclusions to the theories.

**Stakeholder** – When I started searching for a definition of the concept of stakeholder, I first looked whether the rules of the CDM provided any. Since CDM projects must include stakeholders’ comments in the PDD, I assumed that the CDM Executive Board provided a specific definition of the concept. Indeed, a definition was coined in Marrakech during COP 7: “the public, including individuals, groups or communities affected, or likely to be affected, by the project” (UNFCC, 2001: 8). This definition points into merely one direction because it only looks at who might be affected by the projects and does not consider project proponents, governmental agencies, or intermediaries as stakeholders. The CDM Executive Board sees stakeholders as the local parties that might have a problem with the project being implemented, and who are given the chance to express their views through the formal channels offered by the operational rules of the CDM.

Since I consider all the involved parties as stakeholders, I had to find a more suitable definition for the concept. This definition has been found, as I already indicated in chapter 3, in the strategic management literature stemming from the nineteen eighties. According to Freeman & Liedka (1997: 286), a more exact approach to the concept of stakeholder would already originate in the nineteen sixties. However, it was in the nineteen eighties when Freeman introduced an initial definition and brought the idea of stakeholder into the mainstream of strategic management: “stakeholders are any group or individual who can affect or is affected by the achievement of an organisation’s objectives” (Freeman, 1984:46). This definition is also of great value for this research because it allows me to include not only the parties affected by the projects, but also the parties that affect the projects. Therefore, all the parties involved in the CDM will be included.

Since this definition was given by Freeman, the debate on stakeholders has taken many shapes and has been analysed from different perspectives. Several categorisations of the concept based on different criteria have been provided (Lim, et al., 2005: 831). Giving a full account of all these categorisations and criteria is beyond the scope of this thesis. My purpose is to establish a typology of all the actors involved in the CDM projects in Argentina by focusing on two variables: the perspective of involvement and the scale level from which the actors participate in the projects.

**Perspective of involvement**

This variable is made operational by using a categorisation designed by Henriques and Sadorsky (1999: 87-99). They characterise four types of stakeholders according to the perspective from which they are involved:

(a) Organisational stakeholders: they are directly related to an organization and have the ability to affect its operational behaviour. A stakeholder is organisational if it develops, finances and implements the CDM projects, or if it is active in the purchase of CERs.

(b) Regulatory stakeholders: they make the regulations for business environments. These are made operational by establishing whether they participate or not in the formulation of the rules that the CDM projects must follow.
Community stakeholders: they include community groups, environmental organizations, and other potential lobby groups. In this research community stakeholders are the stakeholders who have been informed about the implementation of the projects during the information meetings organised within the framework of the public consultation period that all project must go through in order to comply with the CDM operational rules.

The media: consisting of the mass communication that may influence opinions. The operationalisation is the written Argentine press that has informed about the implementation of one of the specific projects relevant to this research.

Scale level

A second categorization is needed because none of the categorizations I found in the management literature makes reference to the multilevel nature of the phenomena that is studied in this research. There is a need to characterise the stakeholders according to the scale level from which they operate. The stakeholders participating in the governance of CDM projects in Argentina will have to be classified as operating locally, nationally and/or globally.

These three dimensions will be made operational in the following manner:

- Global stakeholders are the stakeholders concerned with the CDM worldwide. Stakeholders that operate internationally are also considered global even though they are not active all around the world.
- National stakeholders are concerned with all the CDM projects in Argentina and operate nationwide.
- Local stakeholders are concerned with one or more specific CDM projects in Argentina.

The operationalisation of the perspective of involvement and of the scale level from which they are involved will give an answer to the first working questions and it will provide an accurate descriptive image of the stakeholders involved in the CDM in Argentina.

Governance - As I already pointed out in the previous chapter, governance makes reference to a shift in the management of situations in which decisions are not only made by public sector bodies but by a wider spectrum of formal and informal institutions within the scope of the private sector and civil society organisations. In this chapter a distinction was also made between an instrumentalist and an analytic approach to the concept. If I was to approach governance from an instrumentalist point of view, an analysis of the performance achieved by the CDM projects could be done, and this research could analyse whether the CDM projects have achieved the intended outcomes. But I prefer to depict how interaction between stakeholders, power, and authority relations are structured. Therefore, I have no other option than approaching governance from an analytical perspective. Furthermore, it is impossible to pay any attention to the actual performance of the outcomes of the CDM projects (like an instrumentalist approach would suggest) due to the simple reason that the implementation of the CDM projects relevant to this research has not reached completion yet, and therefore the effects are not visible. This means that we can only study which decisions have been made about the outcomes that the projects must deliver and how this has happened. Because of all this, the concept of governance is made measurable through the assignation of an operational meaning to the next two variables: the governance process and the ex ante outcomes.

The governance process

The governance process of the CDM in Argentina is made operational by using the analytical framework designed by Dietz et al. The principles presented in this framework can assess the quality of the governance process by focusing on the communication between the involved
parties, the distribution of authority between them and the way they interact with each other. The operationalisations are the following:

- **Analytic deliberation**: this will be made operational by examining whether relevant information concerning the purposes and procedures of the CDM has been shared between all the concerning stakeholders, and by looking at when, during the process, this has happened. The following aspects will be measured:
  a) Occurrence of informational meetings where relevant information is shared between stakeholders.
  b) Stakeholder presence and input during the meetings.
  c) Stakeholder knowledge about the project’s goals and procedures.
  d) Stakeholder knowledge of each other’s role in the project.

- **Nesting**: this will be made operational by looking at the different scale levels in which decision power is allocated. The following aspect will be measured: the extent to what decision and influencing power is allocated in multiple scale levels.

- **Institutional variety**: will be made operational by looking at the variety of institutions that actually govern the CDM in Argentina. In this research institutional arrangements are both formal and informal regulations that determine the actions to be taken. The variety of institutional arrangements could be measured by looking at: (a) the governmental and non governmental character of these, and (b) the formal and informal character of these.

Measuring the governance process through the use of these operationalisations will allow me to answer the working questions number three and four and their corresponding sub-questions. Hence, the role that the different stakeholders play in the implementation of the projects and their perceptions about the governance of the CDM will become clear.

**Ex ante outcomes**

According to the definition of the CDM, the projects must deliver mitigation as well as sustainable development goals. Therefore, *ex ante* outcomes can be defined as the agreements that have originated during the decision making process about the mitigation and sustainable development outcomes that CDM projects must deliver once they are implemented. The idea behind the concept of mitigation is that by the implementation of a CDM project, GHGs emissions will be lower than the baseline scenario. This baseline scenario makes reference to the emission scenario in the absence of the CDM project. The idea behind the concept of sustainable development is that the projects help host countries to achieve the sustainable development. We have seen that this concept has three general dimensions: economic, cultural, and environmental.

One of the main goals of this research is to explore the interaction between stakeholders in order to find out how the mitigation and sustainable development goals of the projects are defined in the Argentine case. It is therefore rather problematic to establish an accurate operationalisation of the planned outcomes. However, it is very possible to make use of certain general indicators that can help my exploration adopt a particular direction when searching for the *ex ante* outcomes of the CDM projects.

The assessment of the mitigation and sustainable development planned outcomes of the projects against these indicators will provide an answer to the second working question. It will also present suitable material for comparing the methods and indicators used in Argentina with other existing methods of assessing the sustainability of CDM projects. Table 4.1 provides a list of these indicators:
Table 4.1: operationalisation of the *ex ante* outcomes

<table>
<thead>
<tr>
<th>Mitigation</th>
<th>Planned reductions of emissions of methane</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic sustainability</td>
<td>Profit made from the generation of CERs</td>
</tr>
<tr>
<td>Social sustainability</td>
<td>Technology transfer</td>
</tr>
<tr>
<td>Technology transfer</td>
<td>Job creation</td>
</tr>
<tr>
<td>Environmental sustainability</td>
<td>Environmental effects</td>
</tr>
</tbody>
</table>

Source: author

**Conceptual scheme** - The concepts that have been defined and made operational come together in the conceptual scheme (figure 4.1). To a certain extent, they are determined by the CDM policy as designed by the CDM Executive Board. By setting up the general rules of the CDM, the CDM Executive Board provides a policy implementation framework within which the relationships between the concepts are embedded. Therefore, the CDM policy is placed outside of the main circle in the conceptual scheme.

**Figure 4.1: conceptual scheme**

The interrelations between the concepts inside of the circle are the ones that I intend to explore. I assume that the characteristics of the stakeholders that are involved in the CDM projects in Argentina influence two things: (a) the process of CDM governance, and (b) the decisions that have been made about the mitigation and sustainable development outcomes that the projects must deliver once implemented. In practice this would mean that stakeholders’
characteristics such as the scale level from which they operate or the perspective from which they are related to the projects, will influence the nesting patterns of the governance process, block or stimulate the participation of other stakeholders in the decision making process, influence which institutions the governance process contains, or determine the mitigation and sustainable development criteria against which the projects have been assessed. Furthermore, I expect to find a relation between the quality of the governance process and the decisions made concerning the *ex ante* outcomes. In other words, I assume that robust governance following the principles of Dietz *et al.* will deliver the intention of achieving ambitious mitigation and sustainable development goals that are in accordance with internationally recognised standards such as the Gold Standard or the SoutSouthNorth Matrix.

Finally, I would like to point out that this research has a strong explorative character, which means that how these concepts exactly relate to each other is something that will be established when the research is finished. The provided assumptions or propositions are only used to put a limit to the scope of the concepts that will be researched.

### 4.2 Technical Aspects

To this point it has been explained what this research intends to find out. The one question that still remains open is how this process has been carried out. For this reason, this section will pay attention to the nature of the research, the strategies followed to carry out the study, and the methods employed to collect and analyse the empirical data.

#### 4.2.1 Nature of the research

The nature of this research can be described as explorative and qualitative. Janssens (1988: 40) points out that in an explorative research, the researcher is not capable of formulating any hypotheses about how variables correlate out of the conceptual scheme. In an explorative research the conceptual model contains a group of variables which are important for the phenomenon that is going to be studied, but how they exactly are related is an unknown matter. Yet, the researcher might have certain assumptions about this relation. I want to conduct research on GEG and I have chosen the implementation of the CDM in Argentina as a practical research context. I assume that the stakeholders involved in the CDM influence the quality of the governance process and the *ex ante* outcomes of the CDM, but I certainly do not know how these variables relate to each other. Therefore, my research has a very strong explorative nature.

The methodological approach needed to conduct this kind of research is a qualitative one. As Swanborn (1993:51) puts it, this approach is used when we have to do with a limited amount of research units, when the variables are not clearly demarcated, and when it is not clear which problem must be solved. This is the case of this research. The units of analysis are not many (as it will become clear later). Some of the variables, like the *ex ante* outcomes are not as clear and demarcated as other variables used in social research (gender, nationality or age), and the relation (problems or conflicts) between the different relevant concepts is not clear. Therefore, the qualitative approach is the most suitable for this kind of research. Moreover, it is my plan to gain a deep understanding of the CDM situation in Argentina through the impressions of the parties involved. Thus, it is not my purpose to validate or nullify any existing hypothesis. I am focused on knowing *how* rather than *what*, which will enable me to modestly provide significant insights into the governance of global environmental goods such as the climate through the utilisation of instruments like the CDM. In this way I hope that my research can serve as an illustration and can facilitate future similar policy interventions and the further implementation of the CDM in the coming years. A qualitative approach fits the nature of this research like no other.
4.2.1 Research strategy: case study research

Every research must develop a plan or set of plans aimed at the generation of knowledge. At an early stage of this research it became clear that the case study strategy would be the one that I would be using. A case study as a research strategy can be defined as an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between the phenomenon and the context are not clearly evident (Yin, 2003:13). According to this author this strategy should be used when the research question is of the explorative kind how or why, when the researcher has little control about the course of events, and when the focus of the research is on the contemporary as opposed to historical events. The present research fulfils these three conditions because, the research question is an explorative question of the how kind, during the research I was not in the position of effecting any control on the behaviour of the participants in the studied events, and the organisation of the implementation of the CDM in Argentina as a means of tackling climate change is a contemporary event. Furthermore, Yin (2003: 2) stresses the validity of the case study strategy when studying organisational and managerial processes, which, in my case, are the kind of processes that are studied. Yin goes further in his definition of case study and claims that this strategy comprises an all encompassing method – covering the logic of design, data collection techniques, and specific approaches to data analysis (Yin, 2003:14). These three issues, in relation to the present research, should be clarified now. Also, some relevant matters about the validity of the case and the extent to which it can be generalised will be explained.

Design - As figure 4.2 shows, Yin distinguishes between four kind of designs based on the distinction between single-case and multiple-case designs, and holistic and embedded case-designs.

![Figure 4.2: types of case study designs](source: Yin (2003: 40))

The choice for one of these possibilities depends on the boundaries of the case and on the units of analysis that we use in order to collect empirical data. It has already become clear that I want to explore the implementation of the CDM as a human response to the global environmental problem of climate change. In order to carry out this exploration, I have chosen the Argentine case among 49 possible cases (non-Annex I countries that host CDM projects

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24 Robert F. Yin is an authority within in the methodological field of case study research.
worldwide. It can therefore be concluded that the case study that we are dealing with is the implementation of the CDM in the Argentine context, which suggests that we have to do with a holistic single-case study. But, as I pointed out in the first chapter, there are ten projects being implemented in Argentina, which offers the possibility of choosing for a multiple case design. Since there are many different potential stakeholders involved in the implementation of a CDM project, and these are the units of analysis, the best design for this research is a multiple-case design with embedded units of analysis. To sum up, each studied CDM project is the subject of an individual case study, but their study as a whole forms a multiple-case design, where the context is the Argentine situation, the cases are the CDM projects, and the units of analysis are the stakeholders involved in the implementation of the projects (see table 4.3). Nevertheless extra attention should be paid to the actual projects that are part of this research and how they have been selected. Also, some remarks should be made about the actual units of analysis and about the selection process that has been followed in order to obtain empirical information.

From the 9 CDM projects that had reached the implementation phase in Argentina at the time of the fieldwork, five of them are focused on the reduction of emissions of GHG by capturing and burning methane coming from sanitary landfills. Because of the high incidence of projects of this scope, I decided to focus this research on this kind of projects. Four of the gas projects are situated in the Buenos Aires province and three of them in the metropolitan area of the city of Buenos Aires. Since these four projects have a relative geographic proximity, I originally decided to complete my selection by including the four of them in my research as different case studies and I oriented my data collection activities towards all of them. Early in this process of data collection it became clear that two of the projects did not deliver enough empirical information.

As a result the number of cases has been reduced to two CDM projects implemented in the metropolitan area of Buenos Aires. These are the projects of the landfills of Villa Dominico and Norte III.

Figure 4.3: multiple-case study design with embedded units of analysis

As I already said, the units of analysis are the stakeholders involved in the two projects that are

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Source: author, inspired by Yin (2003)

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25 One of the projects that at the time of writing is also being implemented (the project Norte III-B) had not reached the implementation phase when the selection of project took place.

26 The reasons for this will be explained in the last chapter of the thesis.
included in this research. Contact information is publicly available in the PDDs of the concerning projects published in the website of the CDM Executive Board. Therefore, the PDDs have served as a framework for contacting informants. Some stakeholders were approached by a letter I sent them when I arrived in Buenos Aires, and some others have been approached by email or by phone. Originally, it was my intention to include all the stakeholders involved in the projects. Due to different reasons that have to do with time constraints, and the difficulty of establishing contacts or finding related written sources available for analysis, it became impossible to include them all. Finally, it should be mentioned that while some stakeholders are involved in both projects, some others are only involved in one, which has been a relevant factor determining the distribution of the qualitative analysis, as we will see in later chapters.

4.2.2 Data collection methods

In this research I have performed a stakeholder analysis utilizing a mix of qualitative research methods. The variety of participants in the organisation of the CDM in Argentina has required a dynamic methodological approach. Therefore, one part of the data has been collected by using a mix of semi-structured interviews and key informant interviews and another part of the data has been collected by using the document review method. Yin (2004:11) claims that it is possible to do a high-quality case study even without leaving the library, the telephone or internet. Even though I have spent a large amount of time working behind the computer reviewing relevant texts since March 2006, it was inevitable to spend some time in the city of Buenos Aires, where many of the key informants work and live. Interviews with them where conducted during a fieldwork period in Buenos Aires between the September and December 2006. Some relevant documents where also acquired in the field during this period.

-Semi-structured key informant interviews: Semi-structured interviews consist of interviews that contain a pre-determined set of items that are explored during the interview. This allows obtaining the same kind of information from a different number of people. Key informant interviews are interviews held with individuals that have particular knowledge about something and who can provide unique information for understanding the context of a project, or can assist the researcher in clarifying particular issues. To a certain degree it has been my purpose to obtain similar information from all my respondents, but their individual positions and roles in the organisation of the CDM in Argentina has made a key informant of every respondent. Therefore, the interviews I have made contain a general semi-structured section and a specific semi-structured section, which has assured that the unique information which informants can provide, is actually collected.

-Document review: the review of relevant texts coming from PDDs, policy documents, newsletters, letters between stakeholders, or relevant websites, has been a very important data collection method in this research. In some cases this data adds new extra insights to the information collected during the interviews, while in other cases, all the information concerning a certain stakeholder is based on this documentation.

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27 Six of the interviews where hold face to face, two of them were hold using the telephone, and one interview originates from intensive email contact with one informant.

28 These definitions have been retrieved from the following source:
Table 4.2: list of stakeholders consulted and data collection methods used

<table>
<thead>
<tr>
<th>Villa Dominico project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description of the Stakeholder</strong></td>
</tr>
<tr>
<td>- VROM: Dutch Ministry of Housing, Spatial Planning and the Environment (Dutch DNA and CER buyer)</td>
</tr>
<tr>
<td>- Oficina Argentina para el Mecanismo de Desarrollo Limpio: Argentina DNA</td>
</tr>
<tr>
<td>- International Finance Corporation: Intermediary, trustee of the Netherlands</td>
</tr>
<tr>
<td>- Van der Wiel Stortgas B.V (Argentine office): Project Developer</td>
</tr>
<tr>
<td>- CEAMSE: Coordinación Ecológica Area Metropolitana Sociedad del Estado (Owner of the sanitary landfills)</td>
</tr>
<tr>
<td>- DNV: Det Norske Veritas (Environmental consultant who has performed the validation)</td>
</tr>
<tr>
<td>- SGS: Société Générale de Surveillance (Environmental consultant who has carried out the verification and certification)</td>
</tr>
<tr>
<td>- Ambiente Sur: stakeholder consulted by the project developer</td>
</tr>
<tr>
<td>- Provincial government of Buenos Aires</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Norte III</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief description of the Stakeholder</strong></td>
</tr>
<tr>
<td>- Oficina Argentina para el Mecanismo de Desarrollo Limpio: Argentina DNA</td>
</tr>
<tr>
<td>- Aira.Biz: Project Developer</td>
</tr>
<tr>
<td>- CEAMSE: Coordinación Ecológica Area Metropolitana Sociedad del Estado (Owner of the sanitary landfills)</td>
</tr>
<tr>
<td>- DNV: Det Norske Veritas (Environmental consultant who has performed the validation)</td>
</tr>
<tr>
<td>- Local CBO: representative of one of the local organizations present during the informational meetings</td>
</tr>
<tr>
<td>- Municipality of San Martín</td>
</tr>
<tr>
<td>- Provincial government of Buenos Aires</td>
</tr>
<tr>
<td>- Clarín: national newspaper</td>
</tr>
<tr>
<td>- Cronica: local newspaper</td>
</tr>
</tbody>
</table>

Source: author

Table 4.2 shows the stakeholders that have been consulted during the data collection period, and the methods that have been used in order to generate information.

As I already said, it was my intention to include all the possible stakeholders in the analysis, but several reasons have made this impossible. In the project of Villa Dominico I was not able to establish any contact with the municipalities in which the landfill is located, and I only managed to talk to a representative of one of the several CBOs included in the PDD (Ambiente Sur). In the project of Norte III, I did not have the time to approach the academic sector (also included
Global Environmental Governance and the CDM

in the PDD), and I only managed to talk to a representative of one of the four local organisations who participated in the consultation and who are named in the PDD29.

For the two projects, eight interviews have been held in total. In four of the cases the interviews have been recorded with an Mp3 player during face to face conversations with the respondents. In one case the respondent did not allow me record our meeting, which forced me to write down the answers during the course of our conversation. In two other cases the interviews were held by telephone and processed in the minutes after the conversation. In one case intense email contact has been held with a respondent, which has provided written data easier to code than recorded conversations. It must be noted that interviews that were held face to face have provided me with extra useful documentation that has been added to the body of text that has been used in the second data collection method: the document review. The rest of the documents that have been reviewed are the PDDs, monitoring, verification, and certification reports of the concerning projects, the official websites of the concerning stakeholders, and from articles published in newspapers. Finally, it should be mentioned that most of the respondents have granted me consent to quote their names and positions they hold in the present work. In other cases, I did not manage to make this matter clear. When this is the case I will just refer to them as ‘representative’ of the concerning organisation or I will just create fictive name.

4.2.3 Analysis

The use of the mentioned data collection methods has delivered a huge body of information available for analysis: eight interviews with key informants and a very extensive amount of written documents. Through the analysis of the collected information an image of the perceptions and feelings of the stakeholders with respect to the organisation of the governance of the projects can be constructed. The techniques employed to analyse the collected data will be a network analysis and a per stakeholder qualitative analysis.

Qualitative analysis - The relevant information provided by the stakeholders has placed in a data matrix (see annex) that consists of three different categories matching the concepts suggested by the conceptual scheme: the stakeholders’ characteristics, the governance process and the ex ante outcomes. Table 4.3 shows the way this matrix is structured.

<table>
<thead>
<tr>
<th>Stakeholders’ characteristics</th>
<th>Governance Process</th>
<th>Ex ante outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder 1</td>
<td>…</td>
<td>…</td>
</tr>
<tr>
<td>Stakeholder 2</td>
<td>…</td>
<td>…</td>
</tr>
<tr>
<td>Stakeholder …</td>
<td>…</td>
<td>…</td>
</tr>
</tbody>
</table>

Source: Author

From this data matrix, I have constructed a narrative per stakeholder in which I slightly step back as a narrator and let the individual stakeholders talk and show their perceptions, feelings and actual behaviour with regard to these three categories. The purpose of this is to see which issues arise from these narratives and eventually identifying how the different concepts relate to each other in this case study.

Network analysis – In the theoretical chapter the CDM has also been defined as a network of actors who joint efforts in order to implement the Kyoto policies. The structure of this network is determined by the policies and procedures as established in the CDM project life-cycle.

29 Table 4.2 only shows the stakeholders that have been analysed. The whole account of stakeholders can be found in the PDDs of the concerning projects.
Therefore, the project life-cycle works as a stakeholder interaction model, which produces the specific interactions that will be illustrated by the qualitative analysis. Based on this network interaction model, the network analysis software Ucinet has been used to create a graphic representation of the network in which the individual stakeholders are represented as nodes and contacts between them are represented by lines between nodes. As opposed to the individual analysis per stakeholder, this graphic representation has the useful characteristic of being able to provide a single and accurate picture of who is interacting with whom in the practise during the implementation of a project.

Furthermore, Ucinet allows us the possibility of adding attributes to the nodes represented in the network. Attributes referring to the variables perspective of involvement and scale level have been added to the nodes and will be represented in the diagrams that I have created per project. These diagram themselves offer a rather superficial overview of the relationship between the stakeholders’ characteristics and the governance process. However, the information that comes forth from the qualitative analysis will illustrate both diagrams and will facilitate the transition to the relevant empirical conclusions.

**Generalising case studies and validity considerations** - Every researcher that chooses for a case study design has to face the same persistent question sooner or later: how can you generalise from a single case? Yin (2003: 10) provides a clear answer to this: A case study, just like an experiment, is generalisable to theoretical prepositions and not to populations or universes. A case study is not a sample that requires statistical validity. It seeks to expand and generalise theories (analytical generalisation). My own research seeks more to expand than to generalise. It should be remembered that this research has an exploratory approach which tries to generate more insights into theories of GEG.

Another important issue is the quality of the case study. This can be checked by looking at the four kinds of validity of the research (Swanborn 1994: 189; Yin, 2003: 34): content validity, internal validity, external validity, and reliability. The present document can be tested in all these kinds of validity except for internal validity30.

- Content validity: The proper operational measures for the relevant concepts have been established.
- External validity: The collected data and its subsequent analysis provide significant insights into a broader theory relying on analytical generalisation (this will become clear in the last chapter of this thesis).
- Reliability: I have tried to document the procedures followed in this case as widely as possible. A different researcher could use the same procedures to repeat the research. Still, total reliability would only be accomplished if this would actually happen and the same results were to be achieved.

4.3 Reflection on the methods

In the previous sections of this chapter I have presented the data collection methods, the sources where the data can be collected from, and the analysis which are going to be done. I believe that these are the most suitable methods given the context of the research. However, with the purpose of putting these methods in its place, I would like to reflect critically on them.

In this research I have used a combination of semi-structured key informant interviews and document review in order to collect data. Doing interviews to people with different backgrounds, functions and interests has not been free of trouble. It can be said that there has been a knowledge disparity between me and some respondents in some cases. While my knowledge

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30 Internal validity is not applicable to explorative research. It only concerns case studies where relations or causality are established or demonstrated.
about the policies and procedures of the CDM was at the same level, and sometimes even at a higher level, than that of the respondents, my knowledge about the technical aspects of the landfill and about the technology used to combust methane, was not sufficient at the time of doing the interviews. Proper knowledge about the technical characteristics of a sanitary landfill, the main kind of environmental problems that mismanagement of such a facility can originate, and some basic chemistry notions, would have enhanced the quality of the interviews with certain stakeholders such as the OAMDL, Ambiente Sur and the project developers of both projects. In other words, we could have understood each other much better, and I would have been able to ask better questions about the environmental *ex ante* sustainable development outcomes.

The variety of sources, ranging from interviews to brochures, newsletters, websites, or policy papers has added complexity to the analysis of the data. The combination of these sources has made it difficult to extract data that can be understood in terms of the concepts and categories of the conceptual scheme. While the interviews have given me some kind of steering power to put my quest for knowledge in a good direction and assess how different stakeholders perform in the governance process or how they actually think about the *ex ante* outcomes, the lack of control over the reviewed documents has made this same task very difficult.

Using the PDDs as a framework to contact respondents has important limitations:

- Since the PDDs of the projects were written between one and three years before I started my fieldwork, the contact information was not valid anymore in some cases. Some e-mail addresses and telephone numbers did not exist anymore and some representatives of the municipalities did not hold the position they held at the time the PDD of the concerning project was written. In one occasion this turned out to be a positive thing because I contacted a representative of the municipality of Avellaneda without knowing that he had become Subsecretary of Sustainable Development of the provincial administration, with the task of coordinating the provincial policy about climate change. This way an important stakeholder who was not included in the PDD became part of the research. Nevertheless, the unreliable information of the PDDs made it difficult to contact other local stakeholders.

- The PDDs include a list of what project developers call local stakeholders, who are the parties who might be likely affected by the project. I have limited my search for community/local stakeholders to this list. However, it is very well possible that some other potentially affected parties are not officially defined as such and therefore not included in the PDD while they might be affected by the project and have a meaning about it. Due to time constraints I have not embarked in the search for more potentially affected parties. However, I am convinced that this is an issue that should be taken into account by researchers doing similar kind of research.

- Some of the stakeholders are only mentioned in the PDD, but not further information is given as to their telephone number or address. In the case of the project of Norte III this was an important issue because there was no information available to contact any of the local organisations considered by the project developer as potential affected parties (local stakeholders). Luckily enough I have managed to contact a member of one of these organisations with the help of a representative of the municipality where the project takes place.

Finally, it should be mentioned that it was my intention to pay attention to discursive features of the data collected. Such methodological approach focuses on the use of language and strategies of argument and it sees language as a one domain in which knowledge of the social world is shaped (Hoggart *et al.*, 2002: 163). According to Fairclough (1985: 739), the social world is created when the constructed ideological representations present in language (what he calls ‘taken for granted background knowledge’) become naturalised and come to be seen as ‘common sense’. By approaching the texts produced by the interviews and the rest of the reviewed text in such a manner I could have unveiled the ‘background knowledge’ of the different stakeholders and in this way generate a deeper understanding of the way they perceive the governance of the CDM in Argentina, and act accordingly. I must admit that my lack of training in this analytical approach and the attractive graphic possibilities that a network analysis offers, has made me
choose for this kind of analysis, which has the extra advantage of giving the reader a clear overview of the rather messy network that a CDM project can form.

**Summary**

This chapter has presented the technical part of the research. Firstly it has become clear that if this research must fit any theory of knowledge, constructivism would be the most adequate. Secondly we have seen that unveiling the way stakeholders have organised the governance of the CDM in Argentina is what this research tries to find out. Several working questions that will help realise this goal have been posed, and the concepts emerging from the main research question have been explained and operationalised. This way a set of relations between the stakeholder’s characteristics, the governance process and the *ex ante* outcomes of the projects have been established.

In the second section of the chapter we have seen that this research has a strong exploratory nature not aimed at testing hypothesis but at opening the possibility of generating them. In order to do this, a case study research has been outlined as the most suitable research strategy. The structure of the phenomenon which is studied in this thesis has made it possible to design a multiple-case study design with embedded units of analysis, in which two CDM projects in the metropolitan area of Buenos Aires have been selected. The stakeholders of this project have become the units of analysis of this research. The selection of the specific projects has been commented on as well as the stakeholders that have been included in the research. Next, we have seen that relevant empirical data has been collected by means of semi-structured key informant interviews and document review. The collected data will be used to perform a qualitative analysis that will be completed by a network analysis.

Finally, a reflection of the used methods has been done. From this reflection we have seen that knowledge disparity between respondents and the researcher, the variety of sources from which empirical data has been collected, and the use of the PDDs as a framework for contacting stakeholders, have been rather problematic issues during the fieldwork. Furthermore, the adequacy of a discourse analysis has been discussed. The absence of this method of analysis in the research and the choice for a network analysis instead, has also been explained.
Chapter 5: Argentina and the CDM

It is now time to approach the real situational context of this research that will bring us closer to the reality that will be analysed in the coming chapters. In order to do so I have divided this chapter into three sections. The first section will provide a necessary overview of the geography and history of Argentina, and it will further deal with the Metropolitan Area of Buenos Aires, where the sanitary landfills that host the CDM projects are located. Special attention will be given to waste disposal in this geographic area. The second section will focus on how Argentina has been relating to the CDM since the mechanism was born. Attention will be paid to the institutions that have been created in order to participate in the mechanisms, and to the actual project portfolio of the country. The last section will shortly describe some technicalities regarding the sanitary landfills and the degassing techniques that are employed in CDM projects relevant for this research.

5.1 Argentina

5.1.1 Geography and history

Situation and climate – Argentina, formal name ‘República Argentina’, is situated in the southern cone of the American continent. The country is bordered by the Atlantic Ocean, Uruguay and Brazil in the east, Paraguay and Bolivia in the north, and Chile in the west. Without counting the territories in Antarctica and all the islands that are still a subject of claim to sovereignty, the surface of continental Argentina is 2,780,400 km². This makes Argentina the second largest South American country after Brazil, and the eighth largest country in the world. Because of its large size Argentina contains a wide variety of landscapes and climatic zones. Thielen (2002: 62) makes a rough division into four different zones:

- The Andes region in the west: this mountain range forms the natural border with Chile. Highland deserts and snowy peaks can be found in the northern part, deep canyons and big valleys in the central part, and forest, lakes and glaciers in the southern part.
- The lowlands of the north: subtropical rainforest and wetlands are characteristic of the eastern part and vast savannas can be found in the west.
- The Pampas region: This region can be found in the central part of the country beginning in Buenos Aires and reaching hundreds of kilometres to the

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31 Factual information concerning geography and demography has been retrieved from the website of the Argentine INDEC (‘Instituto Nacional de Estadística y Censos’), www.indec.gov.ar (accessed 14-02-2007). When this is not the case sources will be provided in the text. In the case of historical information, Thielen (2002) and Brown (2003) have been used as the main source. Other sources will be mentioned in the text.
Global Environmental Governance and the CDM

south. *Pampa* is the Quechua word for plain, and this is actually what the pampas are: gigantic extensions of plain grass-lands.
- The Patagonia: this is the most southern and wildest region of Argentina. The Patagonian steppes show a desolated landscape where strong winds and the absence of rainfall are the main climatic phenomena. Down south the Tierra de Fuego is characterised by snowy mountains and islands that go as far as Cape Horn, 3999 kilometres away from Antarctica.

**Short History** - Before the Spaniards founded Buenos Aires in 1536, Argentina was populated by different indigenous tribes scattered around the whole territory. Originally, the territories we currently know as Argentina belonged to the viceroyalty of Peru. The viceroyalty’s colonial economy was based on the benefits provided by the silver coming from the Bolivian mines of Potosí. Even though some trade and transport of mineral took place in the Argentine city of Buenos Aires, the real economic epicentres of the viceroyalty were the Peruvian cities of Lima and Cuzco. This relegated Buenos Aires to a secondary position until 1776 when the viceroyalty of the Río de la Plata was established and the city of Buenos Aires became its capital and new flourishing harbour of colonial Spain. The production and trade of grain coming from the Pampas became a very lucrative activity and Great Britain played the role of main customer.

