

Are Security Concerns Taking Over the International Sustainable Development Discourse?

By

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Introduction

The present research is unique and innovative as it tries to systematically examine the security features of the current international sustainable development discourse, a thing which has not been done yet. To do so I created a new database using the so far untapped documents of the Commission on Sustainable Development. This paper reviews the emerging interaction between the environmental and security discourses and then presents the initial findings I discovered from the data.

Since the beginning of civilization security issues have been an important matter of concern to human beings. In International Relations departments around the world the issue of security was given a high priority and many theories were created with the purpose of dealing with security issues such as war. During the 1990s, new types of issues such as: economic uncertainties, poverty, environmental degradation were considered to be issues of security¹. In the early 1990s two new developments took place: first, the environment and the security discourses merged²; second, the notion of sustainable development became a main issue in the field of the environment. The notion of sustainable development was first used in the report 'Our Common Future' written by the UN Brundtland Commission in 1987. Sustainable development meant that for the benefit of society, it would be necessary to take the environment into consideration when discussing development. At the beginning sustainable development was based on finding a balance between human needs and environmental protection, but gradually more stress was put on economic and development needs. This is why today, sustainable development notion stands on three main pillars: environmental sustainability, social equality and economic growth.

At the end of the 1990s security concerns started entering the sustainable development discourse, although they were never part of the notion of sustainable development³. I suggest that this latest development reflects the beginning of a process of securitization⁴ of the notion of sustainable development. Both the concept of sustainable development and security are very broad and ill-defined concepts, encapsulating different

¹ Buzan, 1998, pp.1-5

² Waever, 1995

³ Baker, 2006, pp.1-15 & Lele, 1991, pp.607-610

⁴ Waever, 1995, p.50: securitization is based on the 'speech act' and argues that when an actor talks about security, what he actually wants to do is move an issue from one place to another, from low politics to high politics. (further discussion see 'Background')

parts, each with its problematic definition and measurement. Since at present, security is such a wide notion, many policy makers maneuver it to their needs and incorporate it in different issues such as in sustainable development. The possible process of securitization in sustainable development can be done for a variety of reasons, such as the will to raise sustainable development from low politics to high politics; or it may serve the purpose of raising more money and resources to support the cause in that specific field.

One of the clearest examples of this intersection of security in the international sustainable development discourse is on the issue of **energy** and **water**, on which this research will focus. Energy, water and their supply were always a security concern in the field of international relations and in recent years they have also become an environmental concern such as with global warming. Energy is one of the main if not the most important aspects of economic and development growth in both developed and developing countries. Water, on the other hand is one of the most important aspects in poor and developing countries, where economy is still based on agriculture, but it is also important in the developed countries for industry purposes. Energy and water are very often the main topics discussed in the international sustainable development discourse⁵. The focus on the Commission on Sustainable Development and within it energy and water will be used to narrow the knowledge gap on the input of security concerns in the international sustainable development discourse.

While on the practical side the raise of security concerns in sustainable development can be easily found in different platforms, such as in the Commission on Sustainable Development, or European Union strategic plans, in the academic literature side discussion of the security issues in sustainable development are rare and usually sustainable development and security are dealt with separately. In consequence this research will try to narrow this gap that is found in the academic literature on security and sustainable development. This will be done by posing main questions and in trying to answer them.

In consequence the research question will be divided into three parts specifically asking: In the international sustainable development discourse (1) who is raising security concerns, (2) to what degree are security concerns raised, (3) under what circumstances and conditions do different countries raise those security concerns.

⁵ Drexhage, 2007 & Helm, 2001 & Commission of the European Communities, 2004 & 2006

Background –

The Path towards Securitization of Sustainable Development

The main purpose of this chapter is to guide the reader through the existing academic literature on sustainable development and security. Moreover, it is intended to explain the interaction between sustainable development and security. The chapter will start from a review of the development of each concept, sustainable development and security, on its own over the years. Then the chapter will explain the changes in both international relations and environmental fields that brought the two concepts of security and sustainable development closer together. Later on an overview of the specific interactions existing between security and sustainable development will be given together with an outline on recent trends and categories. The chapter will end with a short overview on the Commissions on Sustainable development and will explain its importance to the research.

Sustainable Development and Trends

Sustainable development first appearance was in 1983 when the United Nations decided to call a meeting to deal with problems of 'accelerating deterioration of the human environment and natural resources and the consequences of that deterioration for economic and social development'⁶. As a result of this call a commission is created. The commission was first named the World Commission on Environmental and Development and later on changed its name to the Brundtland Commission.

The main fact that gave rise to the issue of sustainable development was a gradual understanding and acceptance that development in the Developed world (referred to at that time as the 1st and 2nd World Countries or the Western World) was facing some serious problems. With the end of the Second World War many countries, during the 1950s and 1960s experienced an economic boom which was remarkable at that time. Many believed that this economic and development growth could continue forever. What many people did not understand was that this post-war experience of 'economic growth and prosperity was both exceptional and contingent'⁷.

In the 1970s and towards the 1980s the fast rate of development and economic growth in the Western countries started to slow down. Baker (2006) argues that there

⁶ United Nations, December 1987

⁷ Baker, 2006, p.4

were six main elements in the basic Western model of development that caused the slow down and decline of growth. The **first** element was the view that nature and its resources were there solely for human beings' own benefits. This view is known also as anthropocentric view, where humans see nature created just for them, and thus have the right to use it as much as they want it, in any manner they feel like. The **second** element was the understanding that 'Western development model prioritizes economic growth'⁸. This means that the main goal and focus of the Western countries governments is to secure a constant economic growth, which is a public scale for the success or failure of a government. The **third** element is the belief that the way to measure welfare is by consumption - the more people consume, the more it seems that they are well off. The **fourth** element is the disregard of preservation of the resources as an essential element to ensure social stability. For example, lack of fresh drinking water can cause famine, which is a recipe for potential war. The **fifth** element is the disregard of the fact that Western development is based mainly on the exploitation of developing world (the Third World countries). Many developing countries are unstable and thus depending only on them can be risky. Moreover, there is the possibility that one day those developing countries will want to develop too an act that could eventually lead to lack of natural resources. The **sixth** and last element is the 'failure of the Western development model to acknowledge that there are limits to economic growth'⁹. These elements constituted the problematic of Western model of development, which by the end of the 70s was proving to be unsustainable. Furthermore, the severity of the problem was accentuated by two oil crisis of the 1970¹⁰. The oil crises showed the world and especially to the Western developed world how dependent it was and how fragile and limited their development model was.¹¹

As said before, the notion of 'sustainable development' was first used in the report 'Our Common Future' written by the Brundtland Commission in 1987¹². The creation of a commission for sustainable development was driven by an urgent call from the General Assembly of the United Nations. The call came from the people at the high ranks of politics, economy and science. The urgent call stemmed from three main concerns. First, the 1970s economic slowdown was a big blow after the 1960s optimism which worried and affected many industrialists and economists as well as governments. Second, the

⁸ Baker, 2006, p.5

⁹ Baker, 2006, p.6)

¹⁰ Jorgenson, 1998

¹¹ Adelman, 1977

¹² United Nations, 1987

1980s saw a 'retreat from social concerns'¹³ towards more economic concerns which worried many political and pressure groups, especially Western countries. This was in part a result of ongoing concerns related to the Cold War and threat of Communist expansion. Third, the scientists had a strong part in 'bringing to our attention urgent but complex problems'¹⁴ concerning the environment which can be endangering our own survival on planet earth.

Sustainable development is defined as 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'¹⁵. The notion of sustainable development reflected a new understanding that for the benefit of society, it would be necessary to take the environment into consideration when discussing development. At the beginning sustainable development was based on finding a balance between human needs and the protection of the environment, and it was much more oriented towards the protection of the environment. Gradually, an understanding was reached that protecting the environment is not possible without securing economic growth and social equality. A chronological review would point to two stages in the development of the concept. At the beginning, in the 1980s, when the sustainable development notion was first created by the Brundtland commission, sustainable development was preoccupied with human **needs**. This was influenced by the neo-classical economics that tried 'translating environmental choices into market preferences'¹⁶. Later on, more into the 1990s, sustainable development notion started to change. In the 1990s, it was suddenly preoccupied, no more with human needs but rather with human **rights**. The change happened after the first Earth Summit of 1992 and is linked to two main issues. First was the emergence on the 1990s of the Neo-liberal economic agenda, which believes that the best way to deal with the market and other issue areas is less government intervention. This is done by empowering different groups in society, by distribution of rights. This has also brought to the application of the concept of rights in areas once never considered having 'rights' such as the 'rights to and of nature'¹⁷. The second reason for the change in the sustainable development notion came from the 'growth of interest in congruent areas, including human security'¹⁸. As we