Argentina formally declared its independence on July 9th, 1816. This was the result of six years of political turmoil in the Iberian Peninsula caused by the Napoleonic occupation in 1808, and the overthrow of the Spanish king Ferdinand VII. The temporal absence of the Bourbon’s rule made the Argentine Creole elites question the legitimacy of the metropolitan nation over her colonies. Even the restoration of the traditional Bourbon rule in 1814 was not enough reason to pacify the growing urge for independence. Actually, the return of the king became a source of conflict between the elites who remained loyal to the traditional rule and the liberal Creole elites who started becoming influenced by the ideas of the Enlightenment (Munck, 2003: 24). This development also took place in the rest of the countries that formed the viceroyalty of the Río de la Plata, and actually in the whole Spanish colonial empire. Most of the continent gained independence from Spain before the turn of the twentieth century.

After independence, the main cleavage that dominated Argentine politics during the long process of nation building was that between Federalists and Unionists. The Federalists were conservative farmers and landowners from the countryside and wanted to make the country a federation of provinces with great autonomy. Unionists advocated a centralised system run from the city of Buenos Aires. After several armed conflicts, a new constitution was approved in 1853 and Argentina became a Federal Republic governed from the capital Buenos Aires. In the next decades, the arrival of immigrants from all over Europe and the rapid growth of Buenos Aires as an industrial centre gave rise to a new middle class of entrepreneurs with more democratic ideas, settled in the capital and grouped around a new radical party called UCR *Unión Cívica Radical* (Civic Radical Union). The Radicals, as they were called, managed to win the elections in 1916 and remained in power until 1930 when they were overthrown by the military and the traditional farmer oligarchy eager to recover the decision influence they lost years before. Radicals were banned from politics and the traditional agricultural export-based economy was reinstated with Great Britain as loyal main customer (Thielen, 2002: 11-12).

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32 A viceroyalty is the highest of the administrative divisions created by the Spanish colonial system. Initially there were two viceroyalties established in the whole colonial America: the Viceroyalty of Nueva España (current western U.S.A, Cuba, Mexico, Central America and the Philippines), and the Viceroyalty of Peru (including the rest of the Spanish-ruled territories of South America). Due to the administrative difficulties of ruling such a gigantic territory, and also to strategic reasons, this viceroyalty was split into three during the eighteenth century: the Viceroyalty of Granada (current Venezuela, Colombia, Panama and Ecuador), the Viceroyalty of Peru (Current Peru and Chile), and the Viceroyalty of the Río de la Plata (Current Bolivia, Paraguay, Uruguay, southern Brazil and Argentina).

In the nineteen forties, an unknown colonel belonging to a sector of the military discontent with the old regime, managed to gain the trust of the growing middle working class. His name was Juan Domingo Perón, founder of the Partido Justicialista (Justicialist Party). When he seized power in 1946, he replaced the old agrarian system by an industrial one in which the state played the main role in the economy. His populist strategy of co-opting sectors of society that were repressed before, such as labour unions, became a successful formula that delivered high levels of economic and social welfare. His success was also due to the popularity of his wife Eva Duarte (popularly called Evita), founder of numerous charity programs that provided housing and schooling for the poorest segments of the population. After six year of rule, the economic situation became unbearable, Perón was overthrown by the military and sent to exile in Spain and his party was banned from politics.

The nineteen sixties and seventies of Argentina were characterised by weak governments that tried to keep Peronists away from politics, and military regimes that took over when the situation became uncontrollable. Even the return of Perón in the early nineteen seventies could not stop the social unrest. His death in 1974, and the division of his followers, left the country in a situation of chaos, violence, and insecurity. Then the military, backed up again by the old farmer oligarchy and the business elite, saw a clear chance to take over again. But this time their intervention resulted in one of the most brutal military dictatorships of the region between 1976 and 1983. Opponents to the regime were tortured and executed at random, and their bodies were often dropped into the sea or buried in mass graves with little chance of being recovered. After losing an armed dispute with Great Britain about the Falkland Islands, the military left the country in a catastrophic economic situation. Also, Argentina was emotionally torn apart by the claims for justice of the mothers and grandmothers of those who disappeared. Finally, the military got back to the barracks in 1983 and democracy was restored. This time all political parties, including Radicals and Peronists were free to participate in the elections.

The last period of the history of Argentina has been characterised by attempts of reconciliation between the victims of the dictatorship and the military, and a severe economic and political crisis caused by inefficient economic policies and corruption scandals. Some of the members of the military that committed horrible crimes against humanity have been put to prison, but did not get such long sentences as the families of the victims would have wished. Regarding the economy, as a result of programs of structural adjustment, Argentina privatised several government services, the market was liberalised, and a monetary policy of fixed-parity with the U.S. dollar was adopted. Even though this seemed to work in the short term, it would have disastrous consequences on the long run. Argentina failed to pay back international loans, national products became too expensive to compete with cheaper imported products, and the revenues from exports decreased considerably due to the high price of the Argentine peso. In the year 2002 the unemployment and inflation rates were so high that the whole Argentine financial system literally cracked. This crisis pushed 42 per cent of the Argentine households under the poverty line (Thielen, 2002:46)

After a stabilisation of the economy based on the devaluation of the peso and on the reactivation of national industries able to substitute expensive imports, Argentina has been enjoying very positive rates of economic growth during the last years. Furthermore, the newly elected government in 2003 started some political and institutional reforms aimed at generating stability and the reduction of poverty. The outcomes of these reforms are yet to be seen.

Administrative and Demographic issues - The administration of the Argentine Republic is divided into three independent branches: executive, legislative and judicial. The head of state is at the top of the executive branch and is at the same time the head of government (President) and the person who appoints the rest of the members of the government. The legislative branch is formed by the two chambers of the National Congress: the Senate and the Chamber of Deputies.
Global Environmental Governance and the CDM

The judicial branch is constituted by the different courts of justice at all administrative levels, the Supreme Court being the highest one.

The country is territorially divided into 23 federal provinces, each of them ruled by a governor directly elected by the people, plus the Autonomous City of Buenos Aires. Since 1880 the city of Buenos Aires has been the capital and seat of government and has had the status of Distrito Federal (Federal District). This status changed after 1994 when a constitutional reform was approved under president Menem’s administration and the city was granted an autonomous administrative regime comparable to that of the provinces. In 1996 the first chief of government was chosen and Buenos Aires acquired the status of Ciudad Autónoma (Autonomous City). The name of the city was changed into Ciudad Autónoma de Buenos Aires, but the term Distrito Federal still remains the most common used among Argentines.

Table 5.1: Territorial Levels, Population in 2001, and Area

<table>
<thead>
<tr>
<th>Name</th>
<th>Population</th>
<th>% of total</th>
<th>Area, km²</th>
<th>Density, people/km²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buenos Aires</td>
<td>2,776,138</td>
<td>7.68%</td>
<td>203</td>
<td>13,678</td>
</tr>
<tr>
<td>Buenos Aires Metropolitan Area</td>
<td>11,460,575</td>
<td>31.61%</td>
<td>3,769</td>
<td>3,049</td>
</tr>
<tr>
<td>Province of Buenos Aires</td>
<td>13,837,203</td>
<td>38.13%</td>
<td>304,367</td>
<td>45.3</td>
</tr>
<tr>
<td>Argentina</td>
<td>36,260,130</td>
<td>100.00%</td>
<td>2,780,403</td>
<td>13.0</td>
</tr>
</tbody>
</table>

Source: www.metropolis.org (17-02-2007)

According to the last official census by the INDEC in 2001, Argentina had a population of 36,260,130 inhabitants in that year. Based on this same census and on the population growth rates since 1950, the INDEC made an estimation of 39,356,383 inhabitants for the year 2007. The city of Buenos Aires had 2,776,138 inhabitants in 2001, and the 24 surrounding municipalities belonging to the Buenos Aires province 8,684,437. These two areas form the Metropolitan Area of Buenos Aires (AMBA), which had 11,460,575 inhabitants in 2001. Unfortunately there are no population projections for territorial divisions lower than the national level. A clear overview of these statistics is provided by table 5.1, where we can also see that almost 40 percent of the national population is concentrated in the Buenos Aires province and 31 percent in the AMBA. If we consider that the surface of the AMBA is 3,759 km² and that the surface of the whole country is 2,780,400 Km², we can conclude that the AMBA has an extremely high population density, and that the rest of the regions of the country are very lowly populated and partially empty.

As I already said, the metropolitan area is constituted by the ‘Ciudad Autónoma de Buenos Aires’ and 24 surrounding municipalities. This geographical entity is also known as the Great Buenos Aires but I will refer to it as metropolitan area or AMBA in order to avoid misunderstandings. Whenever I refer to the ‘Ciudad Autónoma’ I will use the terms Buenos Aires or city of Buenos Aires.

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34 It should be noted that one of the 23 provinces is called the Buenos Aires province, but this should not be confused with the city of Buenos Aires, which is situated within this province but has a different political administration and territorial status.

35 In practice this meant that the people of Buenos Aires got the right to elect the chief of government of the city, who had always been appointed by the president of the republic. This information has been directly retrieved from article 129 of the Argentine constitution, available online: http://www.constitution.org/cons/argent.htm (15-02-2007).

36 This is the website of the World Association of the Major Metropolises, Metropolis. This organisation uses statistics provided by the INEC. For the sake of clarity I decided to use this table and not other graphic representations by the INEC.
The border between Buenos Aires and the metropolitan area can be considered an imaginative one. Only in the case of its southern part we could consider the Riachuelo (Little River) as a natural border that separates the city with the municipalities of Avellaneda, Lanús and Lomas de Zamora. The economic and physical integration between the surrounding municipalities and
Buenos Aires is such that it is hard to believe that the whole area is not just one city. Even though this integration is so high, there is no political entity or administration that covers the whole metropolitan area. Buenos Aires has its own autonomous administration and the 24 surrounding municipalities fall under the jurisdiction of the provincial government. However, there are three state-owned organizations with specific powers that operate in the metropolitan area:

- **Coordinación Ecológica Area Metropolitana** (CEAMSE) arranges recycling, transport, treatment and disposal of waste. This state company is owned by the provincial government and the government of Buenos Aires.
- **Ente Coordinador de Transporte Metropolitano** (ECOTAM) has powers in power transportation. This organization is owned by the provincial government, the government of Buenos Aires, and the federal government.
- **Ente Tripartito de Obras Y Servicios Públicos** (ETOSS) is a water and sewage service. This organization follows the same ownership pattern as ECOTAM.

### 5.1.2 The AMBA and its Solid Waste.

Providing information about how waste disposal is arranged in the metropolitan area is of great relevance because the CDM projects that form the core of this research are located in some of the sanitary landfills that receive large portions of the solid waste generated in the AMBA. As I already indicated, this activity is coordinated by CEAMSE. This state company was established 29 years ago during the military dictatorship by the government of the Buenos Aires province and the government of the city of Buenos Aires. Both have an equal share of 50 percent of the financial capital of the company. CEAMSE operates in 34 municipalities, including the city of Buenos Aires and the 24 municipalities that form the metropolitan area (blue municipalities in map 2: figure 5.2), and the adjacent municipalities of Pilar, General Rodriguez, Presidente Perón, Ensenada, Berisso, La Plata, Brandsen and Magdalena. The activities of CEAMSE cover an area of 8,800 Km², with a population of around thirteen million people. Almost 40 percent of the national solid waste is generated in this area. CEAMSE disposes an impressive average amount of 4,560,000 tonnes of waste per year, which means 380,000 tonnes per month and 13,000 per day (www.ceamse.or.gov). The system used by CEAMSE is that of disposing waste in sanitary landfills (rellenos sanitarios). But before the waste reaches the landfills it is first collected and taken to transfer plants (estaciones de transferencia) where it becomes transferred to larger vehicles with higher storage capacity. These vehicles drive the waste to the different landfills where it finally becomes disposed. In some cases, as we will see later, a certain volume of the waste is also recycled. It should also be noted that the collection of waste is not carried out by CEAMSE but arranged through outsourcing contracts with different private companies such as Cliba, Aesa Buenos Aires, UrbBAsur, Nittida, Integra or EHU. These companies get a designated area of the AMBA where they can perform their collection activities. The rest of the process is directly controlled by CEAMSE.

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37 The English translation is: State Company for Ecological Coordination of the Metropolitan Area. Because of their lack of relevance for this research, I will spare the reader the translation of the names of the other two organizations.

As figure 5.3 shows, the collected waste is transported to three transfer plants situated in the city of Buenos Aires (Colegiales, Miraflores and Pompeya). After transfer takes place, waste is taken to the three different landfill sites in the AMBA that still receive solid waste. CEAMSE refers to these sites as Complejos Ambientales. In total CEAMSE controls four sites where disposal still continues to happen or ever took place in the past, all of them outside the city of Buenos Aires: Gonzalez Catán, Ensenada, Norte, and Villa Dominico. The rather huge dimensions of the environmental complex Norte have allowed its division into different sections: Norte I, Norte II, Norte III, and Bancalari. Disposal only takes place in Norte III, Ensenada, and Gonzalez Catán. The rest of the sections of the Norte site and Villa Dominico do not receive waste anymore but still require management by CEAMSE. CDM projects are being implemented at four different landfills.

Although the state has organized this whole system of collection, transfer and disposal, management of solid waste in the AMBA has always been and still remains a controversial issue, which has even become a hot issue after the financial crash of 2002. The conflicts that surround solid waste management in the AMBA are so complex and involve such a wide variety of parties, that any depiction of the situation is likely to be incomplete. The following depiction is not exempt from this.

In short, it could be said that there have been two relevant conflicts. The first conflict is of little or no relevance to this research, but giving a short mention of it can help contextualise the situation Argentina and specifically the AMBA are going through. After the financial crash of 2002, the absence of an efficient recycling system and the existence of a vibrant recycling market made the collection of paper and plastic bottles a very attractive income generating activity for poor people. A new character appeared in the streets of the city of Buenos Aires and a long time will have to pass by before it disappears: the informal cardboard and plastic collector, commonly called cartonero. Cartoneros are scavengers that search recyclable materials in the waste disposed by households and stores at the end of the day before collection and transport to the CEAMSE transfer plants takes place. Targeting paper and plastic means opening and emptying the garbage bags, and leaving the streets dirty. As the presence of the cartoneros became structural every evening, conflicts rapidly arose between collection companies, neighbours and cartoneros. With the passing of time these collectors have organised themselves in cooperatives and the city of Buenos Aires has partially formalised their activities. Yet, social exclusion, health problems and child labour remain issues inherent to this activity.

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39 During my visit to the CEAMSE headquarters on 25 of September 2006, I was provided with many booklets, newsletters and graphic information.

40 Environmental Complex.

41 This has been done through law 992. Vaccination programs, a register and some basic regulations have been provided by this law. More information at:
Global Environmental Governance and the CDM

The second conflict brings us closer to the reason why it is possible that CDM projects are implemented in sanitary landfills. Disposal of waste in landfills has encountered problems of annoyance for the people in the settlements located in the vicinity of the landfills. Settlers have complained that the landfill gases coming from the disposal sites are responsible for stench, polluted water, skin eruptions, respiratory problems and even a high incidence of leukaemia in the young population. More specific information on this will be given in the next chapters using the proper references. Now I would just like to comment that it is the very presence of landfill gas what makes CDM projects possible. Since it has been established that methane is one of the biogases present in sanitary landfills, such an environment is an ideal location for carrying out activities that reduce the emissions of methane and therefore mitigate climate change. Yet, in the case of the Buenos Aires metropolitan area such an environment is also an environment of social conflict.

_Throw your beer bottle into the garbage bin!_ - I was in the Buenos Aires for only a couple of hours and I thought a small beer would help me mitigate the effects of jetlag. When I asked the person who was giving me shelter where I should put my empty bottles, he looked at me as if I was crazy and told me: throw your beer bottle into the garbage bin! My bottle ended up in the bin next to newspapers, leftovers from lunch, cans, plastic bottles and some other waste a regular household in Buenos Aires normally produces. Later that evening, he took me out for a walk to the neighbourhood of San Telmo. On our way I could see dozens of cartoneros doing what is not done at home: separating different sorts of waste and collecting whatever could be sold for recycling.

5.2 The CDM in practice

5.2.2 Argentina and the CDM: landfill degassing

According to Aguilar (2002: 227), the public awareness raised by the Rio Conference compelled the Argentine government to include the right to sustainable development in the new Constitution approved in 1994. Actually, if we look at the Constitution we see that article 41 says that citizens have the right to live in a healthy environment where sustainable development can be achieved, and the government has the duty of safeguarding this right (http://www.constitution.org/cons/argentin.htm). It looks like the Argentine authorities took this very seriously with regard to climate change because a couple of years later Argentina took rapid steps towards achieving the goals of the Convention. These steps included the commitment to set specific emission reduction targets even though it was not compulsory, and the early creation of a government office with the task of coordinating the CDM. This state office was


42 As a master's student of the International Development Studies at the UvA, Bas Bijlsma has conducted a research on the influence of violence on the livelihoods of the cartoneros. This photo has been taken by him in May 2007 with the consent of the person who appears in it.
created in 1998 with the name of Argentine Office for the Joint Implementation (OAIC). The name was changed in 2005 and it became Argentine Office for the Clean Development Mechanism (OAMDL). This office has become the Argentine DNA and it belongs to the Secretariat of Environment and Sustainable Development (SAyDS) originally housed in the Ministry of Health and Environment until a short time ago. Currently the Argentine DNA is housed in the Council of Ministers Cabinet.

As the Argentine DNA, the OAMDL has the general function of supervising all matters related to the CDM. This entails many tasks such as the promotion of the CDM, the identification of potential sectors in which projects can be realised, the evaluation of CDM projects, and the provision of advice to the Secretary of Environment and Sustainable Development as to which projects should be granted approval or not (step two of the project life-cycle).

Figure 5.4: The OAMDL

The OAMDL is constituted by three main organs which have different tasks. I would like to present these organs and give a special mention to the role they play in the evaluation of CDM projects, which is the most relevant function that they have in relation to this research:

- The Permanent Secretariat (Secretaría Permanente): this organ bares the promotion task but it is also in charge of designing the rules and procedures that project developers must follow in order to see their projects approved by the Secretary of Environment and Sustainable Development. Furthermore this organ performs a pre-evaluation of the proposed projects. It is checked whether projects comply with all the policies and procedures as established by Kyoto, whether all the required documentation has been submitted, and whether the project complies with Argentine legislations. The Secretariat also informs the relevant authorities of the provinces where projects will be implemented, and makes the project open for public comments in its website. Furthermore it formulates a first opinion report about the project.

- Executive Board (Comité Ejecutivo): this is a transversal board that contains representatives of commissions belonging to different ministries, i.e. energy, agriculture, transport, foreign affairs, science and technology. Regarding evaluation, the Executive Board has to perform a technical evaluation of the project that in some cases might involve an external consultant. Furthermore, the Executive Board has to give the final advice about the project to the Secretary of Environment and Sustainable Development.

- Advisory Board (Comité Asesor): this body includes the private sector, academics and NGOs, and it has the task of providing advice to the Executive Board.

The actual situation of the CDM in Argentina is the following: from the 21 projects accepted by the Argentine DNA, 10 have reached the registration status in the Executive Board and are being currently implemented, 1 has been rejected by the Executive Board, 2 have been suspended, 2 are being evaluated by the OAMDL, and I assume that the other 6 are being validated by the concerning DOEs or have been already submitted for registration. Nevertheless, there are more than 60 projects on their way to requesting approval. The OAMDL is active providing guidance and advice to the proponents about how to comply with the rules. This state

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43 The original name for these organisations in Spanish: OAIC Oficina Argentina de Implementación Conjunta, OAMDL Oficina Argentina para un Mecanismo de Desarrollo Limpio, SAAyDS Secretaría de Ambiente y Desarrollo Sustentable, JGM Jefatura del Gabinete de Ministros.
Global Environmental Governance and the CDM

office is not the only governmental organisation involved in these activities. Recently, the Argentine Carbon Fund (FAC) was created with the goals of stimulating sustainable development, fostering the use of clean technologies, and facilitating the development of CDM projects by providing finance and advice.  

Figure 5.5: Expected average annual CERs from registered projects by host party

If we analyse the contribution of Argentina to the overall reduction of GHGs within the context of the CDM we see that only a very small percentage of the CERs (2.06%) is generated in this country (Figure 5.5). But we also see that there are four CDM giants that generate more than 75% of the CERs. This leaves Argentina in the seventh position which is still a very high one if we consider that there are 49 countries around the world hosting CDM projects.

The CERs generated in Argentina come from the 10 projects that are being implemented at this moment. As indicated in the first chapter, 6 of them realise the reductions of emissions by the capture and combustion of methane from sanitary landfills and the other one by generating electricity out of wind energy. From the 6 gas projects, 1 is located in the city of Rosario in the Santa Fe province, 1 in the city of Olavarria in the Buenos Aires province, and 4 in the AMBA. The projects located in the AMBA are implemented in 5 different sanitary landfills property of CEAMSE. These are the projects of Villa Dominico, Norte III, Norte III-B and a project with a double site in Ensenada and Gonzalez Catán. Figure 5.3 can give the reader an idea of the location of these projects. Figure 5.6 shows a general overview of the four projects implemented in the landfills of CEAMSE as well as some key information related to the characteristics of every project in the following order: name of the project developer, crediting period, tonnes of waste that each landfill contains, age of the waste, dimensions of the landfill, estimated tonnes of expected CO₂ reductions, CEAMSE’s returns, collection gas system, and proposed gas treatment:

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44 All this date has been retrieved from the website of the SAyDS: [http://www.ambiente.gov.ar/?idseccion=113](http://www.ambiente.gov.ar/?idseccion=113) (accessed: 14-03-2007).

45 Norte III is a section of the sanitary landfill Norte. The huge dimensions of this site made a division in sections possible. Other sections are Bancalari, Norte I and II (where disposal is stopped), and Norte III B.
We can therefore conclude that the capture and combustion of methane in the sanitary landfills located in the AMBA is the star CDM activity of Argentina. This conclusion has been corroborated to me by Máximo Sáenz, representative of the waste commission of the OAMDL, during an interview that took place at his office on 22 September 2006. This governmental agency sees the following two reasons as an important cause of this:

- The AMBA produces huge amounts of emissions of methane caused by the disposal of solid waste in sanitary landfills. This is the reason why these kinds of projects can effect an interesting reduction of emissions of GHGs that would be perhaps difficult to achieve in other sectors. Actually, it is difficult to find other sectors and other locations in Argentina that have such a high capacity for generating CERs.
- Projects of this kind are very adaptable. This means that once a project has been realised somewhere else abroad, the path to the implementation becomes easier to travel. In the case of Argentina, the registration in the Executive Board of the first project by CEAMSE has also made the registration process easier for the other projects that take place in the AMBA.
5.2.3 Technical Aspects

Although this is not my field of expertise, before concluding this chapter, some technical information about sanitary landfills and about the capture and combustion of methane which originates in them, should be given. It is important to describe the process of the combustion of methane whereby the gas is destroyed and mitigation of climate change is achieved.

One of the commonest and oldest ways of dealing with solid waste is disposing it into sanitary landfills. A landfill can be defined as “a carefully engineered depression in the ground (or built on top of the ground, resembling a football stadium) into which wastes are put. The aim is to avoid any hydraulic [water-related] connection between the wastes and the surrounding environment, particularly groundwater. Basically, a landfill is a bathtub in the ground; a double-lined landfill is one bathtub inside another. Bathtubs leak two ways: out the bottom or over the top”\(^{46}\). Even though this definition refers only to hydraulic leakage, landfills can leak two kinds of components: leachate or landfill gas. Leachate is the liquid that forms when rainwater percolates through the decomposing waste stored in landfills. Leachate is therefore highly contaminated water that can reach groundwater if the bottom of the landfill is permeable, or can flow over the top if it is not collected. Landfill gases are gases that are formed when the disposed waste goes through the process of anaerobic decomposition. It has been established that that 40 to 60 percent of the gas present in a landfill is methane which, if not captured and treated, can cause fires or explosions. The remaining gas is mainly is CO\(_2\) and a very small percentage (1 or 2\%) of other toxic contaminants called non-methane organic compounds (Ewall, 2000)\(^{47}\), Cain, 2000: 2). If not captured and treated, these compounds may reach the open air and cause nuisance and health problems for humans living close to the landfill that generates them\(^{48}\).

Modern landfills use different technologies aimed at preventing this leakage from happening. It is therefore common that landfills are located in sites where the geologic composition of the bottom prevents leachate from leaking into groundwater. In it also a common practice to cover the bottom with a clay, plastic, or composite liner that prevents leachate from reaching the underground, and to cover the top in such a way that rainwater does not produce more leachate. Leachate and gas collection systems are also normally installed in the landfills. Unfortunately, this is only the ideal situation. When technological and financial means are insufficient all these modern technologies are badly used or not employed at all. This is the case of very old landfills and also some new landfills in poor regions of the world. In these cases leakage of leachate and gas and the problems that originate from that, are bound to happen.

Nevertheless, the most relevant characteristic of a landfill to us is the presence of the GHG methane in it. As it has already been said, this makes the implementation of the CDM projects possible. It is therefore important to clarify certain issues about this gas.

The chemical compound methane has the following molecular formula: CH\(_4\). This means that a molecule of methane is made of one carbon atom bonded to four hydrogen atoms\(^{49}\). Methane is a colourless and odourless non-toxic gas which has the property of being highly flammable and might ignite or explode in reaction with air. Methane is a strong GHG, meaning that this gas has a 23 times higher global warming potential than CO\(_2\) in an average of 100 years. However, there

\(^{46}\)Most of the technical information about landfills has been retrieved from the following site: http://www.ejnet.org/landfills/index.html#basics (accessed: 14-03-2007). When other references are used, they will be indicated.

\(^{47}\)This article has been retrieved from the following website: http://www.energyjustice.net/lfg/. It does not contain page numbers.

\(^{48}\)These compounds can be different per landfill depending on the composition of the waste that has been disposed and on the conditions of the landfill. The American Environmental Protection Agency (EPA) has identified more than 91 chemicals that are potentially present in landfills, some of them very toxic such as benzene, toluene, chloroform, vinyl chloride, carbon tetrachloride. (Ewall, 2000). Benzene is known because of its carcinogen nature.

\(^{49}\)This and the rest information related to methane have been retrieved from: http://en.wikipedia.org/wiki/Methane (16-03-2007).
is approximately 220 times more CO₂ in the Earth’s atmosphere than methane, and methane’s atmospheric lifetime is also much shorter. On the long run, CO₂ is a more powerful instigator of climate change. Nevertheless, methane remains a strong GHG and its emissions should be reduced if climate change is to be mitigated.

Figure 5.7: Methane combustion reaction

\[
\text{CH}_4 + 2 \text{O}_2 \rightarrow \text{CO}_2 + 2 \text{H}_2\text{O}
\]

If we want to understand how mitigation of climate change is achieved through the capture and combustion of methane from sanitary landfills, we have to clarify the process of combustion.

The process of combustion of methane refers to the possibility of burning it. The chemical process that takes care of this is a reaction of methane and oxygen in the air. This reaction releases CO₂ and water. What figure 5.7 actually indicates is that one molecule of methane in reaction with two molecules of oxygen will produce one molecule of CO₂ and two molecules of water. But if we want this combustion reaction to work properly so that methane fully burns, a very important principle must be met: the combustion reaction must take place in temperature conditions between the 850 and 1300 degrees Celsius. This maintains a stable flame (McCarty, 2000: 35) and minimises the emission of undesirable products such as carbon monoxide that can appear when the temperature conditions are lower than 850 degrees Celsius and the combustion reaction fails (Cain, 2000: 3). Moreover, if the combustion reaction is not properly performed, unburned methane would be released into the atmosphere and this would contribute to climate change. Therefore, if we want to combust methane and mitigate climate change it is important that the technology used is able to create these temperature conditions.

The technology used for the capture and combustion of landfill gas in the CDM projects relevant to this research is widely used in Europe and the USA. It is considered as one of the most effective ones and it has been approved by the Executive Board within the framework of baseline methodologies for CDM projects belonging to the scope of waste handling and disposal. It consists of an active collection system that extracts the landfill gas and channels it to a flare for combustion. In this process we can distinguish four and sometimes five activities (see figure 5.8 for graphic illustration):

- The collection of the landfill gas: this is done by drilling extraction wells and the installation of collecting pipes.
- The suction of the landfill gas: pumping equipment consisting of blowers absorbs and transports the gas to the next stage.
- Treatment of the landfill gas: the gas is condensed and conducted to a system of closed flares that create the proper temperature conditions for the combustion reaction of methane to happen.
- Monitoring system: this system controls the flaring, and measures the composition and the amount of landfill gas that has been combusted.

According to Ewall (2000) non-methane organic compounds should be segregated, filtered out and never be combusted together with methane. Afterwards they should be isolated and handled as hazardous waste until a proven technology can guarantee the neutralisation of their toxics. It is not known to me whether such a technology is employed in the CDM projects relevant to this research, or non-methane organic compounds are burned during the combustion reaction of methane.
- Extra technology can be used in order to generate electricity and add it to the public grid or use it for self provision, but this is not always the case.

**Figure 5.8: Technical process of degassing**

![Diagram of technical process of degassing](image)

*Source: Van der Wiel (2004: 32)*

**Summary**

This chapter has described the geographic characteristics of the Argentine Republic. The significantly high concentration of population in the metropolitan area of Buenos Aires and the particular administrative arrangements that govern this area are of special relevance for this research. This high population concentration generates enormous amounts of waste that generate methane because of the way disposal is carried out. Special attention has been given to the management of all this waste and we have seen that this is one of the few activities that crosses administrative boundaries and considers the metropolitan area as one entity. We have also seen that waste management in the area is not exempt from social conflicts. The final disposal of waste in sanitary landfills offers the possibility of implementing CDM projects within the scope of waste handling and disposal.

Afterwards, the situation of Argentina concerning the CDM has been discussed. A short institutional overview of the government offices involved in the CDM has been provided. It is important to mention that even though Argentina generates only a small percentage of the CERs worldwide, it occupies the seventh position in a ranking of 49 countries hosting activities. The star CDM activity responsible for this position is the capture and combustion of methane from sanitary landfills. Proof of this is that 6 of the 10 Argentine projects that have reached the implementation phase are based on these activities. The huge volume of waste generated in the metropolitan area of Buenos Aires is one of the main reasons for this.

Finally, some technicalities about sanitary landfills and the problems derived from their management have been discussed. In order to understand how mitigation of climate change is achieved by destroying methane generated in landfills, special attention has been given to the characteristics of methane as a chemical compound. This information has been completed by explaining the chemical process involved in the destruction of the gas. The chapter has been concluded by a simple and concise description of the process of landfill degassing.
This chapter will present the empirical data gathered around the CDM project of Villa Domínico. In the first place, some background information about the landfill will be given: location, volume, dimensions and also a short history of the site. The empirical study will actually begin in the second section of this chapter, where the CDM project will be described.

A systematic analysis of the individual stakeholders will be performed paying attention to the concerns of the stakeholders about the relevant concepts to this research. Afterwards a network analysis will be performed with the purpose of providing a more comprehensive overview of the stakeholders involved in the project and how they interact. This will lead the discussion towards the empirical conclusions that will show how the governance of this project has been organised by paying attention to the three major concepts of the conceptual scheme.

6.1 Villa Domínico

The sanitary landfill Villa Domínico is the biggest and oldest in Argentina. It occupies a plot of around 298 hectares and it has been receiving waste from 1978 until January 2004 when disposal came to an end. In this period Villa Domínico has received around 47 millions of tonnes of solid waste that nowadays are covered with a clay layer (Van der Wiel, 2004: 3-4). In figure 6.1 I have manually demarcated the approximate borders of the landfill with red lines. We can see that it is located between the Río de la Plata and a populated suburban area in the south-eastern part of the AMBA, around five kilometres outside of the city of Buenos Aires. This populated area and the plot where the landfill is located belong to the municipalities of Avellaneda and Quilmes in the Buenos Aires province. If we carefully look at the figure we also see the petrochemical plant Dock Sud in the banks of the river between the landfill and Buenos Aires.

The decision of stopping with the disposal of solid waste in Villa Domínico is the result of a long conflict with the neighbours of the adjacent communities. According to CEAMSE (2004: 10) if we trace the history of the landfill back to its origins we see that waste disposal in the area started in the nineteen sixties in an illegal manner as a consequence of the population growth that the metropolitan area of Buenos Aires was going through at that time. As the municipalities of Avellaneda and Quilmes continued experiencing a population growth in the nineteen seventies, human settlements were established in the vicinity of the disposal sites. The poorer segments of the population also started to settle next to the actual sites because of the economic possibilities that the recuperation of materials from the mountains of waste offered them. This activity is called cirujear and the people who perform it are called cirujas. The incineration method that was originally used to get rid of the waste became a serious threat for the health of the cirujas and the settlers of the neighbouring municipalities. According to CEAMSE (2004: 6-7) the starting of controlled disposal in Villa Domínico was aimed at eradicating illegal and uncontrolled disposal and incineration.

In the nineteen seventies and eighties, increased urbanisation in the area as a result of further population growth triggered conflicts between the neighbouring communities and CEAMSE. While CEAMSE defines the conflict as a Not In My Backyard (NIMBY) problem based on the idea that nobody would like to live next to a facility such as a sanitary landfill, the neighbouring communities have blamed waste disposal in Villa Domínico and specially the gas emanations coming from it, for the health problems in the communities. The actual trigger was the high incidence of cancer in the adolescent dwellers of an apartment complex next to the landfill (Clarín, 2003). An organization of mothers whose kids were dying or being treated against cancer (Las Madres de las Torres de Wilde), several existing neighbours’ organizations, and the local

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51 The Clarín is one of the most important national newspapers in Argentina. The information I refer to is available digitally: http://www.clarin.com/diario/2003/05/20/s-02801.htm (accessed 01-03-2007)
NGO Ambiente Sur, united their forces in 1999 and started campaigning against CEAMSE. The conflict reached its most crucial moment when members of these organisations blocked the entrances to the landfill making disposal impossible in May 2003.

**Figure 6.1: View of the Sanitary Landfill Villa Dominico from an eye altitude of 10 Km and 23.5 km**

CEAMSE has always claimed that the disposal activities were not directly responsible for the health problems of the neighbours and that the local organisations have not given enough importance to the presence of the petrochemical plant Dock Sud (see figure 6.1) in the area (CEAMSE 2004: 7). Despite of this and after many battles that sometimes reached the Argentine courts, CEAMSE decided to stop disposal and close Villa Dominico in January 2004. According to the community organisations this has happened as a result of their struggle. According to CEAMSE this is part of the new policy of the company under the administration of the new president Carlos Hurst52. One of the many commitments of this new administration is the relocation of waste disposal activities to less populated areas (Clarín 2003)53. However, the conflict is not finished because CEAMSE still has the responsibility of monitoring the groundwater and managing the gases and leachate coming from Villa Dominico and some of the civil organisations seem to be discontent with the way in which this is happening. In the meantime, a CDM project hosted in Villa Dominico and financed by a Dutch company has reached the fifth stage of a CDM project life-cycle: the implementation.

### 6.2 Description of the project

Since Argentina has ratified the Kyoto Protocol and there are foreign companies interested in investing on mitigation projects in the country under the framework of the CDM, CEAMSE has

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52 Mister Hurst was appointed president of the company in the year 2003.
evaluated the possibility of becoming involved in this kind of projects and has decided to do so. The first company that showed up with plans was the Dutch company Van der Wiel Stortgas B.V., who has become the project developer of the first CDM project implemented in Argentina. A first letter of intention between Van der Wiel and CEAMSE was signed on September 2002, and a final contract was signed in June 2003. Van der Wiel has financed the totality of the project and will earn back its investment with the money generated by the sale of CERs to the Dutch government, who has agreed to purchase the CERs through the International Finance Corporation (IFC). The IFC has negotiated with Van der Wiel the terms for purchase of the CERs, which have been made binding through an Emission Reduction Purchase Agreement (ERPA). After a certain period of time the project will have generated the required amount of CERs agreed in the ERPA. The CERs generated between that moment and the end of the crediting period in 2012 will be sold to other buyers. CEAMSE will also acquire a proportion of the benefits generated by the sale of the CERs to the Dutch government and to future buyers.

### Table 6.1: Ex ante outcomes of the CDM project of Villa Domínico

<table>
<thead>
<tr>
<th>Mitigation</th>
<th>- The project will generate a reduction of 5,300,000 tonnes of CO₂ equivalents (CERs) in a period of 9 years.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Economic sustainability</td>
<td>- The project wants to demonstrate that the practise of degassing landfills becomes economically viable under the framework of the CDM, whereby future investments of this kind will enjoy a more favourable environment.</td>
</tr>
<tr>
<td>Social sustainability</td>
<td>- Technological know-how will be transferred through the involvement of local partners. This regards not only the degassing techniques but also landfill management, and landfill gas utilisation methods such as electricity generation. - The project will stimulate the local economy by creating both skilled and unskilled labour during the construction of the degassing plant - The project will stimulate the local economy by the purchase of necessary materials from national producers.</td>
</tr>
<tr>
<td>Environmental sustainability</td>
<td>- Odorous gas emissions will be eliminated, which will improve the health and quality of life of the surroundings. This will have positive repercussions on the socio-economic situation of people living near the landfill. - Explosion and fire risk will be reduced.</td>
</tr>
</tbody>
</table>

Source: Author, based on Van der Wiel (2004: 2-3)

Before the project started to walk the eight stages of the project cycle, local authorities, and representatives of the local communities and NGOs dwelling in the surroundings of the landfill were informed about the intentions of Van der Wiel in Villa Domínico. This happened via an opinion note sent to these organisations where the major aspects of the implementation and the operation of the project were explained. Three meetings between Van der Wiel, IFC, CEAMSE and the local communities also took place between October 2003 and October 2004.

On 22 June 2005 the project was approved by the OAMDL. It obtained final validation by the Norwegian environmental consultant Det Norske Veritas (DNV) on July of the same year, and it was finally registered in the CDM Executive Board as a CDM project activity on 17 September 2005. Certification and verification of the project have been carried out by the British branch of the consultant SGS between July and October 2006. After this, CERs have been issued to Van der Wiel for three crediting periods: from 01 January 2004 to 31 May 2006 (76,863 CERs), from 01 June 2006 to 10 October 2006 (39,692 CERs), and from 11 October 2006 to 31 May 2007 (44,366 CERs). An ongoing cycle of monitoring, verifying, and issuing will be maintained until 31 December 2012. The project is also meant to generate electricity for on site usage.

The specific ex ante outcomes that this project tries to achieve are outlined in table 6.1. This table is based on the account of the outcomes provided in the PDD and has been divided using

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54 From now on I will refer to this company as Van der Wiel.
the categories suggested by the operationalisation of the concept of sustainable development provided in chapter 4.

6.3 Analysis per stakeholder

*Van der Wiel Stortgas B.V.*

"We are the executive branch of the Kyoto Protocol"

The information that I am about to present is based on an interview with a representative of Van der Wiel in Argentina, on the PDD of the project Villa Domínico, and on the website of Van der Wiel55. The interview was held at Van der Wiel’s office in Buenos Aires in September 2006, and it took place in moment in which the project had reached the verification and certification stage of its life-cycle, just before the issuance of the first CERs.

Van der Wiel is the project developer of this CDM project. A short glance at its website shows that the company is housed in Drachten (The Netherlands), and that it is part of the holding Van der Wiel Holding B.V.. This holding has more than fifty years experience in the field of transport, infrastructure and environmental technique in many different countries, and more than 25 years experience in the field of degassing sanitary landfills. As a commercial company, Van der Wiel has seen the chance of making benefits from the participation in the CDM. This way, the company is not only participating in Villa Domínico, but also in another CDM project of the same scope in São Paolo (Brazil). Van der Wiel can be defined as a global stakeholder because it operates internationally.

The company is responsible for the design and implementation of the project of Villa Domínico and has financed the totality of the project with its own capital (Van der Wiel, 2004: 5). This means that Van der Wiel bares all the bureaucratic costs related to the registration of the CDM project, and also the costs of constructing and running the necessary facilities for the degassing of the landfill during its nine years of programmed activity. Therefore, Van der Wiel is the party that effects the reduction of emissions of methane originated in the landfill resulting in the mitigation of climate change. As a representative of the company puts it: ‘We are the executive branch of the Kyoto Protocol’56. Van der Wiel has written the PDD and carried out all the activities that this involves: organising the public consultation, writing the baseline and monitoring methodologies, negotiating the ERPA with the IFC, and getting approval form the Argentine DNA. As a project developer, Van der Wiel must also write periodic monitoring reports in which the amount CERs generated is claimed, and opens its doors to the independent environmental consultants who will perform the concerning validation, and verification and certification activities. In short, Van der Wiel is an organisational stakeholder who has arranged all the bureaucratic and practical aspects of the project, and has interacted directly with almost all the stakeholders involved in the Villa Domínico project.

According Van der Wiel (interview), the company has identified and organised meetings with what they call the ‘local stakeholders’. These are the parties that should be informed about the implementation of the project because they will (likely) be affected by the project. These are the local civil organisation Ambiente Sur, the rest of the CBOs who have played an important role in the conflict with CEAMSE, and representatives of the municipalities of Avellaneda and Quilmes. During the meetings, Van der Wiel (together with the IFC) has played an informative role, explaining the technical aspects of the project to the ‘local stakeholders’57. Van der Wiel recognises that it was not an easy task to gain acceptance from the local stakeholders because

56  This interview was hold in Dutch. The exact words of the representative were: “Wij zijn de uitvoerende taak van Kyoto”.
57  The exact role of IFC will be explained later.
some of them are structurally against any activity in which CEAMSE is involved. However, according to Van der Wiel (Interview; Van der Wiel, 2004: 28), positive support to the project has been granted by the local stakeholders, and after three meetings with Van Der Wiel, in which all the relevant aspects about the effects of the implementation of the project have been clarified, “there were no further comments” (Van Der Wiel, 2004: 28).

CEAMSE allows Van der Wiel to use of the landfill facilities for the degassing activities, and Van de Wiel must pay CEAMSE a certain percentage of the benefits generated by the sales of the CERs to the Dutch government. This is formalised in a binding contract which also gives CEAMSE the right to monitor the activities of Van der Wiel. An important issue for Van der Wiel regarding its relationship with CEAMSE has been a general lack of mutual trust that has characterised the beginning of the relationship between Van Der Wiel and CEAMSE, and which has slowed down the registration of the project as a CDM project activity. According to Van der Wiel (interview) “there is a lot of talking but things do not get done”. Nevertheless, the representative of Van der Wiel pointed out that he had the perception that CEAMSE, after a period of having the will to do things but not being able to get them done, is becoming more and more professional. This does not necessary mean that levels of mutual trust have been improved, and I have not been able to find out if this is the case, but since the project has finally started generating economic benefits for both parties, I assume that their cooperation has only become better.

Another issue that was referred to as important by Van der Wiel regarding their relationship with other stakeholders is how long it takes to complete the whole bureaucratic process that leads to the approval of the project by the Secretary of the Environment and Sustainable Development. In this process, interaction takes place with the OAMDL and the different commissions of this office, who have the task of evaluating the project and giving a positive or negative advice to the Secretary. The representative of Van der Wiel also referred to the policies and procedures of the CDM as responsible for the length of the process that takes the project to the last stage of the life-cycle. This is a rather problematic issue because Van der Wiel started investing money in Villa Domínico in 2002 and has not seen any benefit until the end of 2006. According to Van der Wiel’s representative only a company with big capital, like Van der Wiel, could economically survive the whole process.

When asked about the ex ante outcomes of the projects, the representative of Van der Wiel made clear that it is the company the one who establishes the mitigation and sustainable development goals that the projects must deliver.

In the case of the mitigation goals, Van der Wiel (interview) refers to their 25 years of know-how in the field of degassing landfills as a guarantee for the success of the mitigation activities in Villa Domínico. Van der Wiel determines the reductions by monitoring the amount of landfill gas captured and combusted, and its methane content. A daily average of the amount of methane is calculated and translated into tonnes of CO₂ equivalent, and registered in periodic monitoring reports where the final amount of claimed CERs for a period of time is established. As mentioned before 5,300,000 tonnes of CO₂ are expected to be reduced until 2012. These reductions will be effected by applying the degassing technology explained in chapter 5. In the estimation of the reductions the project boundary and the leakage have been identified and taken into account. Regarding the project boundary, Van der Wiel considers all the emissions under 1%58 of the total project’s emissions as insignificant. The only potential sources of CO₂ emissions are related with the energy supply for running the equipment used in the project, and from transport of equipment to the project site. The former is considered insignificant in the PDD. The later is also considered insignificant but nevertheless Van der Wiel provides an extensive explanation of why this emission will remain low: In order to keep transport emissions low a major part of the equipment has been purchased locally. The rest of the equipment has manufactured 200 km from the Rotterdam harbour in the Netherlands and has been transported.

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58 This makes 53,000 tonnes of CO₂
by boat to Argentina. An estimation of the emissions generated by this journey has been done through regression analysis taking into account the usage of fuel, the sort of fuel, the sort of ship and the amount of days the journey takes. The result of this estimation is 1,514 tonnes of CO2, which is way under the 1 % established by Van der Wiel. Given this estimation, any emissions generated from transport activities within Argentina are even more insignificant (Van der Wiel, 2004: 17). This project does not have any leakage effect. All these estimations and calculations have been made following the instruction of the baseline and monitoring methodology approved by the CDM Executive Board: AM001 Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario approved by the CDM Executive Board. This way, Van der Wiel complies with the rules of the CDM.

In the case of the sustainable development outcomes of the project, the story is a bit different. Van der Wiel (interview) let me know that the sustainable development goals do not have to adjust to any criteria or guidelines pre-established by the national or any other administration. This issue is not contractually arranged and Van der Wiel has formulated the outcomes unilaterally. Van der Wiel claims that they have provided jobs to around ten people and they have tried to purchase as much equipment as possible from local providers, which Van der Wiel considers as a small-scale spillover effect. However, Van der Wiel (interview) also said: “The goal is reduction, if they want to make a park out of the landfill it is the task of CEAMSE or the OAMDL to do so”60. Van der Wiel is only committed to create the proper conditions for this, regarding getting rid of the methane, and will do it within the agreed period of time. This suggest that Van der Wiel is more focused on the mitigation goals and considers that it is the responsibility of other organisations to focus on other kind of outcomes. Further, the representative of Van der Wiel referred me to the PDD, where all the outcomes are outlined. This certainly limits the way Van der Wiel talks about the issue to an account of the outcomes as outlined in table 6.1, and does not provide any information about how these goals have been achieved or are going to be achieved.

Before we turn to the analysis of a different stakeholder three things should be mentioned: (a) even though I got the impression that Van der Wiel purchases the necessary electricity for running the project facilities from the local grid due to its low price (interview), Van der Wiel states in the PDD that the project will generate its own electricity for on site usage (Van der Wiel 2004: 2), (b) Van der Wiel claims that the project complies with all the national, provincial, and municipal regulations regarding waste management and the air protection, and (c) Van der Wiel claims that an Environmental Impact Assessment (EIA) has not been performed because this kind of project does not require it (Van der Wiel, 2004: 22).

**Coordinación Ecológica Área Metropolitana Sociedad del Estado (CEAMSE)**

“CEAMSE has opened its doors to the community”

CEAMSE agreed to meet me at its headquarters in Buenos Aires on September 25th 2006. The initial appointment was with the president of the company Mr. Carlos Hurst who, after a short explanatory introduction of my intentions referred me to Mr. Alejandro Cittadino, responsible for coordinating the monitoring of the gases emanating from the landfill sites. The information I will use in the next paragraph is based on the interview held with Mr. Cittadino.

CEAMSE is a local stakeholder. As such, CEAMSE is not only involved in Villa Domínico, but also in 3 more CDM projects taking place in other landfill sites of the AMBA. Therefore the
information that has been provided by Mr. Cittadino during the interview refers mainly to CEAMSE’s general approach to the CDM and can be applied to both projects analysed in this thesis. Since Mr. Cittadino made some specific remarks about the Villa Domínico I prefer to include this analysis in this chapter rather than in the empirical chapter concerning Norte III.

Regarding its perspective of involvement in the projects, CEAMSE is a bit complex to categorise. This company bares organisational as well as regulatory tasks. Regarding the regulation, in the binding contract that CEAMSE and Van der Wiel have signed, it is established that Van der Wiel has to achieve the mitigation goals on time. Moreover, CEAMSE performs monitoring tasks within the framework of the general management of the landfill sites, which includes monitoring the flaring system of Van der Wiel in the Villa Domínico project. If deadlines are not met by Van der Wiel and monitoring results do not comply with CEAMSE’s regulations, CEAMSE has the right to punish the project developer (interview). However, the organisational tasks of CEAMSE are much more significant for the existence of the projects. By engaging in a contractual partnership with the project developers who operate in its landfills, CEAMSE makes the implementation of the project possible. CEAMSE plays an important role in organising the consultation. According to Mr. Cittadino: “as a governmental body, CEAMSE takes a coordination role (…) it connects the NGOs with the private companies and the private companies with the Secretariat of Environment and Sustainable Development. That is what we do”. If we consider that CEAMSE is indeed a state-run company and that they have been in touch with local communities due to ongoing conflicts with them, it is understandable that CEAMSE has the capacity to play this role of hub between all these stakeholders. Furthermore CEAMSE will also benefit form the sale of the generated CERs, which strengthens its already significant organisational character.

Generally speaking, the begin of a CDM project in a landfill owned by CEAMSE starts with a competitive bid process which will results in a contract with one specific company that will become the project developer. This way of operating was not used when CEAMSE and Van der Wiel came to an agreement about the Villa Domí nico project. This has to do with this project being the first ever implemented in the country, and with the lack of an existing systematic framework of organising things. Mr Cittadino pointed out that Van der Wiel, as “pioneer” project developer, has “suffered” from a very long journey towards approval from the OAMDL and further registration, and that in a way, this company has paved the road for future projects.

According to Mr. Cittadino CEAMSE has a positive feeling about their relationship with the stakeholders with which the company interacts. Regarding Van der Wiel, and the rest of the project developers of other projects CEAMSE points there are no obstacles with this public (CEAMSE) – private (project developer) cooperation. There is a relationship of trust which is based on the focus of the private partners on obtaining economic benefit. Therefore, it is in their own best interest to get their job done and their reductions certified.

With regard the local communities and municipalities considered as stakeholders in the public consultation, CEAMSE has very positive feelings. CEAMSE has been present in the informative meetings and its knowledge of the local communities surrounding the landfill has contributed to the identification of the relevant community stakeholders. Moreover, CEAMSE has prepared the opinion note that was sent to the community stakeholders with technical and organisation information about the Villa Domínico project. Furthermore, CEAMSE “has opened the doors to the community” (interview) and has a positive relationship. Gas monitoring activities are reported to the concerning NGOs and they are even invited to be present when the actual monitoring takes place.

CEAMSE fully accepts the calculations of Van der Wiel regarding the ex ante mitigation goals that the baseline established in the PDD. Regarding the sustainable development outcomes, again, the story is a bit different. CEAMSE has its own perspective, which is applicable to all the CDM projects implemented in its landfills:
Global Environmental Governance and the CDM

-The company is interested in the projects generating electricity for the surrounding communities.
-They are interested in obtaining economic benefits from the CER’s in order to keep on investing capital in what they call service to the community. CEAMSE has opened social plants where waste is separated and classified before disposal. These plants provide jobs to the poorest segments of the communities dwelling in the vicinity of some of the landfills, which is not the case of Villa Domínico.
-There must be a transfer of technology to the technicians of CEAMSE. CEAMSE must appoint two technicians who will closely work with the project developers in order to acquire technological know-how for the future.
-CDM projects must create jobs, and it is the responsibility of the project developers to do this.

Accidents happen…

You talk to people and they tell you what they think are funny stories about some events they have seen or they have heard from others. It becomes even better when you hear the same story from different people. You do not know whether they are true or not, or whether they are mere exaggerations, but what you know is that it would be a shame not to share them. As far as I know from one of these stories, the flares of Van der Wiel in Villa Domínico are really hot.

Community stakeholders, representatives of Van der Wiel, members of the press, and maybe someone from the OAMDL, were once invited to witness how technicians of CEAMSE demonstrated their monitoring capabilities. This involved a technician of CEAMSE getting very close to the top of one of the flares that combusts the captured methane. The person with the task of doing this was not lucky enough to be wearing proper gear resistant to the high temperatures of the flare, between 850 and 1300 degrees Celsius. I remember hearing that he was not really severely injured. The funny part of it is that, despite that this was a rather tragic event, some people I spoke with were very enthusiastic to see CEAMSE go through such an embarrassing situation. One of them even regretted not having been there to witness it.

Dutch Ministry of Housing, Spatial Planning and the Environment (VROM)

“VROM will not prescribe criteria for sustainability”

I have not managed to acquire information containing the views of the Dutch government regarding the specific project of Villa Domínico. This is no surprise if we consider that at the moment of writing this thesis the Netherlands is involved in the purchase of CERs coming from 109 CDM projects, accounting for 14.12% of the total amount of CDM generated CERs.
CDM Villa Domínico

worldwide. After the United Kingdom\textsuperscript{61}, the Netherlands is the second biggest CER buyer. I have analysed the role of VROM in the implementation of the Villa Domínico project in the light of the general policy approach of the Netherlands towards the CDM.

According to VROM (2004: 7), the Dutch government has agreed to reduce 199 million tonnes of CO\textsubscript{2} equivalents in the period 2008-2012. A substantial part of this is planned to be achieved within the Netherlands, but the remaining part will be achieved in other countries using the flexibility mechanisms of Kyoto (VROM, 2005: 1). Approximately 67 million tonnes of CO\textsubscript{2} equivalents will be purchased through CDM projects. Unfortunately, I was not able to find the exact amount of CERs that the Netherlands will buy from Villa Domínico Project. If VROM was to buy the total amount of CERs, which is not the case, this project would account for around 8\% of the total Dutch reductions achieved through the CDM.

As I said, VROM is involved in 109 projects around Asia, Africa, and Latin America and the Caribbean. It can be therefore established that VROM operates from a global scale level. Since the Netherlands is an active player involved in the purchase of CERs generated by this project, it must be considered as an organisational stakeholder.

VROM has the purpose of using the funds allocated by the Dutch government to purchase CERs from sustainable projects in developing countries in a cost-effective manner\textsuperscript{62}. In order to do this VROM uses different tracks which most of the times involve contracting different intermediaries for the selection of projects and for the purchase of CERs on its behalf (VROM, 2004: 7). These intermediaries are in charge of selecting the projects following some conditions established by VROM regarding baselines, additionality, price level of CERs, sustainability, project size, costs and payments, and host country’s cooperation.

In the case of Villa Domínico, the Dutch participation in the project has been arranged by the IFC, who has performed the role of trustee of the Netherlands in the selection of the project and the negotiation of the purchase of the CERs. This means that the IFC is the only stakeholder with whom VROM actually interacts. As we will see later, the IFC is an organization devoted to promote sustainable private sector investment in developing countries. Entrusting the Dutch participation in Villa Domínico to the IFC is considered by VROM as a guarantee for a selection of a sustainable and cost-effective project.

Before we turn to the analysis of the next stakeholder, a few comments should be made about how VROM talks about the \textit{ex ante} outcomes that projects should deliver.

Regarding the mitigation outcomes, VROM is only interested in large-scale projects that generate more than 500,000 CERs for the entire crediting period. This is due to the transaction costs that are reflected in the price of the CERs and which VROM wants to prevent from becoming a large portion of the payment (VROM, 2003: 18). VROM does not establish the total mitigation goals of the project but it requires a certain amount within a certain period. VROM has trusted the baseline calculations established by Van der Wiel, and will see its CER requirements satisfied before the end of the crediting period in 2012.

Regarding the sustainable development outcomes VROM is very clear:

\textquote{The Marrakech Accords state that it is the host countries prerogative to determine whether and to what extent a project activity contributes to sustainable development. With respect to this decision VROM will \textit{not} prescribe criteria for sustainability, but will relay on the declaration of the host country that the project activities contribute to sustainable development” (VROM, 2003: 16-17).}

Yet, VROM is interested in determining the level of sustainability of CDM projects because of two reasons: (a) VROM does not want to be held responsible for projects that might have

\textsuperscript{61} The United Kingdom is directly involved in 319 CDM projects accounting for 41.32\% of the total amount of generated CERs: http://cdm.unfccc.int/Statistics/Registration/RegisteredProjAnnex1PartiesPieChart.html (13-01-2008)

\textsuperscript{62} http://www2.vrom.nl/pagina.html?id=7477 (25-08-07)
adverse effects, and (b) VROM sees a positive correlation between sustainability and the pricing of CERs. Knowing how sustainable a project is might help VROM to use its budget more efficiently (VROM, 2003:17). This is the reason why VROM has established its own sustainability ranking from the most to the least sustainable kind of project, ranging from renewables to sequestration. This ranking is used to negotiate the price of CERs. Villa Dominico is in the lower part of the ranking, which suggests that the price of the generated CERs is not the most expensive you can get. However this ranking is not very suitable yet, which makes VROM advice project developers to use the Gold Standard on a “voluntary basis” (VROM, 2006:6).

**International Finance Corporation (IFC)**

“We promote sustainable private sector investment in developing countries”

The information used to analyse the participation of the IFC in the Villa Domínico project is based on two documents that this institution has made available to the public following its disclosure policies. These are the 'summary of project information' and the 'environmental review summary' with regard to this specific project, available at the IFC’s website and in the appendix of this thesis.

The IFC is one of the five institutions that constitute the World Bank. The IFC is not exactly a part of the bank but an affiliate organisation. The motto of this organisation is to “promote sustainable private sector investment in developing countries”63. The IFC encourages private sector participation in the carbon market by providing value-added services to support the long-term sustainability of projects in emerging markets. In doing so the IFC is involved in almost 300 investment projects in more than 66 countries.

With regard to the CDM, the IFC has established the Carbon Finance Unit that assists project sponsors in accessing the emergent market of carbon credits. This unit also works with buyers of emissions of reductions, which is the framework within which the cooperation of the IFC with the Dutch government takes place: “IFC manages bilateral carbon facilities with the arrangement that IFC will purchase carbon credits for the benefit of the Government of the Netherlands under the international emission reduction transfer rules of the Kyoto Protocol”. This way, the IFC manages two Dutch funds containing more than $175 million in order to buy CERs from CDM and JI projects. The fund used for the CDM is called the Netherlands Carbon Facility, which has merged its name with the IFC forming the name INCaF, under which CERs are purchased.

It is difficult to establish in how many project the IFC is buying CERs for the Netherlands, but the website of IFC suggests that IFC is buying CERs as INCaF from CDM projects in India, Brazil, Sri Lanka, and Argentina. Therefore, the IFC must be considered as a stakeholder operating from the global level. Since the IFC is has the obligation of arranging the purchase of CERs from the Villa Domínico project it must be categorised as an organisational stakeholder.

The interaction wit the IFC with other stakeholders can be portrayed as follows. This institution has negotiated the ERPA with Van der Wiel in order to come to an agreement about the amount and price of the CERs that will be transferred to the Dutch government. The IFC has involved itself in a process of review of the CDM project which has led to contact with other stakeholders. This review process deserves explanation and illustration because it explains the perceptions of the IFC regarding this project and it shows how intertwined the governance process and the ex ante outcomes of the projects are.

In order to determine its involvement in a CDM project, the IFC uses a number of criteria:

63 http://www.ifc.org/ifcext/enviro.nsf/Content/CarbonFinance_WhatWeDo (03-09-2007). More information on the background and the activities of the IFC can be found at their website: www.ifc.org
Table 6.2: Project selection criteria of the IFC

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location</td>
<td>Projects must be located in an emerging market country that has either ratified the Kyoto Protocol or is in the process of doing so.</td>
</tr>
<tr>
<td>Likely Project Closing</td>
<td>Projects must be likely to reach financial closing in the short term.</td>
</tr>
<tr>
<td>Amount of Credits</td>
<td>Projects must generate a minimum number of credits through to 2012.</td>
</tr>
<tr>
<td>IFC and non-IFC Investments</td>
<td>While IFC's preference is to purchase credits from projects that are also financed by IFC, we will also consider projects that are not IFC-financed. For projects that are not financed by IFC, projects should have well-established sponsors with access to confirmed sources of conventional financing. Such projects will also require additional due diligence on project fundamentals.</td>
</tr>
<tr>
<td>Environmental and Social Impact</td>
<td>All projects, whether financed by IFC or not, must comply with IFC's Environmental and Social Standards. Projects that have large-scale adverse environmental or social impacts will not be considered.</td>
</tr>
<tr>
<td>Host Country Approval</td>
<td>The government of the host country will have to approve the project under the Clean Development Mechanism mechanism of the Kyoto Protocol. IFC can support the application of the project company to the government for such approval. The host country will also need to have ratified, or initiated domestic procedures to ratify, the Kyoto Protocol.</td>
</tr>
<tr>
<td>Independent Verifications</td>
<td>The initial design of the project will need to be validated by an independent auditor, as required under the Kyoto Protocol. In addition, the credits generated by a project must be verified and certified periodically by auditors.</td>
</tr>
</tbody>
</table>


The application of these criteria and the final selection of the project of Villa Domínico by the IFC implies that this project complies with the CDM policies and procedures (criteria 1, 2, 6, and 7), that the project will deliver the minimum amount of credits required by the Dutch government (criterion 3), that the IFC sees Van der Wiel as a ‘well-established sponsor (criterion 4), and that the project complies with the Environmental and Social Standard of the IFC (criterion 5).

The application of criterion 5 has led to the process of review that I just referred to. The potential environmental and social impacts of a project are high in the agenda of the IFC. The host country approval of a project, where it is stated that the project makes a contribution to the sustainable development of the country, is not enough guarantee for the IFC. The IFC runs its own check of the ex ante outcomes that the projects should not deliver in order to consider the project as sustainable. In the case of Villa Domínico, the IFC has categorized the project as category B project 64, meaning that it is expected to have limited adverse social and/or environmental impacts that can be readily addressed through mitigation measures. The identified potential environmental and social negative impacts are:

- Corporate capacity in environmental and social areas.
- Land acquisition for project facilities.
- Leachate pollution.
- Odour and nuisance.
- Occupational health and safety.

According to the summary of project information, “The review of this project consisted of appraising technical and environmental / social information submitted by the project sponsor”. This means that the final conclusions of the IFC will be drawn upon the information that Van der Wiel will supply them. In the Environmental Review Summary (see appendix) the IFC concludes that the “proposed project will meet the applicable World Bank/IFC environment and social policies and the environmental, health and safety guidelines”. This is based on a visit to the site by a review team of the IFC, and on the plans presented by Van der Wiel to mitigate the negative environmental impacts.

According to the PDD (Van der Wiel 2004:6), the IFC has been present in one of the three meetings with the local communities. This happened in 18th October 2003, and the IFC’s input during the meeting was providing information about the environmental technology issues of the project to the local communities.

The IFC does not establish the ex ante outcomes that the projects should deliver or how these should be achieved, but it is very positive about the contribution of the project to sustainable

64 In general, the IFC categorises project form A to C going from low to high sustainability.
Global Environmental Governance and the CDM

development. Provided that the above potential impacts are properly addressed by Van der Wiel, the IFC expects the Villa Domínico project to have high development impact: it will deliver CERs without financial risks, it will support Van der Wiel's entry into the emerging market of carbon credits, and it will reduce air pollution in the area where it takes place (see summary of project information).

*Det Norske Veritas (DNV)*

“No comments were received”

According to the website of DNV they are independent foundation with the objective of safeguarding life, property and the environment (www.dnv.com, accessed: 10-09-2007). This foundation was established back in the nineteenth century in Norway, where it still has its headquarters. Its activities are mainly performing independent environmental audits. In order to do this DNV has more that 300 offices in more than hundred countries with more than 7000 employees.

DNV is related to the CDM because it is one of the 20 DOEs that have been accredited to perform validations, verifications, and certifications of CDM projects. This organisation is related to the project of Villa Domínico because it is the auditor that has performed the Validation of the project. The information used for this analysis has been retrieved from the validation report of the project and the website of DNV.

“DNV is a leading independent greenhouse gas verifier operating globally”65. At the moment of writing DNV is involved in the validation of certification of 1320 CDM projects worldwide performing validations in de case of CDM projects on their way to being registered as such in the CDM Executive Boards, and verifications and certifications in the case of registered projects. Therefore, DNV is a global stakeholder.

The perspective of involvement of DNV is organisational. DNV’s validation report is necessary step towards the further development of the project. It assesses the design of the project in order to validate whether the project as planned will comply with requirements of the CDM policy and will generate tradable credits66.

Before DNV submits a registration request to the CDM Executive board, DNV has to validate the activities of Van Der Wiel. While interaction with the CDM Executive Board is reduced to the submission of the request, the contact with Van der Wiel is much more intense. This deserves an illustration.

The validation of this project has been carried out by five DNV staff members from the Netherlands, Japan, Argentina and Norway.(DNV, 2005: 2). In the first place, they have reviewed the PDD, the letter of approval of the argentine DNA, declarations of approval and authorization of VROM, and additional background documents related to the designed and baseline. In the second place they have interviewed representatives of Van der Wiel and the Argentine DNA. Furthermore, DNV has completed the assessment with what they call ‘public hearing’. This consists of a period of 30 days from 7 January 2005 to 6 February 2006, in which the PDD has been openly published at the website of DNV, and all the stakeholders have been invited through the website of the CDM EB to provide comments. According to DNV (DNV 2005: 9) “no comments were received”.