¹³ United Nations, 1987

¹⁴ United Nations, 1987

¹⁵ United Nations, 1987

¹⁶ Redclift, 2005, p.218

¹⁷ Redclift, 2005, p.224

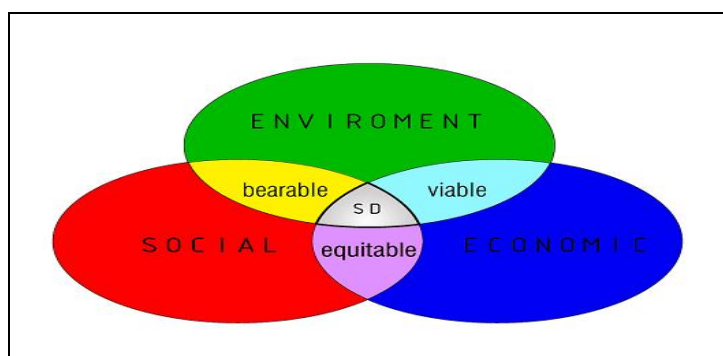
¹⁸ Redclift, 2005, p.212

can see, the addition of security in the sustainable development notion is one of the latest evolutions that took place in recent years.

A second way to examine the changes of the notion of sustainable development is by examining the evolution of its three main pillars. At the end of the 1970s, before the notion of sustainable development came into play, the focus was on the need for sustainability. This need was concerned with the protection of the environment. Only later on the notion of development trickled into the notion of sustainability to form what we today know as 'sustainable development'. The 'development' pillar focuses on economics. However, in the 1980s, the notion of equity trickled into the notion of sustainable development, which focused on the society. By the end of the 1980s we had a notion of sustainable development which stood on three main pillars, the environment, the economic and the social pillars. Most of the 1990s were focused more on development and thus dominated more by the economic pillar, which was done on the expenses of the social equity and the protection of the environment. Finally, at the end of the 1990s, it is possible to see that a new unknown pillar is entering the notion of sustainable development - security concerns. Security concerns, which were never part of the notion of sustainable development, are slowly taking the main focus of sustainable development at the expenses of the three main pillars.

Today sustainable development stands on three main pillars: environment sustainability, social equality and economy growth (see scheme-1). As scheme - 1 demonstrates, we have three main issues: environment, economic and social and the correct development strategy would take into consideration all the three and finding the middle way – which is the sustainable development (SD) model of development.

Scheme – 1: The Three Pillars of Sustainable Development (SD)



The main problem with the notion of sustainable development is that it is very hard to pin point what in practice it means. As we can see from scheme -1, sustainable

development is at the centre, the meeting point of the three main issues, but the definition of sustainable development is very broad and it can comprehend almost everything. The Brundtland Commission never explained how and by what tools sustainable development can be achieved. This left many questions concerning what is exactly the desired middle ground and how do we reach it, still open. Even at present there are many different opinions about sustainable development which take a main stage in international as well as domestic meetings and conferences.

Because the notion of sustainable development is still not well defined, it is open to a variety of interpretations and linkages with other notions. One of these linkages is with the notion of security. Before examining these interactions between the two notions, it is important to understand the development of the concept of security. This brings us to the next part.

Security

In the field of international relations for many years security was connected mainly to the military and political dimensions. Today, this view is seen as the 'classical security' concept. Security in the classical sense refers to security as a top national interest priority to be kept or achieved by means such as military power¹⁹. Since the end of the 1960s a slow change began to take place in this concept. A need arose to revise the security discourse and incorporate other issues such as economic, environmental and social security, which became part of the national agenda. Nevertheless, a real urgent need for a revision of the concept of security arose only with the end of the Cold War. This was a consequence of globalization and its implication to the international community in raising new types of concerns, threats and new type of wars. Since the end of the Cold War, many international relation publications focused on security in this new political world order, and tried to redefine it. Many books such as 'Security: A New Framework for Analysis' by Barry Buzan (1998), 'Security Issues in the Post-Cold War World' by Jane Davis (1996), 'Security and International Relations' by Edward Kolodziej (2005) as well as the book 'Security in the Post-Cold War World' by Robert Patman (1999) rejected the traditional approach which restricted the security discourse, i.e. military, and instead argued for a widening of the concept²⁰.