DNV has no say in establishing the expected mitigation and sustainable development goals. DNV’s task is validating them. Based on the desk review, the interviews and the public hearing, they have concluded that the project is additional, that is likely to achieve the mitigation goals, that it is not expected to create any adverse environmental effect, and that the host country has confirmed the project’s contribution to sustainable development in Argentina. In the validation

opinion of the validation report, DNV has positively validated the project and requested its registration as a CDM project in the CDM Executive Board (DNV 2005: 10).

**Société Générale de Surveillance (SGS)**

*“This involves a site visit and a desktop review of the monitoring report”*

SGS defines itself as the world’s leading inspection, verification, testing and certification company. The company was registered as such in Switzerland in 1919 and nowadays it has more than 48,000 employees and more than a thousand offices worldwide. This stakeholder is very similar to DNV, but in the project of Villa Domínico it plays the role of verifier and certifiers. A verification and certification report of this project published in the website of the CDM Executive Board and the website of the company have been the sources of information upon which this analysis is based.

SGS is also one of the 20 accredited DOEs and it is not only involved in the CDM project of Villa Domínico. The company is involved in hundreds of CDM validation and verification activities in projects worldwide. A quantitative account of all the projects in which SGS is involved can be found at their website. This means that this stakeholder must be characterised as operating from the global level.

The perspective of involvement of SGS is organisational. SGS has repeatedly visited the project in order to verify the implementation of the monitoring plan of Van Der Wiel and verification of emission reductions. SGS’s task is, as well as the validation by DNV, a necessary formality for the generation of CERs.

The activities performed by SGS involve interaction with Van der Wiel. Verification of the implementation and monitoring plan “involves a site visit and a desktop review of the monitoring report” (SGS, 2004: 8). Since this project has already generated CERs for three periods of time, SGS staff has visited the site three times in periods of 2 days. The actual verification has consisted of the technical assessment of the gas collection and flare system and the review of the three different monitoring reports concerning to the different periods. In the three occasions SGS verified all this positively and has concluded that the amount of CERs can be determined with a high level of assurance, and therefore can be claimed from the CDM Executive Board. SGS has requested the issuance of CERs for the three periods.

While SGS does not contribute to establishing what ex ante outcomes the project should deliver, it focuses on verifying that the ex ante mitigation goals are achieved. The concept of sustainable development is not even present in any of the three verification and certification reports that SGS has written.

**Asociación Civil Ambiente Sur**

*“This project is illegal”*

All the information used to analyse the role of Ambiente Sur in the organisation of the implementation of the Villa Domínico project is basted on an interview with the president of this NGO and forestry expert Mr. Jorge Trevín in November 2006, and on two letters that this organization has sent to Van der Wiel and the OAMDL to express some concerns about the implementation of the project.

Ambiente Sur is an environmental civil organisation that was established in June 1999 in the city of Avellaneda by a group of people concerned about the severe environmental problems present in the area. This organisation is focused on trying to solve the environmental problems caused by the landfill of Villa Domínico and the petrochemical plant Dock Sud. As pointed out

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in the beginning of this chapter, Ambiente Sur together with other CBOs of Avellaneda and Quilmes have had a long legal battle with CEAMSE which has resulted in the closing of Villa Domínico as a solid waste disposal site.

Ambiente Sur is a local stakeholder because it is only involved in the project of Villa Domínico. This organisation is also a community stakeholder because it has been informed by Van der Wiel, CEAMSE and INCaF about the implementation of the project. Ambiente Sur has also been invited to express its views through internet during the public hearing period of 30 days.

These meetings can be considered the starting point of their interaction with other stakeholders with regard to the CDM project of Villa Domínico. It should not be forgotten that Ambiente Sur has had a lot of contact with other CBOs, the municipalities and CEAMSE prior to the start of the project due to the longstanding conflict with CEAMSE. Ambiente Sur has had a very active participation in the public meetings. This organisation has expressed many concerns about several issues related to the implementation of the project during meetings, and has also sent letters to the OAMDL and Van der Wiel (see appendix) and the IFC demanding solutions to their concerns. Furthermore Ambiente Sur has tried to express its concerns again through internet within the framework of the public hearing. According to mister Trevín, the information provided in the meetings was not complete, the questions posed during the meetings were not well answered, and answer to their letters has never come. The only stakeholder that has reacted to a letters of Ambiente Sur has been the IFC, who let Ambiente Sur know that they had decided to support the project. Mr. Trevín sarcastically commented on this. His comment can be paraphrased as follows: The IFC has complied with their consultation requisite. They came over, they consulted the community stakeholders, everybody said ‘no’ to the project, they left, they wrote on their reports that there was a process of participatory consultation, and they approved the project. Finally, Ambiente Sur has reported some technical problems in website of the CDM EB, whereby it was impossible give any comment during the 30 days of public hearing. Moreover, Mr Trevín had some serious doubts about the capacity of other community stakeholder to utilize this communication channel in terms of access to the technology needed to do this.

As a result of all this Ambiente Sur is against the implementation of the project. According to Mr. Trevín, the CDM project in the landfill of Villa Domínico is a “market monstrosity”, a “factory of gases”, and an “illegal activity punishable by law”. This all has to do with the questions that where posed during the meetings, the content of the letters, and the content of the comments that Ambiente Sur has not been able to post in the website of the CDM Executive Board. This deserves an illustration, which at the same time will show how the perceptions of Ambiente Sur with regard to the ex ante outcomes of the project and the nature of the interaction with other stakeholders.

Ambiente Sur does not determine which ex ante outcomes of the project, but its active participation in the public consultation is a sign of wanting to put certain issues in the agenda of the project developer, CEAMSE and the Argentine administration.

Regarding mitigation goals Ambiente Sur has the following views. The landfill of Villa Domínico is an “environmental disaster” which has never had the proper technology to manage the two main environmental problems present in obsolete landfills such as this one: leachate and landfill gases. The high concentrations of methane in the landfill have to do with the decomposition of the solid waste in highly anaerobic conditions. Any attempt of extracting and managing leachate would reduce the anaerobic conditions, and an increase of aerobic processes. This would result in the reduction of the volumes of methane and non-methane organic compounds and an increase of the volumes of CO₂ (interview & letter to the OAMDL). According to Mr. Trevín, leachate mitigation should be prior to methane combustion. If you do not do this is because you want to “fabricate gases”. If the landfill was integrally managed the amount of methane present would be much less, the baseline calculation and the additionality would have been different, and the amount CERs generated would deliver less economic benefit.
This also has to do with the economic sustainability of the project. In its present form, the project is economically sustainable. If the landfill was subject to an integral management of the environmental problems it causes profit would be less and maybe not enough for the project developer to earn back the initial investment.

Regarding the social sustainability outcomes Mr. Trevín was very clear. Ambiente Sur wants to see CEAMSE stop with existing, which means that any transfer of technology to technicians of CEAMSE is not welcome. Furthermore, Ambiente Sur strongly believes that the job creation is not enough. Any integral approach to the landfill would generate many more jobs than the CDM project developed by Van der Wiel.

This CDM project is also rejected by Ambiente Sur because of its negative environmental effects. These effects are caused by two problems: the leachate problem, which has been already described when dealing with the mitigation outcomes, and the gas problem. The gas problem is much more complex and it is the root of the conflict with CEAMSE. It is not clear which gases are present in the landfill except for CO₂ and methane. Given the lack of information about this, it is not precise which gases go into the flares of Van der Wiel and which gases come out after combustion. According to Mr. Trevín, if Van der Wiel claims that odours in the area will be reduced, the landfill must contain something else than CO₂ and methane which are characterised by their odourless nature. Ambiente Sur and the rest of the CBOs have always campaigned to try to obtain information about this from CEAMSE. They suspect that the landfill contains more than 170 non-methane organic compounds, many of them carcinogen. This information has always been very wanted by the CBOs because it could help doctors identify the causes of the skin diseases and the high incidence of leukaemia in the area. Since CEAMSE has always refused to provide this information and has claimed that health problems are not connected to the landfill emanations, Ambiente Sur, unlike the rest of the CBOs, completely distrusts this company and has rejected to participate as a witness in any of the monitoring sessions that CEAMSE does on the flares of Van der Wiel.

Ambiente Sur has endorsed a letter (see appendix) sent to Van der Wiel by all the CBOs, asking some clarity about the gas problem. This letter has never been answered. While the concerns of the CBOs remains limited to the gas issue as I have just described, the environmental concerns of Ambiente Sur go much further. According to Mr. Trevín this project has “perverse effects in the development of adequate legislation with regard to waste management”. For the project to be additional there must be a total absence of legal requirements to capture landfill gas in Argentina. According to Mr. Trevín, the opportunity to make business with the generation of CERs blocks any attempt to integrally resolve the environmental problems of the landfill because it perpetuates anaerobic conditions necessary to find high concentrations of methane. As he puts it: “proposing this kind of projects, which simply put a pipe and burn the gas, is a simplistic solution that maintains the rest of the problems” According to Mr. Trevín, it is common knowledge among landfill experts that these kinds of projects are successful if they manage to combust more around 50 % of the landfill gas. Ambiente Sur is concerned about how much gas will be burned and how much will remain in the landfill. Since the possibility of developing an adequate legislation is blocked by the project, the landfill will remain containing high levels of landfill gas after the crediting period has expired.

Furthermore, Ambiente Sur thinks this project is illegal because the provincial government has not approved it and there has been no EIA performed, which is required by the provincial law 11.723.

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68 The province of Buenos Aires has the jurisdiction over natural resources. The law 11.723 in its fifth article states the necessity to perform and EIA whenever a project susceptible of causing negative environmental effects is proposed. This law can be consulted at: http://www.gob.gba.gov.ar/legislacion/legislacion/l-11723.html (10-09-2007)
Global Environmental Governance and the CDM

**Oficina Argentina Para el Mecanismo de Desarrollo Limpio (OAMDL)**

“What becomes evaluated is the possibility that the projects open possibilities for sustainable development”

The structure, functions and tasks of the OAMDL have been initially discussed in section 5.2.2 of the previous chapter. This organ has the two main functions of promoting the CDM and evaluating the CDM projects. This second function is the one that becomes interesting for this research because it has implied interaction with the stakeholders of the project of Villa Domínico and Norte III. It is for this reason that many of the information used to analyse this stakeholder refers to the general involvement of the OAMDL in the CDM and can be applied to both projects. Luckily I have managed to acquire some other documents which make reference to the specific evaluation and eventually approval of the project of Villa Domínico. These are the meeting reports of the third, fourth, and fifth meeting of the Executive Board of the OAMDL. For this reason I have decided to include this analysis in the present chapter.

The OAMDL is the only national stakeholder of this project. It is involved in all the CDM projects of Argentina performing the two functions mentioned above. Furthermore, the OAMDL is a regulatory stakeholder. The Permanent Secretariat is in charge of designing the rules and procedures that projects must follow in order to get approval by Argentina, and it must also check whether projects comply with Argentina legislations. The Executive Board of the OAMDL must asses the contribution of the project to the sustainable development of Argentina.

As pointed out in chapter five, evaluation follows three steps: a pre-evaluation by the permanent secretariat, a technical evaluation by the Executive Board and the approval or dismissal by the Secretary of Environment and Sustainable Development. The evaluation of the project of Villa Domínico has made the OAMDL interact mainly with Van der Wiel. The OAMDL has also received a letter of Ambiente Sur with some relevant comments about the implementation of the project. According to Mr Sáenz, the OAMDL is very active in the process of public consultation, even though it would be difficult for its representatives to be present during all the stakeholder meetings organised nationwide, the OAMDL “has an active participation in the analysis of the comments that originate during meetings, seeing which kind of comments have originated and whether they have been properly answered”. This has happened in the case of Villa Domínico, where the analysis of the comments has led to a long process in which some technical, legal, and environmental problems have had to be dealt with. According to Mr. Sáenz, communication and dialog with project proponents (Van der Wiel in this case) is an issue that should become improved in the future. The road to approval has been very long for Van der Wiel, but the analysis of the mentioned problems and the final approval of Villa Domínico as the first CDM project of this kind have paved the road for future proponents of similar projects.

The problems that have been analysed during meetings of the Executive Board of the OAMDL were issues such as the absence of an EIA, the controversy around the odours and the necessity of involving an external consultant in the evaluation among others. After three meetings between April and October 2004, the Executive Board of the OAMDL decided to give a positive advice to the Secretary of Environment and Sustainable Development based on the following grounds: the PDD, a extra note by Van der Wiel in which the contribution to the sustainable development is explained, the pre-evaluation report of the Permanent Secretariat, some technical documentation about landfill degassing techniques provide by the Environmental Protection Agency (EPA), a report elaborated by the National Institute for Industrial technology, and the meeting reports where I am getting this information from. The meeting reports also give evidence that there has been no EIA carried out as the provincial law 11.723 prescribes, and the provincial government has no given any opinion about the project whatsoever. Regarding this

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69 I refer to the interview with Mr. Máximo Sáenz that I already referred to in chapter 5.
70 This EPA document is called “Frequently Asked Questions About Landfill Gas and How it Affects Public Health, Safety and the Environment”.

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issue, the same meeting reports stated that it is not desirable for Argentina to give the impression that projects that seek approval by the OAMDL are not approved because of someone else’s responsibilities, referring to the provincial authorities.

It is the prerogative of host countries to establish whether projects contribute to sustainable development. The OAMDL does not establish the mitigation and the sustainable development of the projects but has the task of assessing whether the outcomes suggested by the project developer contribute to the sustainable development of Argentina. Mr. Sáenz made very clear that it is the Executive Board evaluates the contribution of the project to sustainable development. The very fact that this board is constituted by representatives of the different sectors of the Argentine economy makes this evaluation possible. Furthermore, the project developers must present a note attached to the PDD in which it is explained how the project meets certain parameters established by the OAMDL with regard to sustainable development. I have failed to discover how these parameters exactly look like, but according to Mr. Sáenz, “These parameters indicate whether the project open possibilities for the generation jobs, the improvement of transport, or such processes. This is not quantified. What becomes evaluated is the possibility that the projects open possibilities for sustainable development”. The reference to the quantification of the outcomes by Mr Sáenz in this citation has to do with questions I posed during the interview about this issue. He made clear that it is not about establishing whether three generated jobs do not contribute and four generated jobs do contribute. According to him it is about setting a process in motion and opening possibilities. During this interview I also showed Mr. Sáenz the SSN sustainable development appraisal tool (see chapter 2) and he told me he had no knowledge about whether the Executive Board of the OAMDL used such a system or a similar to appraise the sustainable development goals of the projects.

The OAMDL is very interested in the generation of electricity for the community by projects such as the CDM of Villa Domínico. This is interpreted as a contribution to the sustainable development of Argentina and the OAMDL has the conviction that this should become a general characteristic of all projects of this kind.

Secretaría de Política Ambiental de la Provincia de Buenos Aires (SPA)

“The provincial administration has gradually incorporated the problem of climate change and the CDM into its agenda”

The following analysis is based on email exchange with Mr. Máximo Lanzetta, Subsecretary of Sustainable Development of the province of Buenos Aires within the SPA. In my quest for contact addresses of other stakeholders I engaged by means of coincidence into email contact with Mr. Lanzetta, who kindly agreed to answer some questions related to the CDM. Again, this information refers to the general approach of the provincial government to the CDM and therefore applicable to both projects analysed in this research. Nevertheless, the information provided by other stakeholders assessed against the information provided by Mr. Lanzetta, generate some knowledge about the role of the provincial government in the CDM of Villa Domínico.

I have categorized the SPA as a local stakeholder because it is involved in one or more specific projects in Argentina. In this case, the SPA is concerned with all the projects that take place in the Buenos Aires province, which are quite a lot if we count the ones that are being designed or in search of approval by the OAMDL.

Regarding the perspective of involvement, the SPA is a regulatory stakeholder because it has formulated the provincial rules that determine that CDM projects must obtain and EIA that conforms to the environmental prescriptions of the province before they are allowed to start being implemented.
It can be said the SPA is an unconnected stakeholder, which means that the provincial authority has not had any interaction with other stakeholders related to the implementation of this project. According to Mr. Lanzetta: "The provincial administration has gradually incorporated the problem of climate change and the CDM into its agenda." A specific unit focused on climate change has formally established in 2006. Communication with the OAMDL is one of the main issues in the agenda of this unit. Both organs are working together in order to create an agreement that makes approvals coherent with the provincial environmental laws that all projects must comply with. If we take into account that the project of Villa Domínico was approved in June 2005, we could attribute the lack of connection between the SPA and the OAMDL to the lack of a formal institutional framework to arrange it.

It becomes obvious that the province has not contributed to establishing the ex ante outcomes that the Villa Domínico project will deliver. Nevertheless, Mr. Lanzetta let me know that the SPA and its climate change unit are focused on several issues that will influence the sectors in which mitigation will take place and sustainable development outcomes of future projects:

- Promoting and identifying MDL projects in the following sectors: urban solid waste, biofuel, energy.
- Identifying projects in the following 2 domains of sustainable development: (a) "projects that have an effective contribution to the local environment", and (b) "projects that require technology transfer or the support of local producers or municipalities".

6.4 Villa Domínico as a network

Based on the project life-cycle and on the qualitative analysis that I have just presented in which the different stakeholders have had their say about different items relevant to this thesis, I have constructed a network diagram that gives a single glance of the stakeholders’ characteristics and the structure of their interaction. It must be noted that the network analysis only presents information about the stakeholders’ characteristics and about some aspects of the governance process. These aspects are the analytic deliberation process and the nesting patterns, which will become illustrated by the pattern of interaction that the diagram will suggest.

In order run the analysis and create the graphic representation of the network, information about the stakeholders has been translated into data which the computer program Ucinet is able to understand. With this purpose, and following the suggestions of Borgatti (1999: 21), I have created two Excel spreadsheets containing the following information:

- The first spreadsheet contains a cross table of all the stakeholders participating in the project. Based on the description of the project that I have just given and on the data that I have collected, a number ‘1’ has been assigned to pairs of stakeholders who, following the interaction model proposed by the policies and procedures of the CDM, have had contact with each other during the course of the implementation process. A number ‘0’ has been assigned to pairs of stakeholders who have not had any contact. In the diagram this will result in ties represented by lines for the pairs of stakeholders belonging to ‘1’ and no ties represented by a lack of a line for the pairs of stakeholders belonging to ‘0’. This makes clear how many ties every stakeholder has, and it allows Ucinet to calculate the degree centrality\textsuperscript{72} of every stakeholder, which has been represented in the diagram by the size of the nodes. Nodes with few ties are smaller than nodes with many ties.

- The second spreadsheet contains a list of all the participating stakeholders and to which category they belong to regarding their perspective of involvement in the project: 1 = organisational, 2 = regulatory, 3 = community, and 4 = press. In the diagram this will be identifiable by the colours of the nodes: blue = organisational, red = regulatory, black =

\textsuperscript{71} The Excel spreadsheets can be found in the appendix.

\textsuperscript{72} The concept of degree centrality is used by Ucinet to refer to the amount of ties to other nodes that a nodes has. The higher the amount of ties a node has to other nodes, the higher the degree centrality.
community, and grey = press. This spreadsheet also contains to which category the stakeholders belong to regarding the scale level from which they are involved in the project: 1 = global, 2 = national, and 3 = local. In the diagram this will be identifiable by the form of the nodes: circle = global, square = national, and up triangle = local.

After the entry of the spreadsheets in Ucinet a graphic representation of the network has been constructed using NetDraw option of the software. The resulting diagram can be seen in Figure 6.2.

Figure 6.2: Degree centrality, perspective of involvement, and scale level in the Villa Domínico project

Before I proceed to analyse the diagram I would like to clarify two matters: (a) the CDM Executive Board is portrayed as a stakeholder in the diagram even though it has not been analysed in the qualitative analysis. This stakeholder dictates the policy framework in which the other stakeholders interact but it is not really involved in the project. Therefore it has been placed outside the dotted line. (b) The interaction structure of this network is determined by the policies and procedures as established by the CDM Executive Board. Every stakeholder has pre-established function during the project life-cycle, and this function determines which stakeholders must or may interact with each other and which ties materialise this interaction. It must be clarified the ties between de different stakeholders are diverse in nature.
implementation network consist of stakeholders who have different tasks and who relate to each other (when they do) in a different manner, i.e. arranging the validation of the project, informing community stakeholders, expressing their views during the public consultation, arranging the purchase of CERs, etc.

Having said this, it is now interesting to analyse the diagram. Several relevant topics emerge if we carefully look at it:

- The dominant colour in the diagram is blue, which means that most of the stakeholders participating in the project are involved in it from an organisational perspective. Also, most of them have the form of a circle, which shows that most of the stakeholders operate from the global level, with the only exception of CEAMSE who is a local stakeholder. While this homogeneity takes place at the global level, the local level is characterised by an heterogeneous perspective of involvement. CEAMSE works as an organisational stakeholder, Ambiente Sur belongs to the category community, and the provincial administration bares a regulatory task though not made effective.

- Organisational players have a varied pattern of degree centrality ranging from 1 tie (VROM) to 7 ties (Van der Wiel). This is explained by the fact that organisational tasks are very diverse and deliver different numbers of ties. The organisation of the public consultation period and the participation on it deliver more ties, which is the case of Van der Wiel, CEAMSE and IFC. On the other hand, the performance of other organisational tasks such us certification, validation and the purchase of CERs are caracterised by lower level of interaction, i.e, VROM, SGS and DNV. Validation has required one more tie than certification of the purchase of CERs.

- The most central stakeholder (the biggest node with the highest number of ties to other nodes) is the project developer Van der Wiel, who is an organisational and global stakeholder. Moreover, Van der Wiel has the most diverse pattern of interaction when it comes to interacting with stakeholders with different characteristics. Van der Wiel has contact with stakeholders belonging to all scale levels and all the perspective of involvement. Ambiente Sur also does this, but it has a much more limited number of ties.

- The only parties taking effective part in the regulation are the CDM EB (global) and the OAMDL (national). The provincial administration has a clear administrative role, as illustrated by the qualitative analysis, but it has remained unconnected to any other stakeholder during the implementation of this project.

The issues that have emerged from the diagram are relevant for the generation of knowledge about the relation between the stakeholders’ characteristics and some aspects of the governance process. The next section will take all these issues and the information from the qualitative analysis into consideration in order to draw relevant conclusions and provide a detailed description of the knowledge generated about the relationships between the two already mention concepts, the rest of the aspects of the governance process and the ex ante outcomes.

6.5 Empirical conclusions

6.5.1 Stakeholders’ characteristics

As the network analysis illustrates, most of the stakeholders involved in the Villa Domínico project are operating from the global level and have an organisational character. We have to do with six global stakeholders, one national and three local. Six are organisational, three regulatory and one is community. There are no press stakeholders involved in this project.

The explanation for the high amount of organisational stakeholders can be found in the diversity of the organisational tasks that the implementation of a CDM requires, i.e. validation, purchase of CERs, project design, etc. The explanation for the high amount of global stakeholders is more rooted in the transnational character of the mechanism, in which validators, CER buyers, and project developers are very likely to operate from this level.
6.5.2 Governance process

The process of analytic deliberation takes place within the framework of the public consultation that every CDM project must go through. Three informational meetings have been organised and there has also been correspondence between the different involved parties. Van der Wiel, CEAMSE and IFC have provided technical information to community stakeholders, and Ambiente Sur and other local organisations have received this information. It is remarkable that while the organisers of the meetings have officially declared that community stakeholders have reacted positively to the implementation of the project, Ambiente Sur expresses its categorical refusal. The testimony and documentation provided by this stakeholder show that the process of analytic deliberation has not fully satisfied the informational needs of community stakeholders. This can be explained by the fact that the project is being implemented in a context of longstanding social conflict in which some of the structural and local and community stakeholders have structural negative attitudes towards each other, which might have complicated or even blocked effective communication between stakeholders and the formation of the necessary relations of trust. The use of internet as a tool for expressing views of concerns has not provided an effective and positive contribution to these issues either. Furthermore it must be highlighted that the narrative produced out of the analysis of the empirical data shows stakeholders’ awareness of each other’s role in the project and awareness of the project goals and procedures. Ambiente Sur is the only stakeholder that has shown disagreement with the goals of the project.

When talking about the nesting patterns I would like to remain within the dotted line of figure 6.2. We should bear in mind that the CDM Executive Board has a huge decision power since this institution determines the project life-cycle. The most significant conclusion is that decision and influencing power are multi-layered. Van der Wiel emerges as the key global player who has the most decision and influencing power, which can be illustrated by three examples:

- Van der Wiel has been given the power to decide which will be the ex ante outcomes that the project will deliver, which is actually the most important decision regarding the organisation of the implementation of the project.
- Van der Wiel has had the power to influence the validation in its favour because most of this procedure has been based only on documentation provided by the company. This has also occurred during the appraisal carried by the IFC and that has lead to the finale engagement of the Dutch government into the purchase of CERs.
- The commercial character of the company has also generated the necessary trust for CEAMSE to participate in the project.

But at the same time, Van der Wiel has been confronted with having to comply with certain regulations. At the global level the company had to receive consent from SGS in order to fully comply with the rules of the CDM Executive Board. At the national level Van der Wiel has had to experience a tortuous process of registration in order receive approval by the OAMDL. At the local level, Van der Wiel should have complied with provincial regulations and properly answered community demands form information. According to the information available to me has not been the case.

From this we can conclude that decision power is therefore multi-layered but mainly nested on the global level, in which the CDM executive board establishes the general rules to follow. At this level Van der Wiel has been the key stakeholder who has had the power to establish the ex ante outcomes, and has managed to influence other stakeholders to validate the project and positively engage into it. Afterwards power is nested in the national level where Van der Wiel has had to comply with the regulations of OAMDL in order to obtain project approval. At the local Van der Wiel has had to convince CEAMSE of the economic feasibility in order to get its cooperation. Finally, there has been a lack or effective power at the local level where community stakeholders’
input has not contributed in any form to influencing the course of the project and the provincial administration has not performed its regulatory functions.

The CDM policies and procedures that have established the project life-cycle are the main formal institutional arrangement that sets the general rules which determine the structure of the interaction between stakeholders. However, these policies and procedures allow a certain degree of institutional freedom which results in the following institutional pattern:

It can be concluded that most of the actions are undertaken under formal contractual binding agreements that have required some kind of governmental involvement. During the first stage of the project, the terms of purchase of the CERs have been agreed on a contractual basis between Van der Wiel and the IFC acting as a trustee of the Dutch government, and a contractual binding partnership has been started between Van der Wiel and CEAMSE, which is. These market based contractual agreements have formed the basis upon which the project has started to walk through its life-cycle. It should be highlighted that these contractual agreements are also based on the existence of another formal market institution, which is the tradability of the property rights on the generated CERs.

After design, two more market organisations and a governmental one have entered the arena: DNV, the OAMDL and SGS, in this same order. All these three organisations have internal institutional procedures that determine their behaviour and that finally have produced the documentation that formally legitimates the project. Their procedures are not determined by the CDM policies and procedures but they are formally accepted by this main institutional setting since both DNV and SGS are registered operational entities and the OAMDL is a registered DNA.

The institutional arrangements governing the process of analytical the deliberation in which community stakeholders are informed and given the chance to express their concerns are the CDM policies and procedures that establish this consultation as a mandatory step. This has entailed forms of communication such as face to face informative meetings, correspondence between stakeholders, and the use of internet. The PDD, the documentation produced by DNV and the approval granted by the OAMDL imply that there has been no single reaction by any community stakeholder. However there have been corrective responses requested by community stakeholders, and also requests for more information. Complying with these requests is not formally tied to a compulsory response. This could partially explain why these requests have not been attended.

I have not been able to identify many informal ways of structuring the interaction between stakeholders. The interviews and the documentation reviewed do not provide enough material from which we can identify any behaviour based on traditions, customs or codes of contacts. However, out of these same data collection methods one important issue has emerged which I would like to place under the category of informal institution. This is the concept of trust. Most of the stakeholders have not mentioned this concept at all, but in some way or another some stakeholders have referred to the importance or the presence of lack of trust in their interaction with other stakeholders. This is the case of Van der Wiel who sees its relation with CEAMSE as an example of lack of trust problem. Remarkably enough, CEAMSE thinks the other way around. The explanation for this could be found on the financial risks inherent to Van der Wiel's investment given how long it has taken start making some economic profit, and the financial risk free position of CEAMSE. The absence of trust has also been a characteristic of the consultation process, which has only generated even more distrust between community stakeholders and the rest. The reason for this can also be found in the history of the conflict with CEAMSE. The distrust generated by this conflict has resulted in structural negative attitudes. Trust or the absence of it can therefore be seen as a powerful institution regulating the interaction between stakeholders.

The general conclusion we can draw is that a situation of absence of trust is better managed if the relationship between stakeholders is formalised by a contract. This conclusion is more
consistent if we consider that the lack of binding rules in the interaction between community stakeholders and the rest has left the voices of these stakeholders effectively unheard, which has made distrust even bigger.

6.5.3 Ex ante outcomes

The *ex ante* outcomes of the project are unilaterally established by Van der Wiel and have been accepted by the rest of the organisational and regulatory stakeholders, which shows the existence of general stakeholder consensus on these matters. However, it should be noted that this consensus has been built upon ignoring the concerns of the only stakeholder holding different views on mitigation and sustainable development, and upon the lack of the provincial rule enforcement that requires an EIA.

The main conclusion that we can draw is that *ex ante* outcomes are established and pursued in a very different manner.

Mitigation goals are *ex ante* carefully calculated and quantified in a binding contract. Moreover, they are monitored *ex post*. Mitigation goals are established and agreed upon in a contract between IFC and Van Der Wiel, in which the price and amount of CERs is determined. The exact calculation and quantification of the *ex ante* mitigation goals is done following a baseline methodology approved by the CDM Executive Board. The achievement of these goals is also technically verified *ex post* by an environmental consultant.

Sustainable development goals are also *ex ante* established. However, unlike mitigation outcomes, there is no quantification whatsoever as to what exactly is going to be delivered and contractual agreements do not depend on whether these goals are achieved or not. Moreover, there is no *ex post* evaluation of the actual delivery of the sustainable development goals. Whether a more suitable investment environment has been created, whether technology has been transferred, the local economy has been stimulated, explosions or fire risks have been reduced, and odour gases have been eliminated, is something that the involved parties just do not know because there is not an *ex post* evaluation of how this has happened or whether it has happened at all.

The explanations I find for this different approach to mitigation and sustainable development are the following:
- Mitigation delivers reductions of GHGs and economic benefit. Elaborating on more sophisticated sustainable development goals and on the way to achieve them will only represent extra regular and transaction costs that might result in the generation of more expensive CERs less interesting for buyers. This would have been clearly the case if the concerns of Ambiente Sur had been taken into account and a more integral approach to the landfill had been realised. In other words, the focus is on generating as many CERs as possible.
- None of the regulatory or organisational stakeholders involved in the project of Villa Domínico has established clear guidelines to follow when it comes to designing and implementing sustainable development goals. The organisational stakeholder that have assessed and validated these goals, the IFC and DNV respectively, have based their judgement on the information provided by Van der Wiel and have not had any contact whatsoever with Ambiente Sur or other community stakeholders. The regulatory stakeholder CDM Executive Board says it is the host countries prerogative to do this, and the national regulatory stakeholder OAMDL limits its assessment to judging whether the project can open sustainability processes or not.

**Summary and recap of conclusions**

Before performing the analysis of the collected data the landfill of Villa Domínico has been historical and spatially contextualised. We have seen that the landfill has been the breeding ground for a conflict between several local organisation and CEAMSE, which has resulted in
suspension of disposal activities on the site. Afterwards a description of the CDM project activity has been given where the *ex ante* outcomes of the project and a first general account of the parties involved have been highlighted. The analytical part of the chapter has started with the qualitative analysis of the individual stakeholders of the project, which has delivered some important knowledge about how the stakeholders perceive the project and behave accordingly. This has been completed by the network analysis, which has graphically illustrated some major issues regarding the stakeholders’ characteristics and some aspects of the governance process. The empirical conclusions that have been drawn afterwards have shown that global and organisational stakeholders are dominant in the project, and that a lot of decision power is nested in them. We have seen the emergence of the project developer as the most central stakeholder and the materialisation of community stakeholders as ignored voices. It has also become clear that the most important institutional arrangement structuring the behaviour of the stakeholders are the CDM policies and procedures, but a special reference has been made to the institutional freedom allowed by this framework, which has resulted most of the times in formal contractual agreements between market-based organisational stakeholders. Here we have seen that an unresolved conflict has been often the result of the absence of formal agreements and that trust has somehow played a role in regulating the interaction between some stakeholders. Finally, conclusions have been drawn about the focus of project on the delivery of economically profitable reductions of emissions in the form of CERs. This focus becomes patent in the care with which *ex ante* mitigation outcomes are planned, and in the sophistication with which these same outcomes are evaluated *ex post*. This is not the case of the sustainable development outcomes which are much more vaguely formulated, and are not evaluated *ex post* at all.
Chapter 7: CDM Norte III & General Conclusions

This chapter will follow similar dynamics to chapter six. As means of introduction, the historical context of the Norte III landfill will be explained and the CDM project of will be described. After that, a systematic analysis of the individual stakeholders will be done. This analysis will be completed by the network analysis. The corresponding empirical conclusions will be subsequently drawn. Due to some reasons that will become clear during this analysis, the dimensions of this chapter are a bit more limited, which offers me the perfect chance to finish this chapter with the general empirical conclusions of this research. These general conclusions contain an empirical cross-project comparison and an empirical illustration of the concepts and relations outlined in the conceptual scheme.

7.1 Norte III

The sanitary landfill Norte III occupies a plot of 65 hectares and it receives waste since 1994. The landfill is still active and estimations show that it has received around 11 millions of tonnes of waste since disposal activities started in 1994 (Aria.Biz, 2004: 5). According to CEAMSE, at the moment Norte III receives around 310,000 tonnes of waste per month, which makes 10,500 tonnes a day.

Figure 7.1: View of the Sanitary Landfill Norte III from an eye altitude of 10 Km and 23,5 km

Figure 7.1 shows the location of the landfill. The landfill is situated in the Municipality of San Martín in the AMBA around 5 kilometres northwest of the city of Buenos Aires. The area of the municipality in which the landfill is located is called José León Suárez which is the area where the poorest segment of the population of municipality lives. A careful look at figure 7.1 shows that the landfill is at the edge of the populated area.
Inside of the landfill facilities CEAMSE has opened four social plants in which waste is separated and classified before disposal, and compost is made. Unemployed residents of the area of José León Suárez have been capacitated by CEAMSE and have been given the chance to generate their income working in these plants. However, as in Villa Domínico, the history of Norte III is also a tragic one. Outlining the events that have led to the opening these plants shows that the CDM project of Norte III is being implemented in a social context which, in some cases, has had even more dramatic turns than the social context of Villa Domínico.

The inhabitants of the settlements in José León Suárez are much poorer than the people living in the vicinity of Villa Domínico. The Argentine economic debacle of 2002 that pushed 42% of the population under the poverty line has become clearly visible in this area. After the crisis certain sorts of waste acquired a profitable value in the market (CEAMSE, 2005: 8). This has turned the landfill into a source of material from which cirujas and cartoneros can generate their income in the informal recycling market. The landfill has also become the source of food for many of the poor dwellers of the neighbourhood. Food that is not allowed to be sold in supermarkets is often disposed in the landfill and it has become the daily meal of many of the dwellers of the neighbouring settlements (Fundación Metropolitana, 2004: 61). According to this same source, more than 500 neighbours of José León Suárez scavenge daily at the landfill searching for food or tradable waste. Other sources report that these people are actually living inside the landfill site (Aria.Biz, 2004: 49, Ambiente Sur, interview).

Since the landfill is private property of CEAMSE, the above indicated activities are considered as trespassing and are therefore illegal. Violent repression by private and public security of CEAMSE has been a current practice used to keep cirujas and cartoneros away. Many tragic events have taken place since repression started. The most tragic one took place on March 15th 2004, when fifteen year old Diego Duarte disappeared inside Norte III while being chased by security agents after he was caught scavenging for metal (Fundación Metropolitana, 2004: 61). This incident was the trigger that made the conflict escalate into a neighbourhood revolt in which the dwellers of José León Suarez unleashed all their anger towards CEAMSE and blocked the entrance to the landfill. This way, the waste loaded tracks arriving from the transfer centres were literally stopped at the door of the landfill and disposal activities temporarily stopped. According to a member of the community I had the chance to interview in relation with my research, CEAMSE opened the social plants in order to unblock this situation. According to CEAMSE the opening of the social plants must be framed within the new management policy under the administration of the new president.

As far as I know, the conflict is not really solved yet. I do not know to what extend cirujas and cartoneros are tolerated in the landfill or they are thrown out. But they keep coming over and have

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73 This can happen because products are beyond expiry date, or the package is defective.
74 http://www.ceamse.gov.ar/abre-home.html (20-09-07)
become a structural part of the landscape of Norte III. The president of Ambiente Sur, who I interviewed in relation to CDM of Villa Domínico, showed me some documentation that proves this statement. This was a letter of an association of track drivers to the president of CEAMSE in which they expressed some concerns about the situation in which they have work when they come to dispose waste to Norte III. This situation is that the cirujas are actually arranging disposal and telling the track drivers where they exactly should unload their tracks.

At the time this all was going on in the years 2004 and 2005, the fourth Argentine CDM project was being designed by a joint venture between an Italian and an Argentine company: Aria.Biz. This project would reach they implementation phase in May 2006.

7.2 Description of the project

After CEAMSE organised a competitive bid, Aria.Biz became the winner of it and got the rights to exploit the gas produced by the Norte III landfill. A concession contract was signed between these two parties in June 2005 for a period of 10 years. Aria.Biz has financed the totality of the project and will earn back its investment with the money generated by the sale of CERs, which will also generate some revenues for CEAMSE. A very recent development in the project is that the Italian government has become the CER buyer of this project. However, as it will become clearer later, this project was started in the absence of an Annex I country willing to buy the generated CERs.

This project has also gone through a process of consultation before its design phase. Five different meetings have been organised between May and July 2004 where representatives of local communities dwelling in José León Suárez, the academic sector and different public sector stakeholders have been invited to express their opinion about the project. Furthermore, Aria.Biz has included in the PDD the media coverage of the project by local and national press.

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<tr>
<th>Table 7.1: Ex ante outcomes of the CDM project of Norte III</th>
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<td><strong>Mitigation</strong></td>
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<td><strong>Economic sustainability</strong></td>
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<td><strong>Social sustainability</strong></td>
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<td><strong>Environmental sustainability</strong></td>
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Source: Author, based on Van der Wiel (2004: 2-3)

On 30 June 2005 the project was granted approval by the OAMDL. After validation by the environmental consultant DNV on 23 December 2005, the project was finally registered as a CDM project activity in the CDM Executive Board on 28 May 2006. Certification and verification of the project have been carried out by the environmental consultant SGS in March 2007. After a positive advice was given by SGS to the CDM Executive Board, CERs have been issued to Aria.Biz for a first crediting period from 28 August 2006 to 25 February 2007 (58,247

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75 Since I have come to know this in the last weeks (September 2007), and the Italian government has not participated in the organization of the project from an early phase, I have not included this party as a stakeholder.
Global Environmental Governance and the CDM

CERs). An ongoing cycle of monitoring, verifying, and issuing will be maintained until the end of the crediting period. The project is also meant to generate electricity for on site usage.

Since the dimensions of the landfill and the amount of waste it contains are much smaller than in Villa Domínico, there is less methane present in this landfill. Therefore, the mitigation goals of this project are different to the goals of Villa Domínico. This is not the case for the sustainable development goals. These are more or less the same but slightly different formulated. The specific *ex ante* outcomes that this project tries to achieve are outlined in table 7.1 (see previous page). As in the previous chapter, this table is based on the account of the outcomes provided in the PDD and has been divided using the categories suggested by the operationalisation of the concept of sustainable development provided in chapter 4.

7.3 Analysis per stakeholder

Before we start the following analysis, certain issues regarding the stakeholders included in the analysis should be clarified. This analysis includes fewer stakeholders because of two reasons. On the one hand, some stakeholders have participated in the project of Villa Domínico as well. These stakeholders are the OAMDL, CEAMSE, DNV and SGS. In the analysis of the OAMDL and CEAMSE in chapter six it has been made explicit that both analyses are also applicable to Norte III. A revision of the validation report of DNV and the verification and certification report of SGS concerning the Norte III project shows that the views, perceptions, and behaviour of these stakeholders regarding the governance process and the *ex ante* outcomes of this project are exactly the same as in the project of Villa Domínico. On the other hand, as I mentioned before, this project was designed in the absence of a CER buyer, which delivers one stakeholder less, or two if we assume that this buyer would use a trustee similar to the IFC.

However, two other relevant stakeholders missing in the previous project will be present here. These are the municipality that hosts the CDM project and the local and national press.

*Aria.Biz*

*It is only evaluated whether the project produces adverse effects or not. In this case (...) it does not produce any. Moreover, it brings new technologies, it generates jobs and more venture capital.*

The information that I am about to present is mainly based on an interview with Mr. Guillermo Bottero, engineer and representative of Aria.Biz, and on the PDD of the Norte III project. Our conversation took place by telephone in October 2006 a couple of months before the project received verification and certification by SGS and the CERs for the first crediting period became issued.

*Aria.Biz* is the project developer of this CDM project. This company is a joint venture between the Argentine company Tysa (environmental division of the Argentine company IMPSA) and the Italian company ASJA Ambiente Italia SPA. The first company is an investor who has a long experience of investing in power generation project. The second is an Italian international group who is mainly focused on the production of electric energy from renewable sources (biogas, biomasses, wind, sun, water). ASJA Ambiente Italia SPA operates more than 22 landfills around the world. Since the end of the nineteen nineties this company has also specialised in the sale of carbon credit arising from the CDM and JI projects that it develops.

76 These reports are templates filled with different names and different numbers belonging to the different people and the different figures of the both projects. The procedures and conclusions of DNV and SGS have been the same for both projects. The validation and verification and certification reports can be respectively found at:
- [http://cdm.unfccc.int/UserManagement/FileStorage/MWBD1LMV1SKJBCKMY1KALZXYVU5AV](http://cdm.unfccc.int/UserManagement/FileStorage/MWBD1LMV1SKJBCKMY1KALZXYVU5AV)
(both accessed: 20-10-3007)
According to Mr. Bottero, originally, Tysa embarked in a joint venture with the Canadian company Conestoga Rovers\textsuperscript{77}, who was already active in the field of degassing sanitary landfills. Since this venture was not completely materialised Tysa proposed the Italian company ASJA Ambiente Italia SPA the possibility of developing CDM projects. This is the way Aria.Biz was formed becoming a new company with ASJA Ambiente Italia SPA as the major shareholder\textsuperscript{78}.

Aria.Biz has won the competitive bid organised by CEAMSE for the project of Norte III and it is also the project developer of another similar CDM project in the Argentine city of Rosario. As a project developer, Aria.Biz’s perspective of involvement in the project is organisational. It has designed and constructed the plant, it is responsible for its maintenance and it has taken care of all the arrangements, including organising the consultations and all the bureaucratic requirements necessary to get the project registered as a CDM project in the CDM Executive Board.

Regarding its scale level, Aria.Biz is a bit complex to categorise. This is due to the partially Argentine character of the company. Aria.Biz consists of an Argentine company and an Italian one. Yet, I have decided to categorise this stakeholder as global. This decision is based on two facts: (a) ASJA Ambiente Italia SPA is the major shareholder of the company and (b) the company operates in more CDM projects around the world.

According to Mr. Bottero, it was Aria.Biz who identified all the stakeholders who might be interested in expressing their opinion about the project activities. The company identified four sectors:

- Local sector: local organizations related to the landfill in some way or another.
- Academic sector: Institute of Sanitary Engineering of the University of Buenos Aires (UBA), the University of San Martín, and the Argentine Association of sanitary Engineering (AIDIS).
- Public sector: Municipality of San Martín.
- Semi-Public sector: CEAMSE.

During the meetings with these stakeholders Aria.Biz gave presentations informing them about several topics such as the advantages of biogas collection, the CDM and Kyoto, general information about the company, or sustainable development. The topics of the presentation were adapted to the audience. While the academic sectors received more information about the technicalities of the project, the municipality and the local organisations received more information about the positive effects that the project will bring to the local environment. During these meetings, all the stakeholders were confronted with a survey questionnaire in which they had to express their “non-binding” opinion about the project (Aria.Biz, 2004: 43-50). There were no negative comments by any of the stakeholders. Except for CEAMSE, with whom Aria.Biz has some contractual obligations, stakeholders are not kept informed about the general evolution of the project.

According to Mr. Bottero, Aria.Biz has a positive perception of how the OAMDL has handled the project once the office received the approval request. Nevertheless he pointed out that there is a general lack of awareness of the positive environmental, technical and economic potential of the CDM for Argentina, which is translated in the absence of economic incentives for project developers, and deficiencies in the diffusion, illustration and identification of sectors that might offer opportunities for organising CDM projects. The cleaning of the Riachuelo and the opening of two pulp mills on the Banks of the Río Uruguay River have monopolised environmental management in Argentina for a long time and have had a pervasive effect on the effective management of other environmental issues such as the CDM (Interview).

The \textit{ex ante} outcomes of this project have been established by Aria.Biz. This company has set the mitigation goals to be achieved as well as the sustainable development goals.

\textsuperscript{77} This Canadian company is the project developer of the double site CDM project being implemented in the sanitary landfills of Ensenada and Gonzalez Catán

\textsuperscript{78} More context information on this can be found in: www.ariabiz.com.ar, www.asja.biz, and www.impsa.com.ar.
In the case of the mitigation goals, Aria.Biz has established an expected emission reduction of 2,968,072 tonnes of CO\textsubscript{2} for a period of 10 years. This has been done using the same baseline methodology used by Van der Wiel: AM001 Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario. Like Van der Wiel, Aria.Biz uses the methane combustion technology explained in chapter five. Periodic reports are written based on daily monitoring activities, so that CERs are eventually claimed. The PDD of this project shows extensive information about the project boundary and leakage effect of the project. The project boundary is established at 1% of the total amount of CERs claimed (29,680 tonnes of CO\textsubscript{2}). Again, transport and electricity used from the Argentine grid are the only potential sources of emission attributable to the project. A calculation is made by Aria.Biz in order to establish the emissions originating from the transport of materials to the landfill site and these are 9.734 tonnes of CO\textsubscript{2}, which remain under the 1% limit and are therefore insignificant (Aria.Biz, 2004: 21). A generator fuelled by the landfill gas will supply electricity to the degassing installations. The Argentine grid will only be used in case of emergency. Therefore the potential emissions coming from the use of Argentine electricity are also insignificant. This project has no leakage effect whatsoever.

The sustainable development goals have already been outlined in table 7.1. According to Mr. Bottero, these goals are established unilaterally by Aria.Biz, however this happens “in harmony with the policies of the concerning authorities of this sector”. As to how these goals are exactly established, Mr. Bottero let me know that Aria.Biz does not use any quantitative criteria. “It is only evaluated whether the project produces adverse effects or not. In this case (…) it does not produce any. Moreover, it brings new technologies, it generates jobs and more venture capital”. Aria.Biz has partly based this evaluation on the result of an EIA of the project, which the company has estimated “necessary” and has made available to the provincial and national administrations. I did not have the chance to obtain a copy of this report, but according to Mr. Bottero, the assessment focuses on determining the potential negative environmental impacts of the emission of the flares, which have been clearly none existing. It remains unclear though how the goals as outlined in table 7.1 have been actually established, especially when we talk about goals such as technology-transfer or job creation, which do not have to do with the possible negative environmental effects of the emissions of the flares.

**Municipality of San Martin**

*We have more serious problems. We have to get the people out of the garbage*

After contacting the municipality of San Martin in order arrange an interview with some representative who had been present during the informational meetings organised by Aria.Biz with respect to the CDM project, I was referred to Mr. Osvaldo Scotton, a technical engineer of the National University of San Martín who holds the position of Subsecretary of Strategic Planning. Mr. Scotton has been in charge of coordinating the formulation of the strategic plan for the Municipality. This plan has provided guidelines for the local development of the municipality by setting specific goals within five different sectors: institutional, cultural and educational, environmental, the business sector, and the social development sector. The plan has been elaborated with a wide participation of all the relevant social actors, such as community organisations, organizations of SMBs (Small and medium-sized business), or the academic sector (Municipalidad de San Martin, 2004: 9). Mr. Scotton agreed to meet me at his office in the university on November 2006. The present analysis is based on the interview with this respondent.

The municipality has only been involved in the Norte III CDM project, which means that this stakeholder operates from the local scale level. The municipality is a community stakeholder because it has been informed about the implementation of the project and it does not bare any
regulatory or organisational function that might affect the project. The municipality has no jurisdiction over the landfills. As we have seen in the previous chapter, it is the province of Buenos Aires who has the jurisdiction over natural resources, and CEAMSE (a provincial body) is in charge of managing what happens inside of the landfill. This is interpreted by the municipality as a threat to the achievement of the environmental goals set by the strategic plan (Municipalidad de San Martín, 2004: 51).

The municipality has been identified by Aria.Biz as a stakeholder who had to be informed about the project. In the PDD of the project a meeting with municipality representatives (included Mr. Scotton) is reported. Mr. Scotton found it very difficult to recall the meetings. He was only aware of participating in the presentations that Ariba.Biz gave to the local organisations. Mr. Scotton told me that he participated in the meeting but that he, or the municipality, has no involvement in the project. Without expressing any positive or negative opinion about the project, he pointed out that during the meeting he was told “how the technology works, how it is, what is its function and what is the benefit. What I saw was meeting where the local organisations, and everybody was present… but I participate in hundreds of meetings of this kind”. It is implicit that Mr. Scotton did not give much importance to the meeting and that he saw it as a mere formality. Later in our conversation he was more explicit about this by saying that he has seen many projects or activities presented in these kinds of meetings fail or not succeed in starting because of lack of funding of other problems (interview).

According to him, the municipality of San Martín has 400,000 inhabitants and 100,000 of them are living in the most absolute poverty: This absolute poverty is not “missing enough money to buy certain things, but it is a problem of three or four generations who make a living from the collection of garbage” (Interview). Health problems connected to sanitary landfills: skin eruptions, respiratory problems or event cancer, are also present in this area. When Mr. Scotton referred to the CDM project of Norte III, he said: “We have more serious problems. We have to get the people out of the garbage”.

Summarizing, the municipality lacks jurisdiction over the landfill and at the same time it faces critical social problems that need urgent solutions. The implementation of a CDM project in the Landfill of Norte III has not received much attention by the municipality. Its participation has been limited to the role of passive actor who receives information about something. Therefore the ex ante outcomes of this project are by no means affected by this stakeholder. Mr. Scotton has clear ideas about the sustainability plans for the municipality, as the strategic plan reflects. However, these do not have anything with the CDM project of Norte III. They require all its attention rather than a “small example of something that is taking place between a vast volume of land and waste” (Interview).

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**Exporting Copper** - When I talked to Mr Bottero of Aria.Biz he mentioned something about the extra costs of having to pay for the security of the degassing plant. I did not go into that because I thought it was not relevant. This issue became illustrated during my interview with Mr. Scotton and made the serious poverty situation that people in the vicinity of the landfill are going through, and the difficult economic situation of Argentina as a whole even clearer. As I said, Mr. Scotton was not really interested in the CDM project. During our conversation it became clear that he was not even aware of the exact location of the project facilities. He had some maps of the whole municipality hanging on the wall, and he started speculating about the possible location of the CDM project. He pointed at one location and he told me: “I guess it is not here, if they would put it here, the dwellers would dismantle it in less than a week and then sell all the materials. You know? Argentina is exporting copper at the moment, but we do not have any among our natural resources”. 

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97
Global Environmental Governance and the CDM

**Member of the Local community**

Thanks to the mediation of Mr. Scotton I contacted a member of a local organisation who was also present in the presentation that Aria.Biz gave to the local organisations dwelling in the vicinity of the Norte III landfill. According to Mr. Scotton this person is his contact in the community and plays a very important role in providing the University of San Martín and the Municipality with valuable qualitative information from inside the community. This information has been used in the elaboration of the strategic plan of the municipality.

The same day I talked to Mr. Scotton, I had a telephone conversation with this person. In this thesis I will refer to him as Local CBO because of two reasons: Firstly, I was not granted consent to use his name. Secondly, I assume he belongs to one of the many local organisations of the area. This is based on the PDD of the project, where Ariba.Biz indicates that the people who attended the presentation where officials and executives of these local organisations (Aria.Biz, 2004: 49). Since Local CBO was present during the presentation by Aria.Biz, he must belong to one of these organisations.

Local CBO has been only involved in this CDM project, which makes him a local stakeholder. Regarding his perspective of involvement he must be considered as a community stakeholder because he belongs to one of the stakeholders informed about the implementation of the project.

The local organisations have not expressed any comment (positive or negative) about the implementation of the project in the landfill. Local CBO recalled being present at the meeting, but he referred to the project as something far away from the daily life of the community (interview). Nevertheless, Local CBO made an explicit association between the implementation of the project and lower levels of stench and less eye itchiness problems. The respondent was aware of the existence of the carbon credits that this project generates, which shows that he had some general understanding of what the project actually is. However he said to me: “The people here don’t know anything about carbon credits”. The people living next to the landfill, where he also lives, are concerned about getting rid of their health problems, about not being repressed by the security forces, about being able to hang their laundry without having their clothes literally damaged and stinking because of the air, and also about obtaining some more explanations about the disappearance of Diego Duarte. CEAMSE seemed to be their major enemy. Local CBO even complained about the bad state of the social plants opened by CEAMSE and he invited me to come over to see it with my own eyes.

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79 I was not granted consent to use his name because I forgot to ask for it during the course of our conversation
80 The people of the picture are some members of the local community, the former governor of the Buenos Aires province, Mr. Felipe Solá (left) and the president of CEAMSE, Mr. Carlos Hurst.
81 I still regret rejecting his invitation. Our conversation took place 2 days before I left the field and I simply didn’t have the time to go back to the municipality of San Martín.
Just as the municipality, the urgent problems of the communities near the landfills have kept their attention away from CDM project. Therefore, these communities have not played any role in determining the *ex ante* outcomes of the project.

**El Cronista Comercial and El Diario Clarín**

*Market of waste draws US$ 63 million investments / A healthier and cleaner wind is blowing in these lands. It comes from Kyoto, Japan*

Some newspapers have included news about some CDM projects in their pages. They have actually covered information about all the projects that were being implemented in the AMBA at the time of their publication, but only Aria.Biz has actively used some of these articles to include them in the PDD in order to show how the media has reported about their project to the general public. This is the reason why I did not include the press as a stakeholder in Villa Domínico.

The media coverage used by Aria.Biz refers to two articles by *El Cronista Comercial*, a local business newspaper of the city of Buenos Aires, and by the financial supplement of *Clarín*, the most read newspaper in the whole country. These materials (retrieved from the PDD of Norte III) are the ones that I have used for this analysis. The limited dimensions of the data have made a categorisation according to the concepts of the conceptual scheme rather impossible sometimes. The informative nature of these stakeholders and their indirect relation to the projects they inform about makes it difficult to relate them to the governance process and the *ex ante* outcomes. Nevertheless, given the power of the written press to frame reality in a particular fashion that might affect the perception of readers about a certain issue, it is convenient to highlight some aspects of the articles which suit the purpose of the present analysis.

Even though these newspapers report to readers at a different scale of the administrative ladder, they must be considered as local stakeholders because in the two articles used by Aria.Biz they only report about the CDM degassing projects being implemented in the AMBA. Since they are reporting about at least one of the specific projects analysed in this thesis these newspapers must be categorised as press stakeholders regarding their perspective of involvement.

According to Aria.Biz (2004: 33), the media have published information about the project in order to inform the local population, which almost suggest a coordinated action between Aria.Biz and the newspapers. However, the business character of *El Cronista Comercial* and the financial supplement of *Clarín* makes it difficult to believe that the articles were published in order to inform the local population who in the case of the communities dwelling in the vicinity of the landfill, has a “*low education level*” and belong to a “*low socio-economic level*” (Aria.Biz, 2004: 49). Besides, the content of the articles is focused on providing a depiction of the opportunities that the combination sanitary landfill and Kyoto Protocol present for attracting foreign investments and improving the environment, and not on informing any local population about the implementation of a CDM project in their vicinity.

There is no direct contribution to the governance process of the CDM projects. The only possible contribution is the use that Aria.Biz has made of the article by including them in the PDD, which can be considered as a part of the process of analytical deliberation. This is so because the PDD has been part of the documentation that local stakeholders are given the chance to comment on through the website of the validating entity DNV.

The newspapers have no say when determining the *ex ante* outcomes that projects must deliver. However they focus very much their report on two aspects of these *ex ante* outcomes: economical and environmental sustainability. The title of the article by El Cronista Comercial and some other statements on it speak by themselves: “*Market of waste draws US$ 63 million investments*”, “*Thanks to Ceamse, these programs will ensure the State a double advantage. They allow us to improve the quality of landfills and to reduce gas emissions without investing personally and, at the same time, to draw an economic advantage*”, underlined Mr. Carlos Hurst, Ceamse president” (Aria.Biz, 2004: 51-52). The *Clarín* focuses on the
contribution of CDM projects to the economic sustainable development of Argentina: “CEAMSE has no expenses, and keeps a percentage out from the credits” (Aria.Biz, 2004: 54, but also values the positive effects for the environmental sustainable development of Argentina: “A healthier and cleaner wind is blowing in these lands. It comes from Kyoto, Japan” (Aria.Biz, 2004: 54). To sum up, press stakeholders do not have a saying in the actual establishment of the goals of the CDM projects they inform about, but they can play role when influencing the opinion of their readers in favour of the projects due to positive way in which they report about the economic and environmental sustainability of the projects.

7.4 Norte III as a network

It is now time to use a network approach to the Norte III project and analyse the actual pattern of interaction between stakeholders. Again, the network analysis will only generate knowledge about the process of analytic deliberation of the project and its nesting patterns. The spreadsheets containing the cross-tables necessary to create the network diagram are included in the appendix of this thesis. Like in the previous network analysis in chapter 6, these tables contain information about which stakeholders are connected to each other, how many ties they have, and also attributive information regarding their scale level and their perspective of involvement.

Figure 7.4: Degree centrality, perspective of involvement, and scale level in the Norte III project

Source: Author (Ucinet)
--- Regulatory --- Organisational --- Community --- Press
Circle: global / square: national / up triangle: local
The same assumptions as in the analysis of Villa Domínico regarding the role of the CDM Executive Board and the interaction structure of the network apply here. The analysis goes as follows:

- Of the ten stakeholders included in this analysis, four have the blue colour, which shows the organisational perspective of involvement is the most prominent in this project as well. At the same time, the diagram shows that there are six triangles representing the local stakeholders, which makes more local stakeholders involved than in the project of Villa Domínico. Nevertheless, the same pattern is repeated here: there is a rather similar perspective of involvement at the global level, while stakeholders at the local level show a very heterogeneous perspective of involvement. This level contains stakeholders involved in the project from all the possible perspectives: CEAMSE is organisational, the newspapers are press stakeholders, the province is regulatory and the municipality and Local CBO are community stakeholders.

- Organisational stakeholders have a varied pattern of degree centrality. While the consultants and CEAMSE have only one or two ties with other nodes, Aria.Biz has eight ties. This shows that different organisational tasks deliver different number of ties and a more varied interaction with stakeholders operating at different levels. Validation, certification (consultants) and organizing the competitive bid (CEAMSE) deliver far less ties than all the tasks that Aria.Biz bares. The wide variety of tasks that Aria.Biz performs gives this stakeholder the highest degree centrality. Aria.Biz has had interaction with stakeholders operating from all the possible scale levels and involved in the project from all the possible perspectives.

- The absence of comments by community stakeholders has delivered a consultation process with fewer ties between stakeholders than in the CDM of Villa Domínico. As a result if this, the ties between the project developer and the community stakeholders can be considered as one-sided, and CEAMSE has had no interaction with the community stakeholders with regard to the project.

- The ties between Aria.Biz and the press stakeholders can also be considered as one sided, since the articles have unilaterally been used by Aria.Biz in the PDD. Furthermore, we see that these stakeholders are not really connected to any other stakeholder when it comes to an specific project. It can be assumed though that part the information they have used in the articles they have published has been obtained from stakeholders participating in the project.

- As far as I know, the province has not participated at all in the regulations of the CDM. Again, the CDM EB, and the OAMDL have taken care of performing this task. The use of an EIA by the project developer has been aimed at complying with provincial laws in this regard. It is possible that the provincial authority is positive about the project after an evaluation of the EIA, and that this message is given to the OAMDL. However, from the information available I cannot draw that conclusion. Furthermore, there has not been a specific agency within the Province of Buenos Aires dealing with the CDM until 2005. Since the Norte III project was granted approval by the OAMDL in June 2005, it remains a mystery whether the provincial government has performed its regulatory task or not. This is the reason why the Province is portrayed as an unconnected stakeholder in the diagram.

The issues emerging from the qualitative analysis and the network analysis will now be used to draw relevant empirical conclusions about all the concepts outlined in the conceptual scheme.

### 7.5 Empirical conclusions

#### 7.5.1 Stakeholders’ characteristics

The total amount of stakeholders included in the analysis is ten. Six of them are local, four are global and one is national. Four are organisational, three are regulatory, two are community and two are press. The most recurrent characteristic is being operating from the local level, followed by being organisational. Like in Villa Domínico, organisational stakeholders are found at the
7.5.2 Governance process

The consultation period that forms the process of analytic deliberation has happened during the course of four informational meetings with different stakeholders identified by Aria.Biz. During these meetings, Aria.Biz has provided information about the project that has been tailored to the characteristics of the particular stakeholders. No negative comments have been expressed by any of the approached stakeholders. In the case of Local CBO it is questionable whether the local organisations are really aware of what the project is actually about. In the case of the municipality and also of Local CBO, the resolution of the many urgent social problems that affect the area have restricted the attention they have given to the CDM project, which can also explain the absence of comments during the consultation, and suggest a lack of awareness of or knowledge about other stakeholders and their function in the project. As we can see, jurisdictional issues, extreme poverty, and (again) the context of longstanding social conflict between some of the community stakeholders and CEAMSE play a significant role in the process of analytic deliberation.

Finally it should be mentioned that Aria.Biz has taken to important steps towards increasing the confidence of other stakeholders in the project and gaining their positive attitude. These are (a) the performance of an EIA, which is actually required by law but has proven unnecessary in the project of Villa Domínico, and (b) the inclusion of two articles written by major local and national newspapers in the PDD. These articles have reported positively about the project and have been used by Aria.Biz in order to stress the positive contribution of the project to the development of Argentina and to a better environment.

The most important conclusion we can draw about the nesting patterns of this project is that decision and decision influencing power is as multilayered as in the case of Villa Domínico. A lot of power is agglutinated in the project developer Aria.Biz but at the same time this stakeholder is subject to some regulations coming from all the levels of the administrative ladder. Aria.Biz has decided. Aria.Biz has unilaterally set the mitigation and sustainable development goals of the project. Aria.Biz has also influenced the validation by DNV because this validation has been practically limited to an assessment of documentation provided by Aria.Biz. Furthermore, the absence of a clear CER buyer during the design of the process has given Aria.Biz the power to search for the best potential CER buyer, ensuring high revenues and the necessary trust and cooperation by CEAMSE.

Aria.Biz has been confronted with having to comply with the same regulations that Van der Wiel had to comply with in the Villa Domínico project. Namely, the consent of SGS in order to meet the rules of the CDM Executive Board, and the requirements of the OAMDL in order to see the project approved at the national level. At the local level it remains unclear whether the province has carried out any regulatory tasks. Nevertheless, Aria.Biz has estimated and EIA as something necessary and has made it available to the provincial authorities, which indicates a certain degree of influence of the provincial regulation on the actions of Aria.Biz. Community stakeholders have no formal power to influence the action of Aria.Biz. The only tool given to them (the consultation process) has not resulted in any request for extra information or corrective action by these stakeholders.

The nesting patterns of this project can then be portrayed as follows. The global level contains the most level of decision and decision influencing power. Powerful stakeholders operate from here: the CDM Executive Board, who dictates the policy framework of the CDM, then project developer, who determines the \textit{ex ante} outcomes, decides who will be the buyer and tries to
obtain positive reactions from other stakeholders, and the consultants, who in a way, control the work of Aria.Biz. At the national level, the OAMDL establishes some regulations that the project developers must meet. At the local level, CEAMSE has the power to decide which company obtains the rights to exploit the landfill. The role of the provincial authority remains a bit unclear. Finally, community stakeholders, with no formal or bidding regulation or organisational capacity, have not affected the course of the project.

Drawing conclusions about the concept of institutional variety applied to this project takes us to a similar field as in Villa Domínico: the institutional arrangement that determines the interaction between stakeholders is made by the policies and procedures of the CDM. Within these procedures there is space for a certain degree of institutional freedom.

Contractual binding between governmental and market oriented stakeholders is the commonest institution that regulates the contact between stakeholders and determines their obligations. The mere existence of the project is based on a competitive bid after which CEAMSE has granted a contract to Aria.Biz. This is of course based on the tradability of the property rights of the generated CERs, which is the general institution that lubricates the whole mechanism. It should be noted that CEAMSE is a governmental actor, which shows governmental involvement at early stages of the design of the project. Market actors such as DNV and SGS appear at a later stage of the project, as well as the governmental actor OAMDL. All of them, as in Villa Domínico, apply their internal rules to performing their concerning tasks. They are allowed to do this because they are contractually given authority to do so by the CDM Executive Board.

The process of analytic deliberation has been governed by face to face meetings with relevant stakeholders and the possibility given to these stakeholders to express their opinions or concerns about the projects if any. The rules formally establish that the consultation must happen, but they also establish that the potential comments coming from this consultation are not binding.