¹⁹ Schleicher, 1962, pp.117-120

²⁰ For a good review of the debate see Miller, 2001

The debate between the 'wide' and the 'narrow' security concept still occupies a large part in the field of international relations at present. As Thomas Moddock explains 'there is...no universal definition of security for even at the national level states view and define security in their own particular interests'²¹. This leaves us with different broad concepts of security but with no one clear and accepted definition of it.²² During the 1980s, there was a general move to broaden the security concept, from a national security focus towards a human security focus²³. Moreover, during the 1990s, new types of security issues and conflicts became the concern of international politics. The once sharp dividing line between foreign and domestic policy started to get blurry, a thing that forced 'governments to grapple in international forums with issues that were contentious enough in the domestic arena'²⁴. War in its classical definition, where one or several countries attack one or several other countries, ceased dominating the international political arena. The new types of war were more inter-state and terrorist ones. Furthermore, the new security concerns were concentrated around issues such as capitalist economic uncertainties, problems derived from scarcity of sources, human security, environment, urbanization, poverty, drug and crime trafficking, Furthermore the new types of conflicts were dominated by mostly failed state intra-wars as well as global terrorism²⁵. The new security challenges caused the old concept of security to be incomplete while the new concept that has emerged to be blurry and too wide and in consequence a concept that can be widely maneuvered²⁶. Two of the research questions, first, who is raising security concerns and second, under what circumstances and conditions will hopefully reveal if indeed maneuvering exists also in the international sustainable development discourse.

Sustainable Development and Security Discourse

Two new developments occurred since the late 1990s that brought together these two discourses. On one hand, in the field of international relations, towards the end of the 1990s and the start of the 2000s a new widening of the notion of security occurred, which

²¹ Maddock, 1996, p.162

²² Miller, 2001

²³ Waever, 1995

²⁴ Mathews, 1989, p.162

²⁵ Buzan, 1998, pp.1-5

²⁶ Maddock, 1996, p.162

included for the first time the notion of sustainable development²⁷. This research will not deal with the widening of the security concept in international relations, but rather with the **widening of the notion of sustainable development to include security in it**.

On the other hand, in the field of environmental studies, the notion of sustainable development emerged as a main issue from the start of the 1990s onwards²⁸. Sustainable development came to be seen as the new road that should be taken for a new greener, healthier, more developed and fair world. Moreover, from the end of the 1990s, a change also took place in the notion of sustainable development. The change in sustainable development notion was the entrance of security concerns into it through the use of the concept of human security²⁹.

One way to conceptualize and understand this latest development is to view it as reflecting a process of securitization in the notion of sustainable development. In the next part the concept of securitization will be explained and a connection to the possible process of securitization of sustainable development will be elaborated.

Securitization and Sustainable Development

The emergence of security concerns are part of the sustainable development international discourse towards the end of the 1990s and especially since the 2000s can be understood to be part of a process of securitization of the sustainable development concept. Two of the research questions, who are raising security concerns and under what circumstances, are trying to deal exactly with this new phenomenon, of security concerns found in the discourse of sustainable development.

The first scholar to use the word ‘securitization’ was Ole Waever (1995). Securitization, in international relations, derives from the Copenhagen school of thought. The concept of securitization, is based on the ‘speech act’³⁰, and argues that when an actor talks about security, what he actually wants to do is move an issue from one place to another, from low politics to high politics. The action of securitization does not necessarily mean ‘security’ in its general known meaning. In other words ‘by saying it’-

²⁷ Brock, 1991 & Homer-Dixon, 1994 & Bachler, 1993 & Gleick, 1993 & Gleditsch 1997

²⁸ Dryzek, 1997 & Lafferty, 2004

²⁹ Human security is connected with the UN Human Rights declaration which focuses on the individual and his concerns, i.e. having secured access to fresh water, food supply, health, and sanitation. (Further development of this will be given later on in the chapter)

³⁰ Waever, 1995, p.50

security, 'something is done'³¹. A different though related view of securitization is offered by Balzacq, who argues that securitization is a 'strategic practice'³². The actor uses 'security' in a conscious way to achieve his aims and goals. In both cases, the ability to do a securitization of a discourse depends on the actor's status and on his audience. Buzan (1998) argues that securitization can take place in five different political sectors; one of them is the environmental one. Buzan argues that the environment is highly sensitive security issue since the environment has no boundary when this is add to environmental degradation it can be explosive in triggering conflicts.

Securitization of a political area is a tool that can have both positive as well as negative implications. On one hand securitization can have positive implications. In the constant battle between various issues in both domestic and international politics, securitization can serve as a powerful tool. Since it raises the 'securitized' area from low politics to high politics, more attention is put into it. This in consequence can bring to a stronger will to collaborate and cooperate. Moreover, securitization of an issue may be important in raising more funds and keep more money pouring into it. Securitization can give the political actor more power than he might have had before³³. On the other hand, securitization can have negative implications since it can lead to penetration of additional political frictions and arguments into the discourse, which eventually will freeze it entirely. Moreover, raising a low political issue to high politics by securitizing it in the wrong way, can lead to major non proportional political moves, in some cases radical ones, such as creation of new martial laws, mobilization of the military and even attacking another country. For example, many see the securitization of immigration issue as an excuse to use more rough policies and armed forces against those immigrants. Securitization is made by an 'actor' therefore the first question of the research will try to find who this entity is, i.e. which country/countries try to this securitization.