As I said in the previous chapter, I have not been able to identify many informal ways of structuring the interaction between stakeholders. Trust, or the lack of it, has not emerged as a relevant issue determining the interaction between stakeholders. It is possible that the competitive bid process and the formal contract resulting from it has prevented trust conflicts between Aria.Biz and CEAMSE from happening. This formalisation does not leave any door open for trust related conflicts, which to a certain extent belonged to the informal realm in the case of the relationship between Van der Wiel and CEAMSE. As I said, trust has not emerged as a relevant issue. Even community stakeholders who have long conflictive relations with CEAMSE have not showed any distrust to the project. Their reaction is more like having a lack of interest in the project and the stakeholders involved in it, rather than lack of trust.

7.5.3 Ex ante outcomes

Aria.Biz has established the ex ante outcomes of this project. These have been formally accepted by the rest of the organisational and regulatory stakeholders, which has resulted in the registration of the CDM project as such. Again, it seems that consensus between all the different stakeholders regarding the outcomes has been reached. No relevant issues about the outcomes have emerged from the consultation process, which shows that no stakeholder has any objections to the implementation of the project in the landfill.

The main conclusion that we can draw is the same as in the Villa Domínico project: ex ante outcomes are established and pursued in a very different manner.

Mitigation goals are ex ante carefully calculated and quantified. Even though there is not ERPA between the project developer and a CER buyer, the mitigation outcomes are calculated following an approved baseline methodology and are also contractually agreed with CEAMSE. Monitoring of mitigation, as required by the CDM policies and procedures, is carried out ex post and technically verified by an environmental consultant.
Global Environmental Governance and the CDM

Sustainable development goals are also \textit{ex ante} established. Like in Villa Domínico, there is not quantification of what is exactly going to be delivered and there are no contractual agreements regulating this. It should be mentioned though, that Aria.Biz has estimated necessary to perform an EIA in order to comply with local environmental regulations, which shows its will to making sure that the project does not deliver any adverse environmental outcomes.

In this case the use of a different approach is also explained by the higher costs that pushing a project’s outcomes towards sophistication would involve. However, there is another reason: there have been no actual comments by any local community stakeholder, which makes the consensus on this issue complete. It would be interesting to see whether any informational or corrective action request (in the realm of the sustainable development outcomes) by these stakeholders would result in an increased sustainability of the outcomes, or it would just be systematically ignored like in Villa Domínico.

7.6 General conclusions of the research

In this section, some crucial differences between the CDM projects of Villa Domínico and Norte III will be highlighted. The fact that this is a multiple-case study with embedded units of analysis makes the comparison of the knowledge generated by the two analyses a useful tool for a further understanding of the organisation of the implementation of these two CDM projects. This comparison, added to the analyses, will be taken into account to establish a set of general conclusions that will draw on the relationship between the concepts outlined in the conceptual scheme. Furthermore, certain matters that rather fall outside the categorisations used to operationalise some of these concepts will be highlighted. Their importance for sharpening and giving accuracy to the conclusions I am drawing makes their mention necessary.

7.6.1 Villa Domínico vs. Norte III

In general lines, the projects show many similarities. Since they both must follow the procedures established by the CDM Executive Board, they both have shown a similar motion pattern in the general design and implementation of the projects. However a careful look at the narratives created in the analyses shows that there are crucial differences regarding the stakeholders’ characteristics, the governance process, and the establishment of their \textit{ex ante} outcomes.

Regarding the stakeholders’ characteristics, the two projects are slightly different. While more than the half of the stakeholders involved in Villa Domínico is global, more than the half of the stakeholders involved in Norte III is local. This has to do with the fact that the analysis of the former project contains the stakeholders arranging the purchase of the CERs: the IFC and the Dutch government. These stakeholders are missing in the project of Norte III, where press stakeholders and the municipality are included, which results in a higher number of local stakeholders. However, the perspective of involvement of the stakeholders of both projects is almost identical. Global stakeholders bare organisational tasks most of the times, while local stakeholders have a more heterogeneous perspective of involvement.

The governance process of the two projects is characterised by a similarity of nesting patterns in which project developers emerge as the most powerful actors who unilaterally determine the \textit{ex ante} outcomes of the projects and who every now and then have to comply with certain regulations at different levels of the scale level. The institutional variety of both projects is also rather similar and can be almost reduced to the use of formal contractual agreements that regulate the behaviour and actions of the different stakeholders and arrange the transfer of the property rights of the generated CERs. The main difference between the projects regarding the governance process lies on the process of analytic deliberation, or better said, in its operational
equivalent: the process of consultation. While both projects must compulsory comply with this requirement, the pattern of stakeholder interaction emerging from it is very different:

- The project developer of the Norte III project has identified more relevant stakeholders on top of the municipality and the local organisations. The information provided to them has also been adjusted to the educational characteristics of these stakeholders.

- The community stakeholders of the project of Villa Domínico have requested extra information and have expressed negative comments to several other stakeholders. This has not been the case in the project of Norte III where community stakeholders have agreed with the project being implemented in the landfill.

The *ex ante* outcomes of both projects are remarkably similar. The amount of generated CERs is obviously different due to the different dimensions of both landfills, but the expected sustainable development contribution of the projects is almost the same. Both projects stress transfer of technology, the demonstration of economic feasibility, the reduction of odours and fire and explosion risk, small scale job creation, and the stimulation of the local economy as the expected outcomes. However, there is a different story behind all this. While in Villa Domínico many of these expected outcomes have been challenged by community local stakeholders, the project of Norte III has not received any negative comment. It is remarkable that relevant issues that give a certain level of environmental inconsistency to both projects (issues raised by Ambiente Sur) have remained unnoticed by the all of the community stakeholders of the Norte III project.

### 7.6.2 The conceptual scheme

It is one of the goals of this research to explain the performed exploration in terms of the relationship between the concepts used in the conceptual scheme. This scheme assumes that there is triple set of relationships: between the stakeholders’ characteristics and the governance process, between the stakeholders’ characteristics and the *ex ante* outcomes, and between the governance process and the *ex ante* outcomes.

**Stakeholders’ characteristics and governance process** - The underlying assumption to this relationship is that stakeholders’ characteristics such as the scale level from which they operate or their perspective of involvement in the projects will influence the nesting patterns of the governance process, block or stimulate the participation of other stakeholders in the decision making process, and influence which institutions the governance process contains.

These assumptions can be confirmed to some extent:

- Project developers, who are a global and organisational stakeholder, have had the power of deciding who the community stakeholders are. Therefore they are able to block or stimulate the participation of stakeholders in the consultation. Moreover, the policy as well as the tools used to enforce the consultation (face to face meetings, internet availability) are designed at the global level and controlled by stakeholders operating from it. As we have seen in the case of Villa Domínico, local community stakeholders have been ignored by global stakeholders, which as has left many questions open about the sustainability and legality of the projects.

- It is difficult to see any relation between the stakeholders’ characteristics and the nesting patterns of the governance process. The policies and procedures of the CDM are the main factor determining who has the power to do what and when. However, if we considered that these policies and procedures are established by a global stakeholder (CDM Executive Board) and that the stakeholders with the most decision power and decision influencing power (the project developers) also operate from this level, we can see some kind of relation between being global and establishing a system in which global players have the most important say.
Global Environmental Governance and the CDM

- The limited empirical data acquired concerning the variety of institutional forms makes it difficult to make any sound statement about the possible influence of the stakeholders’ characteristics on it.

**Stakeholders’ characteristics and ex ante outcomes** - The underlying assumption to this relationship is that stakeholders’ characteristics such as the scale level from which they operate or the perspective in which they are related to the projects, will influence the mitigation and sustainable development goals to be achieved. This assumption is also corroborated by the empirical analysis:

- The perspective of involvement of a stakeholder has an influence in determining the *ex ante* outcomes of the project. The project developers (organisational) have the power to do this unilaterally while complying with regulations concerning this issue that most of the time come from the global level (validations and verification). Local community stakeholders do have limited possibilities of influencing this process by participating in the consultation. But sometimes, their voices might be blocked by global players. Therefore, being an organisational and global gives you more chances to determine the *ex ante* outcomes than belonging to any other scale level or perspective of involvement, even the regulatory one.

- Local community stakeholders who suffer the consequences of living next to a landfill have different perceptions about the landfill and the way in which a CDM can deliver sustainability than global stakeholders, who have visited the landfill site only once (validators and verifiers) or haven’t seen it at all (CER buyers). While local communities are or not interested in the project at all or require more visible sustainability, global players put most of their attention on achieving controllable and profitable mitigations goals.

**Governance process and ex ante outcomes** - The underlying assumption to this relationship is that the robust governance following the principles of Dietz *et al.* will deliver the intention of achieving ambitious mitigation and sustainable development goals that are in accordance with internationally recognised standards.

This assumption can also be confirmed to a certain extent:

The empirical analysis has shown that there has been process of analytical deliberation, that power is nested in different scale levels, and that there is a mix of institutions. Therefore, the principles of Dietz *et al.* are apparently followed. However, the analysis has also shown the qualitative aspects of these principles. The process of analytic deliberation has had certain limitations regarding the transfer of information to community local stakeholders and regarding the adequacy of the answers to comments by community local stakeholders. Decision making and decision influencing power are mainly nested in the global level, which limits the extent to which decision and decision influencing power is allocated in multiple scale levels. Institutional variety is not really diverse. Formal contractual agreements between private and public stakeholders in order to regulate the actions of the different actors and transfer the property rights of the generated CERs are the main institution. This has avoided trust problems in many cases but not in the relation of some community local stakeholders with CEAMSE and project developers.

Given these qualitative aspects of the governance process, we see that following this principles in such a way has been enough to deliver the intention of achieving ambitious mitigation goals. In the case of sustainable development goals, it cannot be said that these are ambitious and that they follow internationally recognised standards such as the Gold Standard or the SouthSouthNorth Matrix. These methods require a minimal quantification of the goals that will be delivered regarding the different dimensions of sustainability. In both projects, the sustainable development outcomes have been limited to vague statements about processes that will be possibly triggered: job creation, reduction of odours, stimulation of the local economy, etc. Yet,
any quantification of illustration is absent. Moreover, the rules of the game do not require any monitoring of the achievement of these goals.

Therefore, we have a governance process with a sometimes low performance regarding the principles of Dietz et al., combined with ambitious mitigation goals and less ambitious sustainable development goals. It could then be assumed that increasing the performance of the governance process would increase the sophistication of the sustainable development goals, which corroborates the assumption we are exploring. This would mean that having all the stakeholders fully informed, having all their comments dealt with properly, allocating more power to stakeholders in other scale levels rather than the global (for example giving some binding character to the relationship between community stakeholders and project developers), and using a wider variety of institutional forms, would deliver higher quality *ex ante* sustainable development outcomes.

### 7.6.3 Pending issues

As I said in the introduction to this section, there are several issues that cannot be understood using the categorisations of the conceptual scheme, but are relevant for the sake of adding accuracy to the conclusions of this research. If we look at the actual behaviour of some of the stakeholders at a certain moment, we see that their scale level and perspective of involvement are not really explanatory characteristics. It has never been the intention of this thesis to find accurate explanatory relationships, but I think that paying attention to other characteristics that have emerged from the empirical exploration will make my conclusions sharper and will already provide some hints about creating more complete conceptualisations when doing similar research on CDM projects.

I would like to illustrate this with 2 examples:

- Why do the community stakeholders of one project participate so actively in the consultation and why others do not? This is a question that would require looking at other characteristics of the stakeholders if we want to gain a clear understanding. For example, Ambiente Sur and Local CBO are both local and community stakeholders, but both have a very different perception of the project and have behaved certainly differently. Thus, within these categorizations there must be some other factors affecting their perceptions and behaviour. The educational and socioeconomic level of the respondents is very different, which can limit or enhance the capacity of community stakeholders to look critically at a CDM project coming to their vicinity. Poverty levels in the municipality of San Martín are much higher than in Avellaneda, which seems to be the reason why some stakeholders divert their attention from the project and focus on coping with more urgent problems. Furthermore, their relation with the landfill and the conflict with CEAMSE is very different because of different reasons. While disposal has ceased in Villa Domínico, it still goes on in Norte III. While nobody is scavenging in Villa Domínico, *cartoners* and *cirujas* are working, living, and eating from the landfill. While the local organisations of Avellaneda had even won legal battles to CEAMSE, the dwellers of de vicinity of Norte III have to run from the police. Summarising, educational level, socioeconomic levels, and the social context of local community stakeholders can play a significant role in the way they perceive the project and behave accordingly. These are concepts which are not present in the conceptual scheme of these thesis but that really emerge from the collected data.

- Why do different stakeholders have different opinions about the sustainable development outcomes of the projects and behave accordingly? As the conclusions of the analysis show, the perspective of involvement of the stakeholders can be a relevant characteristic. Being a global and organisational stakeholder offers you more chances to determine the course of the *ex ante* outcomes than having any other characteristic. Furthermore, community stakeholders suffering the nuisance caused by the landfill will approach sustainability in a different way than organisational stakeholders who have the tasks of getting the CDM project running. However,
the there are certain aspects that can be added to their perspective of involvement and that might reveal extra motivations for action or for the construction of a particular perception. Community stakeholders do not seek economic profit and project developers do. As we have seen in the conclusions, the high costs that more sophisticated sustainable development outcomes require is taken into account by project developers or other organisational stakeholders because it will affect the price of CERS negatively. Summarising, the profit-driven or non profit-driven nature of different stakeholders can be an important factor shaping the perceptions and behaviour of stakeholders concerning a particular issue. Again, this concept is not present in the conceptual scheme but it fully emerges from the empirical analysis.

With these considerations I have tried to sharpen the empirical conclusion so that they get the weight they deserve. This matter deserves further reflection because it has important implications for research on the CDM. A more explicit space for reflection can be found in the next chapter. Now, I would like to make a short summary of the present chapter and a short recap of the most important conclusions.

**Summary and recap of conclusions**

In this chapter we have seen that the landfill of Norte III is the host of social conflicts that sometimes have even exceeded the dramas that took place around the Villa Domínico landfill. We have seen that while disposal activities still go on, local dwellers have a tight economic relation with the landfill and a conflictive one with CEAMSE. Next, a description of the CDM project, its outcomes and an account of its stakeholders has been given. The qualitative analysis and the network analysis have provided an extensive description of the stakeholders' perceptions of the project and their actual behaviour. Similar patterns to the project of Villa Domínico are also present in this project: power is nested in global and organisational stakeholders, and the key stakeholders are the project developers. However, this project has not had any comment by local community stakeholders during the consultation process and the project developer has used the press to gain positive feedback from other stakeholders. Again, formal contractual agreements have been the preferred institutional choice within the relative freedom that the CDM policies and procedures offer. Some of the trust problems between CEAMSE and the project developer of the Villa Domínico process have been avoided by the use of a competitive bid system. The establishment of the *ex ante* outcomes of the project is rather similar to the project of Villa Domínico. The only difference has been the inclusion of an EIA that has been aimed at showing that the project does not have any adverse environmental effects.

The general conclusions of the research have shown that both projects are remarkably similar but that they have some crucial differences. The differences can be mainly found in the way the consultation process of the Norte III project has been carried out, its absence of comments by local community stakeholders, its absence of a CER buyer at moment data was collected, and the inclusion of press stakeholders in this same project.

Finally, the assumptions about the relations between the concepts outlined in the conceptual scheme have been discussed. The three assumptions have been corroborated to a certain extent. However, some issues emerging from the empirical analyses have shown that other stakeholders’ characteristics on top of the ones used of the conceptual scheme might add explanatory power for the development of particular perceptions and behaviour patterns concerning the approach of the stakeholders to the implementation of a CDM project.
Chapter 8: Conclusion

The last chapter of this thesis will be structured in the following manner. First, I will thoroughly present some general reflections I have made after completing the research and going through the whole writing process. Secondly, I will provide an answer to the research question. The implications of the empirical findings for the theories discussed in the third chapter will be discussed in the third section. Next, research and policy recommendations based on these implications and on my fieldwork experiences will be formulated. Finally, some concluding remarks will be made in the form of personal reflections about the CDM as a mechanism for tackling climate change and achieving sustainable development.

8.1 The quest for knowledge

The word quest is a very inspiring one when reporting on the vicissitudes of doing research. It has to do with mutability, changing circumstances, and to me it evokes the feeling of being involved in a long lasting and labour intensive activity. Doing research is very much like a quest in which the generation of knowledge about a certain issue is the specific object that the explorer hopes to find at the end of his endeavour. In this case I am the explorer who has embarked on a quest for knowledge about how the CDM as a tool for governing climate change is organised in Argentina. In chapter four, a reflection on the methods used during my quest for knowledge has been done. In this chapter I will focus on how I have coped with the problems that emerged during the fieldwork and on the things that I have learned in the process of doing research. Some of the reflections here have to do with the methods discussed and reflected on in chapter four, some other have to do with the unavoidable unpredictability of the research process.

The quest for knowledge could be seen as a quest for available projects, which entails a quest for respondents willing to cooperate and a quest for documentation suitable for analysis. I arrived in Buenos Aires with the idea of covering four projects in the Buenos Aires Province. At the very beginning of my stay I started contacting relevant stakeholders like CEAMSE and the OAMDL because they are involved in almost all of the projects. Then I decided to contact stakeholders of the Villa Dominico project because it is the first CDM project ever implemented in the country and including it in the research would be a good way of establishing some kind of comparison in time with regard to later projects. The process of contacting stakeholders involved in this project was successful and the project developer and a CBO of Avellaneda agreed to meet me. Perhaps I relied too much on email and internet to arrange some more contacts with other local stakeholders such as local CBOs or the municipalities of Avellaneda and Quilmes, which proved to be a quite unsuitable strategy. The empirical analysis would show later that internet has not been a very handy expression tool for these same stakeholders, but I did not know that at the time of mailing them. Nevertheless, this same strategy delivered a relevant extra stakeholder (the provincial administration), who was not included in the original list and which illustrates how unpredictable fieldwork can be. This unpredictability travels both ways: the one day it delivers extra empirical data, and the other it closes some important doors.

After analysing the time consumed performing the above mentioned task and the time left in the field, I decided to drop the only project outside of the AMBA. This is a CDM project being implemented in the city of Olavarría, around 400 kilometres from Buenos Aires. It would simply take too long to arrange all the necessary contacts and travelling there to interview them. So I focused on the projects left in the AMBA: Norte III, and the double site project of Gonzalez Catán-Ensenada. The project of Norte III delivered some important respondents (the project developer, a representative of the Municipality of San Martín and a member of CBO) but the project of Gonzalez Catán-Ensenada just did not work. This project is developed by the Canadian company Conestoga Rovers. In the PDD of this project, this company indicates that
they are “ready to answer any questions regarding the project to whoever might be interested (municipalities, universities, and the general public) through the e-mail address: BuenosAires@CRAworld.com” (Conestoga Rovers, 2004: 3). After contacting this email address and receiving no response whatsoever, seeing that their only contact address is in Canada, and taking into consideration that the PDD does not provide any contact information with the local stakeholders that participated in the consultation, I decided to focus only on getting the best I could from the two projects that were delivering empirical data.

The valuable conclusions I would like to draw from all this is that, one as researcher should be prepared to adapt to different situations as they come and should have a broader set of expectations. This enlarges the possibility of obtaining empirical data. Sticking to the email proved to be unfruitful in Villa Domínico and forced me to pick up the phone more intensively. Therefore, a more daring researcher with more time resources could have obtained more stakeholders cooperating in the two projects included in this research, or even managed to cover the other two as well.

The power to decide – In the empirical analysis we have seen that the project developers of the two projects analysed in this research have decided unilaterally, or with the help of CEAMSE, who is a stakeholder of their projects. This means that Conestoga-Rovers, with or without the help of CEAMSE, has probably established who the local stakeholders of the project of Gonzalez Catán-Ensenada are. The PDD of the project only includes a local NGO called El Armadero in the consultation process. Nevertheless, there are reasons to believe that this project has more potential stakeholders:

Activist against CEAMSE in Gonzalez Catán (the text says: CEAMSE murderer)  
Through internet I came across a CBO called Vecinos autoconvocados de Gonzalez Catán. Its name is remarkably similar to the name of a CBO who participated in the consultation of the Villa Domínico project, Vecinos autoconvocados contra el CEAMSE. Moreover, their goal is the same: getting CEAMSE to close the sanitary landfill near their homes. A relevant question is then why one of these two CBOs was defined as a potentially affected party in one project and therefore included in the consultation, and why the other not. The answer lies maybe in the fact that when the consultation of the Villa Domínico was taking place, disposal activities in the landfill had ceased and CBO actions against CEAMSE were limited. In the case of the other CBO in Gonzalez Catán, rallies against CEAMSE are still going on, as the picture shows. The photo was taken in June 2007.

With this I try to illustrate the reflection made in chapter four about letting someone else deciding who is a stakeholder. In this research I have let the project developers decide for me. In an ideal research and fieldwork situation, with proper economic and time resources, this is something that should really be taken into consideration. The researcher should have the power to decide. This way, the collection of empirical data would be more complete, which would deliver a better grasp of the already complex social reality in which CDM projects are implemented.

After returning from Buenos Aires, the process of ordering all the collected data, analysing it and writing this report started. This has been a very long period that has enabled me to extensively reflect on the collected data, the data analysis and the writing process in itself.
Conclusion

Regarding the collected data, I have already indicated in chapter four that it comes from a wide range of different sources. It would have been my wish to base the analysis of empirical data on more interviews than the eight that were held during the fieldwork, however, this has not been possible. I might have failed to contact some stakeholders present in the field, but doing research on a transnational phenomenon such as the CDM means that the researcher has to face a wide variety of stakeholders and the wide variety of geographical locations. It would have been great to talk to the environmental consultants DNV and SGS and also to the intermediary IFC. But these three organisations are based in Norway, Great Britain and Washington D.C respectively, which makes a personal encounter with them rather impossible. Because of this, I have given both methods of data collection (interviews and document review) the same value, which might be a bit unfair due to the impossibility of confronting not interviewed stakeholders with critical questions that would have been relevant to my research. An important question raises here: is the collected data then suitable for analysis? I think the answer is affirmative because I have tried to use relevant documentation containing information that could be categorised in terms of the conceptual scheme.

The analysis of the data was probably the most difficult part of this thesis. First of all, by listening and transcribing the interviews I was able to see the quality of my skills as interviewer. While sometimes I was satisfied with the results, other times I was really frustrated because I realised that sometimes I did not manage to question respondents more in depth about some of the key issues raised during our conversations. To some extent, this is due to my limited experience as a researcher. However, the problem of knowledge disparity can also be held accountable for this. In chapter four I already indicated that I did not understand certain technical matters at the time of talking to respondents. The only solution for this has been making some enquiries on these issues, which has made the delivery of the final version of this thesis take longer than originally planned. The lesson I have learned from this is that I should pay more attention to developing better skills as interviewer, and that I should go to the field with complete knowledge about the phenomenon I am studying, provided I ever do research again.

Finally, I would like to make a last reflection on the exploratory nature of this research. To tell the truth, this reflection cannot be seen loose from a book I read at the time of writing this thesis: “Method in Social Science: a realist approach”, in which the British social scientist Andrew Sayer makes a frontal attack on what has been the dominant paradigm in the social science for a very long time. This is: using positivistic approaches to social science in which quantitative research methods are considered to be the only valid tool for explaining causality relations between the objects we study. Instead, he claims that qualitative methods of data collection and analysis are the most suitable ones for finding explanatory causal relations between the concepts which researchers study. Sayer puts a lot of stress on finding which properties of an object have causal powers, which according to him is done by means of isolating in thought a one-sided or partial aspect of an object, which is what he calls abstracting (Sayer, 1992: 87)82. Abstracting is necessary in order to find out whether the particular property that we isolate in thought has relevant causal powers with regard to the research question we try to answer.

In my research I have also used abstraction to isolate properties of the stakeholders relevant for the research question. However, since this is an exploratory research, we could say that I have done a kind of explorative abstraction in which the concepts of scale level and perspective of involvement have been isolated in thought and then used to see what kind of relations they might have with the rest of the concepts of the conceptual scheme. From the practical contact with the respondents and the empirical exploration of the relation between the different concepts of the conceptual scheme I have been able to identify some properties of the stakeholders that might

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82 A specific example of abstraction would be the following: a Spanish man studying in the Netherlands is a concrete representation of abstract terms such as nationality, gender, occupation, and country of residence.
Global Environmental Governance and the CDM

have an actual causal power. These properties of the stakeholders have been discussed in the previous chapter (see 7.6.3 Pending Issues). Therefore, looking at my research through Sayer’s glasses I have learned that the way you conceptualise the objects you study (the act of abstraction) determines what you actually can say about them. Furthermore, I have learned that the explorative abstractions which I have used in this research have served to find out possible explanatory abstractions which might work as basic conceptualisations for future explanatory research on the CDM. Also, I have increased my methodological awareness of the philosophy behind exploratory research and its scientific value. In addition to discovering relations between the concepts that researchers study, exploratory research can be seen as a step towards explanatory research, which brings me to the general conclusion I want to draw from this reflection: perhaps, the conceptualisations used in this research (especially when referring to the stakeholder’s characteristics) have not delivered hypothesis that can be tested in the explanatory realm, but exploring their relationship has delivered concepts, properties, aspects, or abstractions, that can be approached from an explanatory perspective in further research. In other words, the discovered relationships between the stakeholders’ characteristics (as conceptualised here) and the governance process and the ex ante outcomes have not delivered a hypothesis that can be tested in future explanatory research, but their exploration has identified other stakeholders’ characteristics which certainly might have potential causal powers: educational level, socio-economic level, social context, or profit-oriented nature.

All in all, I still can say that my quest for knowledge has been successful. The next sections of this last chapter will be focused on supporting this statement by providing sound empirical evidences that will answer the research questions, and by linking these answers to the theoretical debates discussed in the third chapter.

8.2 Answer to the research question

In order to give a shape to the contribution of this thesis to the theoretical debates presented in the third chapter, I must now provide an answer to the research questions. Once this is done we will be able to understand what the empirical conclusions of this research mean for the theoretical debates on GEG. The primary research question of this research is:

*How have stakeholders organised the governance of the Clean Development Mechanism in Argentina?*

We have seen that this question has been fragmented into four sets of sub-questions which are supposed to generate the necessary knowledge. Now I will proceed to individually answer them, and afterwards I will get back to the primary research question.

1. *What kind of stakeholders can be distinguished in the governance of the CDM in Argentina?*
   - From which scale level do they operate?
   - From which perspective are they involved in the projects?

   All the different levels of the administrative ladder are represented by the different stakeholders participating in the governance of the CDM in Argentina. The situation is the same if we talk about the perspective of involvement. In a way, the policies and procedures of the CDM require this, but some particular characteristics of the specific projects determine the presence of more or less stakeholders from a particular scale level or perspective of involvement. It can be said that there is a preponderance of global stakeholders in the governance of the CDM in Argentina. In some cases this does not have to do with the amount of stakeholders but with the organisational tasks they bare: a project developer and an environmental consultant are necessary parties, and
Conclusion

sooner or later a CER buyer also operating from this scale level is going to be involved in the project, which might add another global stakeholder: an intermediary.

Local stakeholders are also great in number, but again, their incidence has to do with particular characteristics of the different projects such as the way in which the consultation is arranged by the project developers. Moreover, local stakeholders show a much higher heterogeneity in their perspective of involvement than stakeholders of other kind. At the local level we have to do with local administrations, NGOs, newspapers, and the very important figure of the business partner (CEAMSE) who owns the necessary ‘hardware’ that allows the realisation of the project: the sanitary landfills. Apart from these stakeholders, nobody bares organisational tasks which supports the idea that organisation is arranged mainly at the global level.

The national level is only represented by the national authority (the OAMDL) in charge of taking care of all of the business related to climate change and the Kyoto Protocol. This authority is involved in the CDM from the perspective of the regulator who requires that projects comply not only with the regulations established at the global level by the CDM executive, but also with the concerning national legislation.

2. How did the decision making take place to decide about the mitigation and sustainable development outcomes of the CDM projects?

- Which mitigation and sustainable development criteria have been used to approve the projects?
- Who (and how) has established these criteria?
- How (and by whom) are these criteria applied to the individual projects?

The first criteria used for approval regarding mitigation are the agreement of a favourable and profitable amount of CERs to be reduced, and their price. This is established by the project developer in coordination with the owner of the project site and an Annex I country acting as CER buyer (like in Villa Domínico), but it can also be established in the absence of a CER buyer (like in Norte III). Thus, an acceptable amount and profitability are the main criteria. The second set of criteria regarding the establishment of mitigation goals is deeply rooted in the policies and procedures of the CDM: the projects must follow the principle of additionality and should not generate significant emissions within their project boundary. Furthermore the technology used to reduce the emissions of GHGs must be proven efficient to reduce the agreed amount of emissions. The bureaucratic tool used to demonstrate all this has been the baseline methodology AM001 Landfill gas recovery with electricity generation and no capture or destruction of methane in the baseline scenario approved by the CDM Executive Board. The project developers are the stakeholders who have provided the evidence of the fulfilment of these criteria by filling in the baseline methodology.

The sustainable development criteria which have been used in order to approve the projects can be categorised following the three dimensions of sustainable development: economic, social and environmental. In the economic realm the criteria applied to the CDM are: demonstrating the economic feasibility of landfill of landfill based projects in Argentina, and the transfer of economic profit to a state company (CEAMSE). In the social realm, technology transfer to local experts and the stimulation of local economy through job creation and the purchase of local materials have been the criteria used. Regarding environmental sustainability, the criteria used has been the improvement of the quality of live of the communities populating the vicinity of the landfill sites by reducing the risk of explosions and the odorous gas emissions.

All these criteria are unilaterally established by the private companies financing and executing the projects: the project developers. Even though most of the participating stakeholders have their own sustainable development criteria, which they sometimes use in order to determine whether they become involved or not in the projects, the criteria as established by the project developers are the ones that matter because these are officially applied to the projects. Even in
the case of stakeholders with conflicting criteria, such as in the case of some CBOs, the ideas of the project developers on the sustainability that the projects must deliver prevail.

Since these criteria are established by the project developers, they are mainly applied by them to the individual projects in the practice. Nevertheless there is a certain degree of involvement by other stakeholders in this process. Mitigation goals are established by project developers in the light of their quantity and profitability. The project developers have the technology to make estimation on this, but these estimations must satisfy the demands of a CER buyer regarding amount and price. So the figure of the CER buyer (existing or potential) affects the way mitigation goals are applied to a project.

In the case of the economic sustainability criteria, the project developers demonstrate the economic feasibility of the project by getting the amount of claimed CERs issued and selling it to a CER buyer. This shows that the project actually succeeds as a profitable enterprise. The transfer of revenues to the state is also arranged by the project developer, but the state company receiving these revenues (CEAMSE) has a voice in determining how many CERs will be transferred to them, which also contributes in showing to how feasible a CDM methane project can be in Argentina.

Social and environmental criteria are also almost unilaterally applied by project developers. Regarding social sustainability, the amount of jobs created and materials bought locally, are determined by what the technicalities of the project demand, which has to do with the cost benefit analysis made for building and running the project facilities, and with the quality of the locally purchased products. The transfer of technical knowledge to local experts is also arranged by the project developer. However the amount of local experts to be trained is determined by CEAMSE. Regarding environmental sustainability, the project developer is responsible for the improvement of the quality of life of the area. The reduction of explosions and fires risk is accomplished by the application of the methane combustion technology which reduces the presence of methane in the landfill. This is a widespread accepted method of achieving this goal. Since methane and CO2 are odourless and it is not clear which other gases are coming out of the landfill it is impossible to say how project developers will increase the quality of life of the surroundings regarding the reduction of odorous emissions in the particular projects.

As I said, other stakeholders hold different ideas on sustainability than the project developers. While some of them accept the criteria and goals of the project developers, some do not. The Argentine authority, in charge of certifying the project’s contribution to national sustainability, considers that as long as projects open possibilities for sustainable development, they can be approved and sent for registration to the CDM Executive Board. Both projects dealt with in this thesis seem to comply with these criteria of the OAMDL. In the case of some CBOs consulted during the consultation period we can see that some of them have conflicting ideas on the sustainability of the projects. The consultation process, originally established as a tool for sharpening the sustainability of the projects, has proven to be an insufficient method for doing so. Due to the absence of binding rules, local community stakeholders have not been allowed to contribute in constructing the mitigation and sustainable development criteria to be applied to one of the projects.

3. What role do stakeholders play in the implementation of the projects?

- What specific steps have stakeholders taken towards participation in the design of project activities?
- What kind of specific interaction has taken place between stakeholders?
- Which stakeholders remain involved in the projects once the implementation phase is reached?
- Which is their specific function?
The answer to this question is to a certain extent determined by the CDM policies and procedures as established by the CDM Executive Board, and by the CDM project life-cycle. Following this life-cycle, all the stakeholders have predetermined roles in the game of the implementation, especially in its last phases. It can be said that project life-cycle of 8 steps can be divided into three consecutive stages: (a) the design, (b) the registration, and (c) the implementation loop. As projects move on through these stages, they start to lose distinctiveness and look more like each other.

1. The design is dominated by a stakeholder interaction which bypasses the national level. There is contact between organisational global stakeholders (project developers, CER buyers, intermediaries) and local community, and local organisational stakeholders (owner of the landfill sites, CBOs and the local press). Even though the practical design of the project is almost exclusively reserved to the project developers, other stakeholders take steps towards participation on it. The CER buyers, intermediaries (if applicable to the project) and the owner of the landfill sites negotiate the terms of participation. This is arranged by contractual binding agreements about the mitigation goals and the price of the CERs. Lack of trust between stakeholders can delay the actual materialization of the cooperation between stakeholders, but the further bureaucratization of the system through the introduction of a competitive bid system solves this issue. Local community stakeholders are also given the chance to participate of the design through the process of consultation, and they do so. Depending on several factors they will express their positive or negative views on the implementation of the project, or they won’t give any comment at all. Their comments, even when they are negative, have no influence on the final design of the project by the project developer. The non-binding character of the consultation and problems related to access and the ability to use the digital technology necessary to put comments through can be accounted responsible for this.

2. The way to registration is the beginning of the almost mechanical completion of all the steps of the project life cycle. National approval is performed by the national regulatory authority, who internally evaluates the contribution of the project to the sustainable development and has the power to require corrective design actions when projects do not comply with national regulations. Validation is performed by a global organisational accredited DOE who is governed by its own internal procedures. Its conclusions are based on site visits, interviews with representatives of the project developers and the review of documentation provided by the project developer. This same DOE requests the registration of the project as a CDM project in the CDM Executive Board.

3. The implementation loop: after registration, the project embarks into a loop of monitoring, certification and issuance of CERs in which only global organisational and regulatory stakeholders are involved. The project developers monitor and claim, a different DOE certifies the claim and the CDM Executive Board issues the CERs. In this respect projects in Argentina are not only similar to each other but also similar to the rest of the CDM projects around the world.

Summarising, the early stages of a CDM project in Argentina are more distinctive because many different local, global, organisational, community, and in some cases press stakeholders, interact with each other with more or less success in order to get the design of the project done. How contractual agreements are established and how the consultation is carried out depends on the stakeholders participating in these processes, and it can be seen lose (to a certain extent) from the policies and procedures of the CDM Executive Board. Furthermore, the characteristics of local and community stakeholders can be very diverse per project and every project has a place specific history behind.

As projects go further in the direction of implementation, local and community stakeholder step out and the policies and procedures of the CDM become the only framework regulating the stakeholder interaction. DOEs and the national authority become involved, and after registration,
only a few global organisational stakeholders will become or remain involved until the end of the crediting period.

4. How do stakeholders perceive the governance of the CDM?
- What do stakeholders know about the CDM and climate change?
- What do they know about each other?
- Do they think the projects meet the agreed mitigation and sustainable development goals?

There is a great disparity between the stakeholders involved in the implementation of the CDM projects in Argentina. This disparity has not only to do with their scale level and their perspective of involvement, but also with their occupational activities, educational background and socioeconomic status. Therefore their knowledge about the CDM and climate change is also very varied. Except from the local and community stakeholders, CEAMSE and the rest of the stakeholders are officially part of the regulation and organisation of the CDM and therefore Kyoto, which implies that they know exactly what the CDM and Kyoto are. As the only local organisational stakeholder, CEAMSE has been smart enough to acquire sufficient knowledge about Kyoto and the CDM in order to get involved in it and reap economic profit and technological benefits from its involvement. On the other hand, community stakeholders show knowledge disparity among themselves. While some CBOs such as Ambiente Sur are literally experts in the CDM and Kyoto and have shared their knowledge with other CBOs in Villa Domínico, the CBOs of the project of Norte III seem to have little knowledge about what a CDM project and Kyoto are, even though they have been given information about this by the concerning project developer.

What stakeholders know about each other also differs a lot. The municipalities, CBOs, and CEAMSE have a very old relationship. In other words, local community stakeholders and the only local organisational stakeholder know each other very well. If their relationship is conflictive, this will be patent during the consultation, which might influence the initial perceptions and subsequent behaviour of community stakeholders towards the project developer and the project in general. This also works the other way around. Since project developers are in touch with community stakeholders through CEAMSE, the perception and subsequent behaviour of project developers towards CBOs can be influenced by how this stakeholder sees these organisations. The Argentine national authority and the global stakeholders (project developers, DOEs, and CER buyers) have a mere administrative knowledge of each other. All of them are officially accredited by the CDM Executive Board to perform the different tasks that CDM requires. Nevertheless, it remains pending how a particular DOEs becomes involved in a particular project. Finally, it is remarkable that the only knowledge the DOEs have about community stakeholders is limited to the information that project developers make available to them. The internet tool, designed as a means for community stakeholders to contact DOEs such as DNV during the consultation process, has not make this knowledge any larger.

As to the stakeholder’s perceptions of the achievement of the mitigation and sustainable development goals, again, we see diverse perceptions. Global organisational stakeholders, especially the project developers, have a positive view on this. So does CEAMSE and also the press stakeholders within their limited knowledge about the exact goals of the projects. The Argentine national authority is also positive about how the goals are being met but would like to see more electricity generation realised in the realm of sustainability. Local community stakeholders, if they have an opinion about this, it is not very positive. It is possible that they think that the goals as outlined by project developers are being met, but they have questioned (without answer) the ability of these goals to contribute to the mitigation of climate change and to the achievement of sustainable development.

The general answer to the primary research question could be formulated as follows: The stakeholders of the CDM project have organised the governance of the CDM in Argentina in a
process of multilevel interaction in which global stakeholders have the most power in designing and implementing the projects. The multilevel interaction can be mainly seen in the early stages of the implementation of the process when the majority of stakeholders deliberate about the goals that projects should deliver. The late stages of the implementation is organised by global stakeholders in a loop of administrative actions aimed at ensuring only mitigation and not sustainable development.

The non-binding character of the outcomes of the deliberation process at the early stages of implementation gives projects developers that ability to establish the ex ante outcomes of the projects according to their own ideas. This might mean blocking the participation of community stakeholders in doing a contribution to the establishment of these goals. Moreover, some community stakeholders are not able to participate in this process due to urgent problems which monopolise their attention. Face to face interaction, the use of internet, and the use of written correspondence are the institutional arrangements that regulate (sometimes without success) communication between stakeholders in the consultation process. Formal contractual agreements are the institutional forms used to regulate the rest of the governance process. Trust, or its absence, can be considered as a relevant informal institution. This all must be seen within the main institution that regulates how stakeholders interact: the policies and procedures of the CDM as established by the CDM Executive Board.

Regarding mitigation, project developers are driven by the amount of CERs they can generate and the profit they can make from their sell. Regarding the contribution of projects to sustainable development, project developers are driven by the demonstration of the economic feasibility of the projects, the transfer of technology to local experts, the employment opportunities that projects bring, and the improvement of the life quality in the surroundings of the project sites. While these ideas are not really worked out in the design of the projects, they seem to be enough for achieving consensus with environmental consultants, the Argentine government, the parties who buy the CERs, and the CDM Executive Board.

In general, it can be said that there is positive perception of the actual achievement of the projects, and also high level of knowledge about Kyoto and the CDM. The only negative perceptions can be found at some segments of the community local level. The same happens regarding lack of knowledge.

8.3 The CDM in Argentina and Global Environmental Governance

The general conclusions of this thesis have provided enough empirical material to answer the research question. It is now time to link these conclusions to theories discussed on the third chapter. In this paragraph I will comment on the implications of the general research conclusions as outlined in chapter 7 for the theories of governance and for the governance principles of Dietz, Ostrom and Stern.

To start with we should look back at the conceptualisation of governance as a shift in the process of management of situations in which decisions are not only made by public sector bodies, but by a wider spectrum of formal and informal institutions within the scope of the private sector and civil society organisations at all administrative levels. This shift has taken place regarding who manages, how management is done and where it is done. In our case, governance is driven by the resolution of an environmental conflict that has transboundary effects in space and time and which requires solutions managed by complex organisational structures. Therefore, we are talking about GEG, which according to the scholars just mentioned, will be robust when the principles of analytic deliberation, nesting and institutional variety are present during the management process.

The first question we should ask ourselves is whether tackling climate change is something that belongs to the portfolio of functions of the state. If this would be the case, we could look at the CDM and see whether there has been a shift regarding who governs it. Since climate change is a
contemporary environmental problem and Kyoto and the CDM are the first mechanisms designed to tackle it, it is impossible to look at the past and see whether there has been a management shift from the state to civil society and private sector actors. Nevertheless, we can still see that there has been shift. Companies and CBOs are involved in a mechanism aimed at managing how much GHGs are released into the atmosphere. In other words, they are engaged into environmental protection activities, which has never been one of the core functions of the private sector. The participation in the CDM is also an innovation for civil society organisations, which have come to form part of mainstream formal policy design and enforcement. Therefore, if we look at a shift in management practices regarding who manages, it can be said that there is governance in the organisation of the CDM. The implementation of the CDM is theoretically organised by a mixture of civil society, private sector and public sector actors. However, in the practise, mainly the private sector, with a minor contribution of the public sector, performs the management activities. This has to mainly to do with how governance is practised. In the case of the CDM, management of how much GHGs is poured into the atmosphere is based on monetary transactions mainly regulated by contractual agreements, which entails that management is dominated by private sector actors. Since the policies of the CDM are established by agreements between national governments, it can be said that there is a mix of forms of regulations. However, these same policies do not give any binding force to the potential participation of civil society in the organisation of the mechanism. Therefore, the main actor taking up tasks that he never performed before and with the most chances of influencing the outcomes of public policies is the private sector.

Regarding where management takes place, it should be said that the CDM projects, at their early stages, bypass traditional state politics and give chance to forms of cooperation and interaction between community organisations, local business, global business, and global regulatory entities, with a reduced input of the nation state. However, the stakeholder interaction that gives form to CDM projects does not take place along and across all the levels of the administrative scale. This happens mainly at the global level, where countries design the policies and procedures of the CDM, contracts between different stakeholders are signed and management is validated, monitored and certified. Therefore, the shift goes more in the direction of the global level than on the direction of multilevel interaction.

Given this governance sketch of the CDM based on the empirical conclusions of the thesis, it is now relevant to look at what the concepts of the conceptual scheme and their relations mean for the principles of robust governance of Dietz, Ostrom and Stern.

The organisation of the implementation of the CDM in Argentina is an example of GEG because it is driven by the resolution of the environmental problem of climate change. As it has been clarified in the introduction to this thesis climate change is a problem characterised by its transboundary and complex nature, which makes any attempt of resolving it a complex enterprise. Therefore, I have assumed that the principles presented by Dietz, Ostrom and Stern will facilitate a robust governance of the way in which the implementation or CDM is organised in Argentina, which will guarantee a robust governance of the global atmosphere, as far as the CDM is concerned. In order to explore this assumption I have performed an exploration of how the CDM performs in these principles, and from this exploration I have concluded that it can be said that sometimes there is low performance. Now I would like to present what this conclusion means for the three particular principles.

**Analytic Deliberation** – We have seen that global stakeholders have the capacity of blocking or stimulating the participation of community local stakeholders in the consultation process. Also, they have the most power when it comes to deciding which are be the *ex ante* goals of the projects. This means that the process of analytic deliberation has had limitations regarding the dialogue between community local stakeholders and stakeholders belonging to different scale levels. We have seen that these difficulties are often rooted in past unsolved conflicts between
stakeholders, and the presence of more urgent problems that monopolise the attention of community local stakeholders. In some cases knowledge present at the community level has been ignored, which in turn might have consequences for the effective governance of how much GHGs are poured into the atmosphere. Besides confirming that Dietz, Ostrom and Stern are on the right track when proposing such a principle, this conclusion shows that in order to achieve fully performance of the principle of analytic deliberation, existing and ongoing conflicts not inherent to the environmental resource at stake itself, should be properly dealt with. Otherwise, the very principle of analytic deliberation will not generate trust and consensus, and in the worst of the cases could generate distrust and more disagreement. In a way, we could argue that this process could be renamed into: process of ‘contextual’ analytic deliberation. The prescription here would not only be: organise a well-structured dialogue and share transparent information between all the relevant parties, but would also include: take into account the importance of unresolved conflicts between interested parties. This way, the importance of these conflicts for the generation of trust and consensus could be assessed and dispute settling procedures could be adopted.

**Nesting** – Decision and decision influencing power is multi-layered, but it is mainly nested on the global level. The policies and procedures of the CDM are designed at the global level. Moreover, most of the parties taking place in the organisation of is implementation belong also to this level. In short, most of the power is nested at the global level. We have seen that because of this reason, some kind of relation can be established between being global and establishing a system in which global stakeholders have the most power and decision influencing power. This shows a rather low performance in the principle of nesting, since this principle suggest that power should be distributed among the different layers of the administrative ladder. The theoretical implications of this are the following: ambitious mitigation goals have been established and the technical monitoring of the achievement of these goals report positive conclusions. Therefore, emissions of GHEs are being reduced and the tackling of climate change is being realised. The question is to what extent is it necessary to have a higher performance in the principle of nesting for managing the resource at stake effectively. In this thesis we have seen that even though there has been a low performance in this principle, ambitious mitigation goals have been established and are being accomplished. Although there has been criticism by Ambiente Sur, who would prefer to achieve mitigations by other means, it is clear that climate change is being tackled. It is therefore unnecessary to search for a high performance in this principle in every management situation. An assessment of the relevance of the knowledge that the different interested parties possess should be done in order to establish how power and decision making power is nested. If we look at the way sustainable development goals have been established, we can come to the same conclusion. While mitigation goals have been ambitiously established and accurately achieved, the delivery of sustainable development goals has been more problematic. In this case an assessment of the knowledge present at the local level, and a subsequent allocation of authority at the community level regarding this issue could have delivered more ambitious sustainable development goals, which would have pleased some displeased community stakeholders. Therefore, it can be argued that the principle of nesting could be renamed into the principle of ‘weighted’ nesting, in which everybody’s knowledge is weighted and taken into consideration before authority is allocated at the different levels of the administrative scale.

**Institutional variety** – The collected data about this principle has not been sufficient to see any relation between the influence of the stakeholder’s characteristics on the variety of institutions that govern the CDM in Argentina, their governmental or non governmental character, and their formal or informal character. We have also seen that the policies and procedures of the CDM are the main institution that determines the interaction between stakeholders. These policies and
procedures allow a certain degree of institutional freedom which results in the use of a varied pattern of institutions: direct communication between stakeholders, formal contractual agreements between market- and state-oriented actors, or trust relationships between stakeholders. According to the theory, institutional variety will increase the chances of rule compliance because evading multiple rules is more difficult than evading single type rules. In this research I have not looked at the variety of institutions in the light of what this principle means for enforcing rule compliance, but more in the light of how institutional variety delivers more or less sophisticated \textit{ex ante} outcomes. Therefore I can only draw similar theoretical conclusions than the ones I have drawn for the principle of nesting. Even though there has not been much institutional variety, ambitious mitigation goals have been established and are being achieved, which suggest that regarding this issue, a high performance in this principle is not always necessary. However, the established sustainable development outcomes have been less ambitious, which would suggest that a higher performance would increase the sophistication of these goals. Thus, questions could be raised about how much institutional variety is necessary to deliver robust governance. Unfortunately, my empirical conclusions do not allow me to suggest any ways expanding the principle of institutional variety in the same way that I have suggested theoretical expansions of the other two principles.

8.4 Recommendations and final reflections

After these theoretical considerations, with all their virtues and limitations, I consider that the main theoretical goals of this research have been successfully accomplished. These are making the empirical findings of the two cases studies generalisable to theoretical propositions and expanding these same theoretical prepositions. In other words: achieving a certain degree of analytic generalisation. In this last section of this chapter and of this thesis I will first make some research and policy recommendations and then I will conclude with some final reflections.

8.4.1 Recommendations

The whole research experience and the empirical and theoretical conclusions that I have drawn allow me the possibility to give some recommendations in the realm of future research on the CDM and on the policy realm.

Research - As I said in the introduction to this thesis, this research is academic significant because it offers relevant insights on place specific developments about the formation of decisions around sustainable development. After doing this research I can build on this scientific relevance in a more specific manner and I can identify where research should be done if more and better knowledge about this issue is to be generated. We have seen that the local context in which CDM is implemented depends very much on the local stakeholders involved and in the history behind them, as well as on characteristics that have not been really explored in this thesis such as their socioeconomic or educational status. Furthermore, the process of consultation of every project is the stage where the most multilevel interaction between stakeholders occurs. Therefore I would recommend researchers on the CDM, and especially human geographers, to focus their research efforts on the local context in which CDM projects are implemented and pay special attention to (a) the historical events that have turned different actors into stakeholders of a particular project, (b) a broader set of stakeholders’ characteristics than the ones studied in this thesis, and (c) the course of the consultation process. In this last respect it can be desirable and useful to be a direct witness of the consultation instead of asking respondents to reconstruct the past, as I have done in the present research. Focusing research on these matters will deliver high quality insights about the role that place specific characteristics play on the governance process that determines the practice of achieving sustainable development.
**Policy** - Out of the answers to the research questions, the empirical and theoretical conclusions of this thesis, and my fieldwork experiences I can formulate the following policy recommendations.

Provided that the goals of the CDM are achieving mitigation and contributing in achieving sustainable development in the host countries, and provided that in some cases we have seen that the way interaction between stakeholders is structured might reduce the establishment of ambitious goals, the next policy actions can be useful:

- Require direct (face to face) dialogue between the DOE(s) who perform the project validations and the local community stakeholders of the projects. This way, DOE(s) will acquire first hand direct information about these stakeholders’ perceptions of the projects, which will avoid any information filtering actions by project developers.

- Require a binding arrangement agreement between local community stakeholders and project developers. This binding agreement should regulate how the outcomes of the consultation process are handled, which would generate trust between all these stakeholders and would increase the chances of succeeding in achieving high quality and consensual mitigation and sustainable development goals.

- Require official monitoring of the achievement of the sustainable development goals that projects should deliver. Given the successful achievement of mitigation goals, which go through a process of monitoring by the project developers and of verification by a DOE, sustainable development goals should experience the same treatment. In such a way, chances of success in this respect would be increased.

**8.4.2 Final reflections**

I would like to conclude this thesis with the presentation of a couple of personal reflections about the CDM in general. In the course of the thesis I have tried to stick to the scientific methodology and detach myself from the events and stories which have been narrated. It is very well possible that these last lines are not as detached as the rest of the work.

In the first place I would like to tell a short anecdote that will give strength to the general reflection on the CDM that will be presented afterwards (see next box).

**Lex de Jonge** - On Wednesday 31 October 2007 I attended a political debate in The Hague organised by the Dutch NGO Both Ends. The topic of discussion was carbon trading and particularly the CDM. Different people from different organisations such as the Transnational Institute or ECT Energy participated in the debate. But the most interesting person taking part in the discussion was Lex de Jonge, Head of the CDM Division of the Dutch Ministry of Housing, Spatial Planning and the Environment (VROM), and member of the Dutch delegation that went to the last COP in Bali. This was an occasion that I just could not miss, not only because this topic was extremely relevant for my thesis, but also because Lex de Jonge is the VROM respondent that I did not manage to get during my fieldwork. In the course of the discussion we had some disagreements when talking about the sustainable development that projects should deliver and the role of intermediaries. While I confronted him with stories of Villa Domínico, where the comments of community stakeholders regarding sustainable development have been almost literally ignored by the IFC, he fiercely defended the use of intermediaries and the trust that VROM has on the IFC because of the high sustainable development criteria applied by this organisation when choosing in which projects the Netherlands should be involved. Agreement on something came later in the discussion. I told him about my fieldwork experiences and about how some community stakeholders had the feeling that the implementation of the CDM and the principle of additionality are blocking the development of local environmental legislation in host countries. I was surprised to hear him say: “You are completely right”. He went own saying that this is one pervasive effect of the mechanism.
Global Environmental Governance and the CDM

Having told this anecdote, I think that one of the things that make the CDM controversial is the principle of additionality. Even though there are written methodologies that must be followed by project developers in order to provide evidence of the additionality of the projects, it is still very difficult to make estimations about what the emission scenario would be in the absence of a project. You just cannot predict a parallel future, and the CDM is a mechanism based on the expectance that a worst case scenario would otherwise occur, but what if it did not? The clearest example of this in the projects that I have studied is the requirement of the absence of a legal framework for capturing gases coming from sanitary landfill. This requirement can create a potential worst case scenario of another kind: it can be possible that countries eligible for hosting CDM projects are reluctant to develop environmental legislation in order to attract CDM projects. But, what if the CDM projects do not come? For example, is Argentina waiting for a CDM project for every sanitary landfill of the country? If this is the case, local environmental problems are being created in landfills without a CDM project, and tonnes of methane are contributing to climate change. Wouldn’t it be better to regulate capture in order to avoid local environmental problems and also mitigate climate change? In short, there is a potential pervasiveness of the CDM that might negatively affect environmental sustainability at the local level, might increase emissions of GHGs from other sources, and might even prevent institution building in host countries, which has come to be seen as an important matter when trying to achieve sustainable development.

However, the CDM, with all its virtues and limitations, is alive and kicking. In two years, the amount of CDM projects has become twelve times bigger and mitigation activities are being organised in places where they originally would not take place. Moreover, the CDM is aimed at contributing to sustainable development. In this thesis we have seen that these two goals are being met, but we have also seen that the process of achieving those falls sometimes a bit short because of existing conflicts between stakeholders and the way in which power is structured within the mechanism. It must be said that CDM projects fall much shorter in achieving sustainable development than in achieving mitigation, which makes me ask myself to what extent sustainable development efforts should be done. Besides, in the real world of the development cooperation, donor countries, official development agencies, and NGOs have literally replaced the implementation project-based activities as a development practise, by a sectoral approach. This has been the result of more than half a century of rather disappointing outcomes based on project-based development. Should the CDM also turn sectoral? Should the CDM drop the sustainable development goal? These are questions that should be answered in future climate negotiations.

My opinion is that the CDM should not lose its focus on mitigation because of the obstinate will of making sustainable development figure as goal as well. The CDM should maximise mitigation and ensure that it does not bring any pervasive effects at all. Once this is realised, decisions can be made about what sustainable development specific projects should deliver. A process of consultation in the form of ‘contextual’ analytic deliberation and the allocation of authority in the form of ‘weighted’ nesting are tools which stakeholders have at their disposal and which should be fully utilised to achieve all the goals of the CDM. This way, a strong organisation of the management of the emissions that are released into the global atmosphere will be achieved. In other words, a robust governance of a global environmental resource will be then guaranteed.
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Appendix I

Semi-structured interviews with key respondents and topics used to categorise stakeholders

The specificity of the information that the different stakeholders have, has made the design of a single interview not possible. However, during the interviews I included fixed set of relevant items, which have also been employed in the document review. Obviously, some of these topics were not relevant for certain stakeholders. In those cases I skipped them.

- What kind of organisation they represent
- Goals of this organisation
- How they become acquainted with the CDM
- How they become acquainted with the specific projects in which they are involved
- Amount of projects in which they are involved
- Location
- Tasks they perform in the concerning project
- Input in the consultation process
- Perception of the consultation process
- Planned actions if other stakeholders fail to perform their tasks
- Aspect in their relation with other stakeholders which could have been improved.
- Knowledge about the goals of the project
- Input in establishing the goals of the project
- Perception of the sustainable development goals projects should meet
- Perception of the actual achievement of these goals
### Appendix II

**Data Matrix:**

<table>
<thead>
<tr>
<th>Stakeholders characteristics</th>
<th>Governance process</th>
<th>Ex Ante outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>- Dutch Ministry of Housing, Spatial Planning and the Environment:</strong> Dutch DNA and CER buyer</td>
<td>Involved in 93 projects worldwide / VROM has agreed to buy the CERs from the project</td>
<td>Contractual Agreement with IFC / no interaction with other stakeholders</td>
</tr>
<tr>
<td><strong>- Oficina Argentina para el Mecanismo de Desarrollo Limpio:</strong> Argentina DNA</td>
<td>Involved in all the projects nationwide / evaluation of the project by relevant economic sectors / coordination with provincial administration / evaluation of compliance with national regulation / evaluation of contribution to sustainable development / granting or denying approval</td>
<td>No participation in the consultation of this specific projects, but they do participate in consultations sometimes / application of national legislation to projects</td>
</tr>
<tr>
<td><strong>- International Finance Corporation:</strong> Intermediary, trustee of the Netherlands</td>
<td>Identified negative environmental impacts / interaction with Van Der Wiel / Take part in one meeting (informant) / sent letter back to community stakeholders</td>
<td>sustainable investment / solve air pollution problem / own project selection sustainability criteria / actual selection based on information by Van Der Wiel</td>
</tr>
<tr>
<td><strong>- Van der Wiel Stortgas B.V:</strong> Project Developer</td>
<td>&quot;We zijn de uitvoerende taak van de kyoto protocol&quot; / PDD: design, finance, organising public consultation / Benefit from CER sale</td>
<td>They have organised the meetings: difficult because some parties are structurally against CEAMSE / The play an informative role during the meetings (technical aspects) / Lack of mutual trust with CEAMSE &quot;er wordt veel gesproken en weinig gedaan&quot; /Bureaucracy makes the process to long: OAMDL takes to long, and complying policies and procedures also.</td>
</tr>
<tr>
<td><strong>- CEAMSE:</strong> Coordinación Ecológica Area Metropolitana Sociedad del Estado (Owner of the sanitary landfills)</td>
<td>Involved in 4 projects / Contract closing/contact with community / monitoring the landfill / Benefit from CER sale</td>
<td>competitive bid / trust based on economic benefit / opinion note / open doors to community / contracts with project developers on how many CERs or other benefit go to CEAMSE</td>
</tr>
<tr>
<td><strong>- DNV:</strong> Det Norske Veritas (Environmental consultant who has performed the validation)</td>
<td>Involved in 1320 projects worldwide / performs validation of the two CDMs / site visits / interviews with project developer / document</td>
<td>No participation in the consultation of projects /Interaction with project developers and CDM Executive Board / validation contract / make internet site</td>
</tr>
<tr>
<td>Organization</td>
<td>Stakeholders</td>
<td>Participation</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>---------------</td>
</tr>
<tr>
<td><strong>Ambiente Sur</strong></td>
<td>stakeholder consulted by the project developer</td>
<td>Involved in the project of Villa Domínico / participates as a local stakeholder in the consultation</td>
</tr>
<tr>
<td><strong>Provincial government of Buenos Aires</strong></td>
<td>Related to the projects implemented in the whole AMBA / formulates and enforces (in theory) provincial environmental regulation</td>
<td>No participation in the consultation / building links with the OAMDL</td>
</tr>
<tr>
<td><strong>SGS: Société Générale de Surveillance</strong></td>
<td>Environmental consultant who has carried out the verification and certification</td>
<td>Involved in hundreds of projects world wide / performs verification of the reductions of emissions / periodic site visits / request issuance to CDM Executive Board</td>
</tr>
<tr>
<td><strong>Aira.Biz: Project Developer</strong></td>
<td>Joint venture between Italian and Argentine company / involved in more projects around the world / organises consultation, finances and implements the project of Norte III</td>
<td>Wins competitive bid / Identifies stakeholders / organises meetings with different interested sectors / sells credits to an undefined buyer / performs an EIA / Establishes ex ante outcomes (see PDD) / verifies there are no environmental pervasive effects with an EIA / seeks harmony with national legislation</td>
</tr>
<tr>
<td><strong>Local CBO: representative of one of the local organizations present during the informational meetings</strong></td>
<td>Involved in the project of Norte III / participates in the consultation (explanatory meetings organised by Aria.Biz)</td>
<td>No comments during consultation / dominated by urgent poverty issues / conflict with CEAMSE / limited attention to project / limited knowledge about it</td>
</tr>
<tr>
<td><strong>Municipality of San Martin</strong></td>
<td>Involved in the project of Norte III / participates in the consultation (explanatory meetings organised by Aria.Biz)</td>
<td>No comments during consultation / sees everything as a formality / no jurisdiction on the landfills / it has more urgent problems to solve</td>
</tr>
<tr>
<td><strong>Clarin and Cronista Comercial: national and local newspapers</strong></td>
<td>Inform to their readers / report about the implementation of the projects in the AMBA</td>
<td>Used by project developer for the PDD / thus no active input in the consultation</td>
</tr>
</tbody>
</table>
Appendix III

1. Summary of Project Information regarding the Villa Dominico Project, by the IFC

This Summary of Project Information is prepared and distributed to the public in advance of the IFC Board of Directors’ consideration of the proposed transaction. Its purpose is to enhance the transparency of IFC’s activities, and this document should not be construed as presuming the outcome of the Board decision. Board dates are estimates only.

<table>
<thead>
<tr>
<th>Project number</th>
<th>521478</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project name</td>
<td>INCaF Villa Dominico</td>
</tr>
<tr>
<td>Country</td>
<td>Argentina</td>
</tr>
<tr>
<td>Sector</td>
<td>Other (For Non-Investment Projects)</td>
</tr>
<tr>
<td>Department</td>
<td>Environment &amp; Social Development</td>
</tr>
<tr>
<td>Company name</td>
<td>Van der Weil</td>
</tr>
<tr>
<td>Environmental category</td>
<td>B</td>
</tr>
<tr>
<td>Date SPI disclosed</td>
<td>March 13, 2006</td>
</tr>
<tr>
<td>Projected board date</td>
<td>April 13, 2006</td>
</tr>
<tr>
<td>Status</td>
<td>Non-Invest Proj</td>
</tr>
</tbody>
</table>

Description of company and purpose of project
Van der Wiel Stortgas b.v (VWS) business focuses on consulting, soil remediation/clean up, collection and re-use of waste, landfill gas extraction, landfill gas utilization project development and operation, and treatment of landfill leachate and contaminated groundwater. VWS is owned by Van der Wiel Holding b.v. (VWH), which is based in Drachten, the Netherlands.

VWS is developing a landfill gas (LFG) collection and flaring project at the Villa Dominico landfill in Buenos Aires, Argentina. The project collects LFG through pipes that are (being) installed in the landfill, LFG extraction using blowers, and LFG flaring. The project is being implemented in phases, with the first phase becoming operational in the 3rd quarter of 2005. The project is expected to reduce emissions from the landfill by up to 5.3 M tonnes of carbon dioxide equivalent (CO2e) in the form of Certified Emission Reductions (CERs) under the Clean Development Mechanism (CDM) of the Kyoto Protocol by the end of 2012. However, high volumes of leachate in the landfill are expected to limit the overall volume of CERs that will be generated to less than 3 M.

The first two stages of the project are designed to deliver more than the volume needed to satisfy the delivery requirements under an emission reduction purchase agreement with the IFC-Netherlands Carbon Facility (INCaF). A surplus will be generated for contingency purposes and/or for sale to other buyers. Subsequent phases will be installed to generate and sell additional CERs to other buyers. INCaF will be the senior buyer until the INCaF contract commitments have been satisfied. VWS and CEAMSE, the landfill owner, will assess the economic feasibility of removing leachate with a view to increasing gas collection. VWS may also install an optional facility to use gas to generate electricity for on-site use.

Project sponsor and major shareholders of project company
The project sponsor is VWS, a subsidiary of VWH, based in Drachten, the Netherlands. VWH was founded in 1954 by two brothers, Mr. Evert van der Wiel and Mr. Klaas van der Wiel. While the brothers still jointly own the company, they have retired from business. VWH has three main operating companies, and owns shares in more than 20 other businesses that complement VWH’s core businesses in logistics and transport, civil infrastructure construction management and contracting, construction materials (aggregate, commodities) supply, and environmental technology. VWH’s environmental technology business, VWS, has more than 18 years experience with LFG and related activities. VWS has developed more than 100 LFG extraction systems world wide, and operates some joint venture projects on behalf of VWH, or VWH companies, and other partners.

Total project cost and proposed IFC investment
The INCaF contract value is greater than USD 6 M, which will be paid over 8 years upon the verification, certification, issuance and delivery of CERs to the CDM registry account of the State of the Netherlands.

Location of project and description of site
The landfill gas project is located near the southern suburbs of Buenos Aires in the District of Avellaneda, Province of Buenos Aires, Argentina. The site is bordered by the Santo Domingo Channel to the north, Tomas Espora Avenue to the south, the Rio de la Plata River to the east, and the West Buenos Aires-La Plata Highway to the west. The landfill is owned by Coordinacion Ecologica Area Metropolitana Sociedad del Estado (CEAMSE), a government entity responsible for waste management in the Buenos Aires region. The landfill accepted municipal solid waste from the greater Buenos Aires area between 1978 and 2004. The landfill holds 47,000,000 metric tonnes of waste in 27 modules in an area of almost 298 hectares with an estimated average depth of approximately 15 m. No flaring of landfill gas occurred on the site prior to the initiation of a pilot test project by VDWS in mid-2004. The landfill gas collection system consisting of vertical and horizontal wells and pipes is being installed in phases; start-up of Phase 1 occurred in September 2005. The project is expected to eventually cover a majority of the landfill. Gas will be piped to the flare facility. The gas extraction facility will cover 204 square meters, while the flare will cover 16 square meters.

**Project Development Impact and IFC’s Role**

This project is expected to have a high development impact:

First, with this project, IFC’s experience and knowledge in evaluating and financing private sector projects in developing countries is being brought to bear to structure contracts that minimize the risks associated with delivery of CERs from projects. Second, the sale of CERs from the Villa Dominico project provides support for VWS’ entry into the emerging market to develop emission reductions projects in developing countries. The project also reduces local air pollution (including methane, volatile organic compounds and hazardous air pollutants) in an area with a heavy concentration of industry.

Overall, IFC’s goal is to encourage private sector participation in the carbon market by providing value-added services to support the long-term sustainability of projects in emerging markets. As a global investor and advisor committed to developing a sustainable private sector in emerging markets, IFC is well positioned to assist project sponsors to participate in the rapidly growing market for ‘carbon credits’. Using its experience, IFC is collaborating with private sector entities to design, launch and manage products and services that promote the private sector’s participation in the market, including to guarantee delivery of CERs and to facilitate engagement of financial institutions in the carbon market.

**Environmental and social issues - Category B**

This is a Category B project according to IFC’s Procedure for Environmental and Social Review of Projects because a limited number of specific environmental and social impacts may result which can be avoided or mitigated by adhering to generally recognized performance standards, guidelines or design criteria. The review of this project consisted of appraising technical and environmental /social information submitted by the project sponsor. The following potential environment, health and safety and social impacts of the projects were analyzed:

- Corporate capacity in environmental and social areas
- Land acquisition for project facilities
- Leachate pollution
- Odor and nuisance
- Occupational health and safety

The sponsor has presented plans to address these impacts to ensure that the proposed project will, upon implementation of the specific agreed measures, comply with the environmental and social requirements - the host country laws and regulations and the World Bank/IFC environment and social policies and the environmental, health and safety guidelines. The review team, which visited the site, has also concluded that the project will have a positive effect in the surrounding environment. The Environmental Review Summary (ERS), which has been made available to the public, provides detailed information about management of environmental and social issues.
2. Environmental Review Summary of the Villa Domínico Project, by the IFC

This Environmental Review Summary is prepared and distributed in advance of the IFC Board of Directors’ consideration of the proposed transaction. Its purpose is to enhance the transparency of IFC’s activities, and this document should not be construed as presuming the outcome of the Board of Director’s decision. Board dates are estimates only.

Any documentation which is attached to this Environmental Review Summary has been prepared by the project sponsor and authorization has been given for public release. IFC has reviewed this documentation and considers that it is of adequate quality to be released to the public but does not endorse the content.

**Project number** 521478  
**Project name** INCaF Villa Dominico  
**Country** Argentina  
**Sector** Other (For Non-Investment Projects)  
**Department** Environment & Social Development  
**Company name** Van der Weil  
**Environmental category** B  
**Date ERS disclosed** March 13, 2006  
**Status** Non-Invest Proj

**Project description**
CEAMSE operates/manages a landfill located near the southern suburbs of Buenos Aires. The landfill contains approximately 47,000,000 tonnes of municipal waste in an area of about 298 hectares. It is partially covered with a layer of clay.

Van der Wiel Stortgas, VDWS, will install a gas collection and flaring system at the landfill in order to reduce emissions of greenhouse gases from the landfill to the atmosphere. The following equipment will be installed: a gas collection network, comprising permeable vertical pipes and horizontal gas drain mats; blowers to draw the gas to the flare, at least one high temperature gas flares; biogas monitoring and control equipment; civil works; possibly one or more gas engines with gas cleaning equipment (optional); electrical connections and back supply systems to the public grid; telemetric and other.

The gas collection system will include a network of approximately vertical and horizontal gas extraction and collection wells, dewatering units to remove condensate, and several thousand meters of HDPE pipelines. The control activities for this system consist of periodic adjusting of the gas wells based on outputs from regular monitoring / measuring equipment that track gas flow, methane content and oxygen content among other parameters. Local operators, of Van der Wiel’s subsidiary company Van der Wiel Argentina SA, will be trained to install the equipment. Maintenance will include control of subsiding and/or distortion of gas wells and the pipeline system by local companies.

The gas extraction equipment includes blowers to create a suction to extract the LFG. Once extracted, the LFG will be flared in a ‘low emission’ with high temperature flare (min. 900°C, retention time > 0.3 s). Local personnel, of Van der Wiel’s subsidiary company Van der Wiel Argentina SA, will be trained to install the extraction equipment, and they will have access to the telephone helpdesk of Van der Wiel Stortgas to obtain technical support. Van der Wiel Stortgas experts will undertake maintenance every 6 months.

The plant will have an electrical control system equipped to monitor methane, oxygen, flow, pressure and temperature.

**Environmental Category B disclosure requirements**
IFC requires that this document is made available through the World Bank InfoShop and to the locally affected community no less than 30 days prior to project consideration by the IFC Board of Directors.

The Summary of Project Information (SPI) also provides details of where the ERS has been made available to the locally affected community. The SPI must be sent to World Bank InfoShop no less than 30 days prior to project consideration by the IFC Board of Directors.

To view the Summary of Project Information(SPI) for this project, [click here](#)
Appendices

Environmental and social issues
This is a Category B project according to IFC’s Procedure for Environmental and Social Review of Projects because a limited number of specific environmental and social impacts may result which can be avoided or mitigated by adhering to generally recognized performance standards, guidelines or design criteria. The review of this project consisted of appraising technical and environmental/social information submitted by the project sponsor. The following potential environment, health and safety and social impacts of the projects were analyzed:

- Corporate capacity in environmental and social areas
- Land acquisition for project facilities
- Leachate pollution
- Odor and nuisance
- Occupational health and safety

Proposed mitigation for environmental and social issues
The sponsor has presented plans to address these impacts to ensure that the proposed project will upon implementation of the specific agreed measures, comply with the environmental and social requirements - the host country laws and regulations and the World Bank/IFC environment and social policies and the environmental, health and safety guidelines. The information about how these potential impacts will be addressed by the sponsor/project is summarized in the paragraphs that follow. Further information is provided in the attached documentation.

- Corporate capacity in environmental and social areas. Both Van der Wiel and CEAMSE have adequate capacity and commitment for managing environmental and social matters. In fact, the INCaF project has the objective of collecting gas for energy production and flaring thereby reducing greenhouse emissions into the atmosphere.

- Land acquisition for project facilities. The INCaF-supported facility will have no land acquisition requirements.

- Leachate management. The landfill is an old landfill and has experience problems with leachate management. Leachate management is the responsibility of CEAMSE, although Van der Wiel will take on partial responsibility for leachate management.

- Odor and nuisance. Given the design of the sanitary landfill odor and other nuisance are kept to a minimum. Gas collection and use for energy generation and flaring produce no odor or nuisance.

- Occupational health and safety. CEAMSE operates the landfill with adequate attention to the health and safety of the worker.

Both CEAMSE and Van der Wiel have committed to comply with all applicable Argentinean environmental, health, safety and social regulations, as well as IFC requirements.

Conclusion
Accordingly, IFC concludes that the proposed project will meet the applicable World Bank/IFC environment and social policies and the environmental, health and safety guidelines.

Monitoring and compliance
IFC will evaluate the project’s compliance with the applicable environmental and social requirements during the lifetime of the project by reviewing the annual monitoring reports (AMRs) prepared for the project covering ongoing performance of project-specific environmental, health and safety and social activities as reflected in the results of periodic and quantitative sampling and measuring programs. Periodic site supervision visits will also be conducted as appropriate.

Environmental and Social Documentation
This ERS contains the full environmental and social documentation prepared for the project.
Appendix IV

1. Connected stakeholders in the Villa Domínico project

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1 = stakeholders have interacted  
0 = stakeholders have not interacted

2. Attributes of the stakeholders of the Villa Domínico project

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Scale level: 1 = global, 2 = national, 3 = local  
Perspective of involvement: 1 = organisational, 2 = regulatory, 3 = community

136
### 3. Connected stakeholders in the Norte III project

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1 = stakeholders have interacted  
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### 4. Attributes of the stakeholders of the Villa Dominico project

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Scale level: 1 = global, 2 = national, 3 = local  
Perspective of involvement: 1 = organisational, 2 = regulatory, 3 = community, 4 = Press
Appendix V

- Letter of the Civil Association Ambiente Sur to the OAMDL and Van der Wiel regarding the implementation of the CDM project of Villa Domínico.

- Letter of different CBOS of Avellaneda and Quilmes to Van der Wiel regarding the implementation of the CDM project of Villa Domínico (endorsed by Ambiente Sur).

- Excerpts of the meeting reports of the fourth, and fifth meetings of the Executive Board of the OAMDL.
21 de abril de 2004

Lic. Nazarena Castillo
Coordinador
Oficina Argentina del Mecanismo para el Desarrollo Limpio
Secretaría de Ambiente y Desarrollo Sostenible.

S/D

Asunto: Van der Veldt Stortgas BV y CERAMSE. Proyecto de venta de certificados de reducción de emisiones (CERES) por quema de gáner en basural de CERAMSE en Villa Dominico, Argentina.

La presente comunicación tiene como propósito comunicar nuestra preocupación por lo que no ha sido informado como una presentación ante la Oficina Argentina del Mecanismo para el Desarrollo Limpio (GAMDES) del proyecto de referencia.

Van der Veldt Stortgas se ha asociado a CERAMSE para intentar comercializar CERES a partir de la quema de gáner en el basural Villa Dominico, en el centro de Distribución Final de Gáner de la provincia de Buenos Aires. El proyecto en cuestión es inviable por tratarse de una emisión contaminante, no sustentable y con serias dudas sobre la legitimidad de la adquisición que se pretende adjudicar.

Antecedentes

El basural de CERAMSE, conocido como Centro de Distribución Final Villa Dominico (el basural) no es un relleno sanitario. A pesar de la ausencia histórica de tratamiento de los gases que emite, se suma la contaminación de aguas subterráneas y superficiales, y la falta de colección y tratamiento de los líquidos lixiviados. La problemática que se presenta es que el 31 de enero de 2004 por presión de público y ONGs de la zona, está resuelta en el pedido de intervención del Gobierno Nacional presentado por esta Asociación el 23 de julio de 2002. En este pedido, cuya copia se adjunta, se solicita a la Secretaría de Ambiente y Desarrollo Sostenible (SADYS), de la cual depende la GAMDES, su intervención a fin de realizar un diagnóstico integral de la situación del basural y los recursos naturales afectados y el estudio de remediaciòn correspondiente. El expediente de la SADYS en el Nro. 70-00668/2003. A casi dos años de esta solicitud no ha habido respuesta de la agencia responsable del Gobierno Nacional. Esto a pesar de haberse ratificado su incumbencia y necesidad de intervención por parte de la Cámara de Diputados de la Nación el 13 de septiembre de 2002 (exp. del Congreso Nro. 5807-D-02) y de la Sindicatura General de la Nación (SIGEN) el 2 de mayo de 2003 (exp. SIGEN Nro. 9/2003). Cabe recordar que el actual Secretario de la SADYS, Sr. latino Savino, fue Secretario General del directorio de CERAMSE entre 1992 y 2003.

La situación actual del basural está caracterizada por contaminación grave de los recursos naturales y falta de...
Appendices

de las jurisdicciones responsables, fundamentalmente Provincia de Buenos Aires y Nación. El manejo de CEMSE de este desastre ambiental dio lugar a innumerables denuncias tanto administrativas como periodísticas, y resultó también en acciones judiciales de tipo penal y civil que actualmente se están tramitando en tribunales de Buenos Aires (Capital Federal), Quilmes y Lomas de Zamora. Las causas judiciales incluyen contaminación, defraudación e incumplimiento de deberes de funcionario público.

Contaminación e insustentabilidad

La ausencia de un diagnóstico comprehensivo y creíble de la situación impide que el proyecto de Van der Wiel-CERASE pueda ser relacionado a alguna actividad de remediación, ni mucho menos considerado una actividad de remediación.

Las organizaciones no gubernamentales (ONGs) de la zona ya han expuesto ante Van der Wiel su oposición al proyecto en las actuales condiciones, y señalado groseros errores y simplificaciones en la presentación y justificación del proyecto. En el documento presentado ante Van der Wiel el 2 de febrero de 2004, cuya copia se adjunta, las organizaciones de la comunidad critican entre otras cosas el falseamiento y ocultamiento evidentes en cuanto a la composición de los gases del relleno, el ignorar el problema de los lixiviados y la contaminación de acuíferos, y la falta de una evaluación de impacto ambiental con participación de entidades de la comunidad.

A la gravedad que implica una situación de contaminación y degradación no estudiada ni atendida se agrega el hecho aún más grave de que, en la forma planteadá, el proyecto de Van der Wiel-CERASE requiere en algunos aspectos la continuidad de esta situación. De esta forma el proyecto sería un impedimento para el análisis y remediación adecuada del basural y sus efectos.

Esto es evidente en la necesidad del proyecto de no solucionar el problema de los líquidos lixiviados. En efecto, una característica de la grave situación actual del basural es la carencia de un sistema de coleción de líquidos lixiviados y por consiguiente la imposibilidad de tratar esos líquidos. El basural tiene en la actualidad algo que CERASE llama "planta de tratamiento" de lixiviados, cuya única función es aparentemente crear la imagen de que este problema se está atendiendo. La inutilidad absoluta de esta planta, que sólo trata líquidos recogidos esporádicamente de zanjas periféricas donde sólo debería encontrarse agua de lluvia, se describe en la página 3 de la presentación del 23 de julio de 2002 ante la SAVUS, ya mencionada y la cual se adjunta. El proyecto Van der Wiel-CERASE, tal cual fue explicado por técnicos de Van der Wiel ante esta Asociación y tal cual se expone en su descripción técnica, está basado en una "alta calidad del gas del vertedero" que está dada por una "concentración de metano elevada", que actualmente es del 53% en volumen. Cualquier actividad de remediación orientada a extraer la mayor cantidad posible de lixiviados del relleno para su tratamiento y adecuada disposición atenta contra lo que Van der Wiel llama "calidad del gas del relleno", al reducir la descomposición anaeróbica de los residuos, reducir la producción de metano y aumentar proporcionalmente...
producción de dióxido de carbono. De hecho el proyecto busca mantener los lixiviados a más de 3,5 m de la superficie de las montañas de basura del relleno (que en partes superan los 20 metros de altura) sólo a fin de evitar que se lindan las cabezas de los tubos colectores de gas, pero necesita de una alta concentración de lixiviados en el relleno en general por las razones citadas.

Por supuesto en este proceso, que requiere una extracción muy limitada de lixiviados, muchos pueden confundirse pensando que la extracción y tratamiento que se hará de estos líquidos está en función del objetivo de solucionar el problema de los lixiviados (y de la contaminación de aguas y acuíferos) en el basural. Obviamente no lo está.

Lo paradójico de esta situación es que aparentemente nadie ha hecho un análisis sobre la forma en que una apropiada remediación de este y otros basurales podría asimismo reducir significativamente la producción de gases efecto invernadero. Una remediación integral atendiendo la problemática de los lixiviados (sin descartar la quema de gases) resultaría en la reducción de la descomposición anáeróbica, el aumento de los procesos aeróbicos en los rellenos, la reducción de la producción de metano (y loa no metánicos orgánicos cancerígenos como el benceno) y el incremento proporcional de la producción de dióxido de carbono que tendría un impacto veinte veces menor que el metano sobre el calentamiento global. En oposición, proyectos como el de Van der Wiel-CEAMSE aseguran la continuidad de rellenos no remediados como verdaderas "fábricas de metano" (y gases cancerígenos) y pretenden vender CERS en el proceso. El a sero se agrega que difícilmente estos proyectos alcancen a tratar el 50% de los gases que emite cada sitio, la conclusión es que son proyectos ambientalmente negativos, no sólo en términos generales sino también en lo referente particularmente a su impacto sobre el calentamiento global.

Falsa adicionalidad

Resulta claro que el diagnóstico y remediación adecuados del basural de CEAMSE en Villa Damián deben realizarse en forma integral, y que cualquier proyecto de quema o reducción de gases debe ser una parte de dicha remediación y planeado en conexión con el resto de las actividades. Todo proyecto diseñado y ejecutado en forma separada de este diagnóstico y remediación implicará el riesgo de conducir a los impactos negativos ya señalados para el proyecto Van der Wiel-CEAMSE, y por lo mismo no puede significar ninguna adicionalidad ambiental positiva.

Es de destacar además que el basural en cuestión es adyacente a un área densamente poblada, donde se ha manifestado una alta incidencia de enfermedades respiratorias y de la piel, así como tasas de leucemia juvenil y muertes por esta enfermedad varias veces superiores a las consideradas normales, factores todos ellos que se han relacionado al basural. Varios documentos y artículos que reflejan esta situación están incluidos como anexos y son listados en el texto principal de la presentación ante la SAGS anteriormente citada (adjunta) y forman parte del expediente incluido a la SAGS ya mencionado. Esta situación no remediada a la fecha es contraria al derecho a un ambiente...
sano sancionado por el Artículo 41 de la Constitución Nacional y el Art. 28 de la Constitución de la Provincia de Buenos Aires, y su remedación es obligación legal e institucional de las autoridades provinciales y nacionales.

Dentro de este escenario, es preocupante que en la legislatura de la Provincia de Buenos Aires se esté discutiendo por cuarto año consecutivo una ley de manejo de la basura sin resultado alguno a la fecha. Esta ley debería legislar la obligatoriedad de la remedación integral de los rellenos desactivados, particularmente los que representan un daño a la salud de la población como el que aquí se discute, así como el tratamiento obligatorio de gases para los nuevos rellenos. Aparentemente existiría en algunos sectores la intención de utilizar el Mecanismo de Desarrollo Limpio o alternativas de mercado semejantes para la venta de CERs por quema de gases dentro de un escenario de adicionalidad ficticia, artificialmente creado con este propósito.

Conclusión

Por lo arriba expuesto, esta Asociación considera su obligación advertir a su Oficina y a la SAYIDS en general sobre la inconveniencia de apoyar proyectos que se presentan como de mejoramiento ambiental pero que distan mucho de serlo. El proyecto de venta de CERs impulsado por Van der Wiel-CEAMSE en el basural de Villa Dominico perpetúa una situación de contaminación, degradación de los recursos y no sustentabilidad en general, y reclama para sí una condición de adicionalidad que no cumple. Y es asimismo un pérsimo antecedente que puede afectar negativamente el desarrollo de legislación adecuada sobre manejo integral de los residuos sólidos urbanos en Argentina.

Lo saldan a Ud. atentamente,

Silvia Mozeta
Secretaria
AMBIENTE SUR

Maria del Carmen Ballón
Presidenta
AMBIENTE SUR


Copia de nota a ONGs de Avellaneda y Quilmes a Van der Wiel Argentina, del 2 de febrero de 2004.

cc.: Junta Ejecutiva del Mecanismo de Desarrollo Limpio International Netherlands Carbon Fund
Sr. Presidente, Banco Mundial, IFC
CEAMSE
Van der Wiel Stortgas BV
SEÑOR DIRECTOR DE
VAN DER WIEL ARGENTINA S.A.:

Nos dirigimos a Usted, en respuesta a su solicitud de opinión acerca de la descripción técnica efectuada por la firma Van der Wiel Argentina S.A. en la Sociedad de Fomento Don Bosco, en oportunidad de su presentación del proyecto para desgasificar las montañas de basura acumuladas en el predio que ocupa el CEAMSE en Villa Damiánico, Wilde y Bernal.

Del análisis de la documentación aportada en esa circunstancia, surgen algunas consideraciones que, deberán tenerse en cuenta para su evaluación y que a continuación se detallan:

1. De acuerdo con los “Datos del proceso” indicados en 3.8. del proyecto presentado, la composición química (en volumen) del gas del vertedero estaría compuesta exclusivamente por un 47% de anhídrido carbónico (CO₂) y un 53% de metano (CH₄).

Si esto fuera así, los vecinos de la zona de influencia no deberían soportar los malos olores que, con frecuencia, emanan de las montañas de basura que se pretenden tratar, dado que tanto el anhídrido carbónico como el metano son gases inodoros por naturaleza.

Por lo expuesto, deberían presentarse los respaldos que justifiquen considerar que en todos los casos de deposición de residuos, el gas de vertedero sólo cuenta con dos componentes que tienen la particularidad de ser inodoros.

De ser así, dado que uno de los mayores impactos sensibles que acusa la deposición de residuos sobre la comunidad (medio antrópico) son los malos olores que provienen de las montañas de basura, y siendo que el gas de vertedero por la composición indicada resultaría de naturaleza inodora, debería informarse para conocimiento de la población afectada, a que compuestos o fenómenos se atribuye ese impacto.

2. No obstante lo indicado en 1., debería contarse con mayores precisiones sobre la composición química de los gases que efectivamente se extraerían del vertedero.
Para ello, resulta necesario contar con un muestreo lo suficientemente representativo de la totalidad de la composición del gas a quemar y así definir los valores máximos y mínimos de cada componente gaseoso que se podría encontrar.

Los resultados obtenidos, deberían ir acompañados de toda la documentación evaluatoria que fuera necesaria para garantizar y acreditar los procedimientos aplicados para obtenerlos. Esta tarea debería ser efectuada por algún Organismo, Institución o Laboratorio a satisfacción de las Organizaciones no Gubernamentales (ONG) que representen a los vecinos de las zonas afectadas por las montañas de basura.

3. Con las composiciones químicas referidas en 2., debería efectuarse un análisis teórico de su combustión, determinando así los gases producto de la combustión que se emitirían a la atmósfera.

4. Con los datos que se obtendrían de lo indicado en 3., debería efectuarse un estudio de impacto ambiental, a través de algún Organismo competente, basado en modelos de difusión de gases en atmósfera para evaluar la calidad del aire y, consecuentemente, el riesgo a la salud.

Ese estudio debería ser presentado a las ONG que representen a los vecinos de las zonas afectadas por las montañas de basura para que, por su intermediario, sea sometido a la consideración de aquellas ONG "ese" ONG consideren necesario.

5. El mismo criterio indicado en 2., 3., y 4., debería aplicarse a los condensados referidos en los denominados separadores de agua y pozos de desagüe indicados en 4.3 del proyecto presentado por la firma Van der Wiel Argentina S.A.

No resulta preciso considerar que los condensados que se producirían durante el proceso estén compuestos exclusivamente por agua.

Debería realizarse un análisis de la composición química de los condensados que se produzcan y luego efectuar un estudio de impacto ambiental de acuerdo a lo indicado en 4., considerando su destino final previsto y la aplicación de la Ley de Residuos Industriales.
6. En base a las pautas indicadas en 2. a 5., debería darse forma al Procedimiento que garantice el cumplimiento de los parámetros operativos que se definirían en los estudios de impacto ambiental indicados en 4. y 5.

El cumplimiento de ese Procedimiento debería certificarse a través de algún Organismo de Certificación reconocido por las ONG antes mencionadas.

7. Más allá de la indiscutible necesidad de llegar a una solución saludable a los perjuicios que ocasiona la emanación de los gases provenientes de las montañas de basura, todo el esfuerzo que se haga en ese sentido no alcanzaría si, por otra parte, no se define el proceso que evite la contaminación de los acuíferos como consecuencia de los líquidos segregados por esas mismas montañas de basura (lixiviados).

8. Finalmente, una vez que se disipe los riesgos de las emisiones gaseosas y líquidas provenientes de las montañas de basura, debería estudiarse su reubicación, ya inertes, en lugares donde pudieran ser de utilidad como relleno (ejemplo, terraplenes de autopistas, bosques en desuso, o cualquier otra aplicación que pudiera surgir en tal sentido) sin que ello haga padecer a los vecinos de esos lugares, de los sufrimientos que sí les tocó vivir a los del "Relleno sanitario de Villa Dominico".

9. Dado lo hasta aquí planteado, y siendo que no se cuenta con la información necesaria para que la empresa Van der Wiel Argentina S.A. aseure que no se emanan gases tóxicos, y siendo que la Cemsa como responsable de la contratación directa de esta empresa no ha emitido opinión, y en el marco de la Ley Nacional 25675 que establece que antes de provocar un cambio que afecte el medio ambiente deben realizarse todos los estudios pertinentes, es prudente solicitar se interrumpa el funcionamiento de la actual chimenea hasta tanto, y por medio fehaciente, se pueda establecer el impacto ambiental que provoca.

Todo lo hasta aquí expuesto, no exime a las Autoridades Competentes de las responsabilidades que le podrían corresponder como consecuencia de los perjuicios ocasionados por las montañas de basura de Wilde y Villa Dominico, Don Bosco, Bernal y Quilmes.

Tampoco implica responsabilidad alguna de parte de las ONG que representan a los vecinos de las zonas afectadas, más allá de la insoslayable necesidad de tener que trabajar en procura de encontrar la solución a un
problema del que no fueron autores, pero del que si indubitablemente son víctimas esos vecinos.

A la espera de una respuesta satisfactoria en tal sentido, suelo a usted atentamente.

Con copia a:

- Organismos competentes de: Nación Argentina, Provincia de Buenos Aires y Municipalidades de Quilmes y Avellaneda.
- CEAMSE.
- Juzgado que trata las causas relacionadas con el tema en cuestión.
- Defensoría del Pueblo.
- Banco Mundial.
- Green Peace.
- CEPAL (Centro de Estudios para América Latina).

[Signatures]

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COMITÉ EJECUTIVO

ACTA
CUARTA SESION COMITÉ EJECUTIVO
Miércoles 8 de septiembre de 2004

----------En la Ciudad de Buenos Aires, a los ocho días del mes de septiembre de 2004, se lleva a cabo la Cuarta Sesión del Comité Ejecutivo de la Oficina Argentina del Mecanismo para un Desarrollo Limpio, con la participación de los siguientes miembros: el Dr. Attilio SAVINO, Secretario de Ambiente y Desarrollo Sustentable; el Emb. Raúl ESTRADA OYUELA, la Cons. Ana BIANCHI de la Secretaría de Relaciones Exteriores; la Ing. Alicia BARAGATTI de la Secretaría de Energía, el Lic. Eduardo MOAVRO de la Secretaría de Agricultura, Ganadería Pesca y Alimentos.---
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----------Siendo las 10:00 hs. se inicia la sesión comenzando con el primer punto de la agenda del día, el proyecto “Extracción de gas de relleno sanitario en Villa Dominico”. Se comenta que el proyecto fue publicado en la página web oficial del MDL, se encuentra en la etapa de validación, y que estará abierto a comentarios hasta el 13 de septiembre de 2004. Se entrega a los miembros del CE-OAMDL un documento de la EPA “Frequently asked questions about Landfill Gas and How it affects Public Health, Safety and the Environment”, que fundamenta los argumentos esgrimidos por el proponente del proyecto en referencia a que es una mejor opción la quema del biogás a la liberación del metano directamente. El Dr. Savino acota que este tratamiento mejora la condición ambiental y sanitaria, reduce la posibilidad de olores y de problemas de salud en el hombre.---

----------Se explica que la SPA es la Autoridad de Aplicación en temas ambientales en la Provincia de Buenos Aires, y también es la Autoridad de Aplicación de la Ley 11.723, que establece la obligatoriedad de presentar una Evaluación de Impacto Ambiental para obtener la Declaración de Impacto Ambiental, en el caso de realizar obras o actividades susceptibles de producir algún efecto negativo al ambiente (art. 10 Ley 11.723). Además se entrega a los miembros una copia del informe del INTI sobre el proyecto.

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ACTA TERCERA SESION DEL CE-OAMDL
8 de septiembre de 2004
COMITÉ EJECUTIVO

El Dr. Savino expresa que no desea que la Argentina de una imagen de no aprobare los proyectos que llegan a la Secretaría sobre todo, por responsabilidades ajenas.

El Emb. Estrada Oyuela sostiene que se debe aprobar el proyecto pero diciendo que se mejora algunas cosas pero que de cualquier manera esto no soluciona el problema. Se concluye que se hará un Proyecto de Dictamen del CE y se enviará por e-mail a todos los miembros del CE para su consideración.

El Lic. Carlino expresa que el proyecto mejoraría si a partir de la quema del biogas se genera electricidad. El Dr. Savino responde que el proyecto lo contempla, pero para una segunda etapa. El Emb. Estrada Oyuela expresa que se debería incluir en el dictamen que si el proyecto contempla este tema, la contribución al Desarrollo Sustentable sería mayor.

Se pasa al segundo punto de la agenda, correspondiente al Proyecto de “Recuperación del Gas de Relleno sanitario en Olavarria”. El Lic. Castillo comenta que el Proyecto fue publicado en la página web de la UNFCCC para comentarios y que sufrió algunas modificaciones relacionadas con la categorización adecuada del proyecto en la categoría de pequeña escala. Se concluyó que se enviará el informe de la Secretaría Permanente con los cambios realizados en el proyecto.

El Emb. Estrada Oyuela considera que es necesario enviar una nota a la provincia solicitando su opinión respecto de este proyecto. Además la Ing. Baragatti expresa que la EIA presentada en el PDD es muy vaga que sería mejor solicitar una EIA más completa. Se solicitará al proponente del proyecto que presente la EIA ya realizada.

Se pasa al tercer punto de la agenda, Normas de Procedimiento para la Evaluación Nacional de Proyectos presentados ante la OAMDL. Se concluyó en que se enviará una versión con los cambios del Sistema de Evaluación Nacional y si todos los miembros están de acuerdo, se procederá a su aprobación. En una próxima etapa se analizará el tema del Registro de las Instituciones Evaluadoras y los Convenios de Cooperación.

Se realizará un borrador de formato de Dictamen del CE y se enviará por mail para que sea analizado por los miembros del CE.

En cuanto al formato de Carta de Aprobación, se comentó que la Junta Ejecutiva estuvo evaluando la posibilidad de hacer una carta pro-forma. La Cons. Bianchi comenta que los

ACTA TERCERA SESION DEL CE-OAMDL
8 de septiembre de 2004
de gas de relleno sanitario en Villa Dominico" el Comité Ejecutivo dictamina: "Eximir al proyecto de la evaluación por parte de una institución evaluadora y recomendar al Secretario de Ambiente y Desarrollo Sustentable, Dr. Atilio A. Savino, la aprobación del Proyecto Extracción de gas de relleno sanitario en Villa Dominico, en el marco de las Normas de Procedimiento para la Evaluación Nacional de Proyectos presentados ante la OAMDL, fundamentándose en los siguientes documentos: 1- Documento de diseño de proyecto; 2- Nota de fundamentación de contribución al desarrollo sustentable; 3- Informe de pre-evaluación de la Secretaría Permanente de la OAMDL; 4- Informe elaborado por el INTI; 5- Artículo de la Agencia de Protección Ambiental de los Estados Unidos (EPA) Hazardous Air Pollutant EPA Factsheet, Office of Air and Radiation, del 16 Abril de 2003; 6- Informe de la organización Natural Resources Defense Council, Is Landfill Gas Green Energy de Marzo de 2003; 7- Actas de las reuniones del Comité Ejecutivo, realizadas el 29 de abril, el 21 de mayo y el 8 de septiembre de 2004, conjuntamente con las respuestas a las solicitudes de ampliación de información al proponente del proyecto. Además se deja constancia de que: 1- La Evaluación de Impacto Ambiental no fue presentada al Comité Ejecutivo; 2- La Secretaría de Política Ambiental de la Provincia de Buenos Aires no emitió opinión del proyecto; 3- El proyecto mejorará sustancialmente la calidad ambiental del relleno sanitario de Villa Dominico, no obstante, resulta necesario continuar con el monitoreo de las emisiones gaseosas y los controles ambientales pertinentes; 4- La contribución al desarrollo sustentable del proyecto sería mayor si el biogás recuperado fuera utilizado para generar energía.

----------Se pasa al tercer punto de la agenda. Con relación al Proyecto de "Recuperación del Gas de Relleno sanitario en Olavarría" el Comité Ejecutivo dictamina: "Eximir al proyecto de la evaluación por parte de una institución evaluadora y recomendar al Secretario de Ambiente y Desarrollo Sustentable, Dr. Atilio A. Savino, la aprobación del Proyecto de Recuperación del Gas de Relleno sanitario en Olavarría, en el marco de las Normas de Procedimiento para la Evaluación Nacional de Proyectos presentados ante la OAMDL, fundamentándose en los siguientes documentos: 1- Documento de diseño de proyecto; 2- Nota de fundamentación de contribución al desarrollo sustentable; 3- Informe de pre-evaluación de la Secretaría Permanente de la OAMDL; 4- Acta de la reunión del Comité Ejecutivo del 8 de septiembre de 2004; 5- Evaluación de Impacto Ambiental; Además se deja constancia de que: 1- La Secretaría de Política Ambiental de la Provincia de Buenos Aires no emitió opinión del proyecto; 2- El proyecto mejorará sustancialmente la calidad ambiental del relleno sanitario de Olavarría, no obstante, resulta necesario continuar..."