So far I have surveyed the growing interaction between academic writing about environment and about security. However, it is interesting to note that in comparison to the significant amount of literature dealing with the environment-security nexus, there is very little work on the more specific nexus between sustainable development and security. In contrast, on the practical side, sustainable development and security discourse is rapidly emerging. It is possible to find many references to security in sustainable

³¹ Waever, 1995, p.50

³² Balzacq, 2005, p.191

³³ Balzacq, 2005, p.171

development international discourse. The usage of security in the sustainable development discourse is made by governmental, semi-governmental and NGO's.

Security Issues in Sustainable Development Literature and its Categorization

Security concerns found in sustainable development literature can be found in a few academic papers. For example in Wenche Hauge's (1998) article 'Beyond Environmental Scarcity: Casual Pathways to Conflict' and also in John Volgar's (2002) article 'The European Union and the Securitization of the Environment'. They both argue that the interaction between sustainable development and security was made by the different states for their own different interests. Moreover, Volgar gives us the example of the European Union and argues that the European Union 'did not until very recently make any explicit connection between... environment and security problems' but when it did, it 'was not environmental security but the pursuit of sustainable development'³⁴. This comes to show us that security issues are put into sustainable development consciously.

In reviewing the literature on sustainable development and security we can see a wide range of interactions between the two discourses. In order to elucidate the interactions, it is possible to divide them roughly into two types, human security and national-economical security.

Some environmental literature views the interaction between sustainable development and security by means of **human security**. Human security focuses on the **individual** and on the security concerns of the individual i.e. having secured access to fresh water, food supply, health, and sanitation. The focus here is more on the social aspect of sustainable development, which can be seen as a global concern for human beings in general. This is opposite to the state-economic security concerns view, which will be explained later. In both the book edited by Dodds (2005) as well as the article by Redclift (2001) they argue that security and sustainable development concerns, such as food and water scarcity, have a direct effect on human beings as individuals³⁵. Human security in this concern is connected to the UN Human Rights declaration which states that 'everyone has the right to life, liberty and personal security'³⁶. An example of the interactions between sustainable development and security is given by Steve Lonergan in his article 'Global Environmental Change and Human Security' which includes: land use/

³⁴ Page, 2002, p.182

³⁵ Dodds, 2005, p.3

³⁶ Page, 2002, p.85

soil quality, climate change, biodiversity, water resources, energy³⁷ and damage or inability to access them can bring humans to acts of violence.

Conversely, some international relations literature views the interaction between sustainable development and security by means of **national-economical security**. National security focuses all its attention on the **state** and its security concerns. In the book by Sean Kay (2006) 'Global Security in the Twenty-First Century', Kay argues that sustainable development and security go hand in hand concerning the issue of natural resources, particularly energy. This view reflects more the Realist approach of international relations which sees national interest as the top priority of a sovereign state and argues that interest in the international arena are dominated by conflict and thus war is inevitable. These views thus are probably closer to the 'classical' definition of security. Kay argues that one of the main preoccupations of a state is not being able to meet the needs of their citizens. Meeting their needs is connected to natural resources which focus only on two of the components of sustainable development: economical growth, social equity. It is important to note that although the interaction here is closer to the classical security notion, it does not refer to military power. As was mentioned before, from the 1970s other issues which were not military ones entered the security arena, such as economic, social and, in a limited way, environmental issues. It could be a bit hard to note, but the interaction between sustainable development and security here is focused more on the economic arena and it is state based. This is differently than human security which is much more concentrated on the welfare of the individual and it has a globally preoccupation for all human beings. Economy today has almost taken the place of military for its power in affecting societies, states and even the whole world. Since the economy is also connected with social issues such as social unrest or social well being, it is sometimes confusing to notice the fine line between the two, but it is crucial for our research.

The lack of literature on security issues in sustainable development is quite surprising, with respect to the large amount of discourse in practice, as we will see below. One possibility could be that it is an entirely new phenomenon which still has to develop fully before it will be discussed in the literature. Both the widening of the security concept as well as the new notion of sustainable development are quite recent, not to mention the phenomenon of inserting security concerns within the sustainable

³⁷ Page, 2002, p.89

development discourses which in itself is very recent. However, as we will soon see, inside the sustainable development discourses in practice security is used often and is easily found. This possibility is valid thus still leave us with an uncertainty on this issue.

Security Issues in Sustainable Development in Practice

Unlike the small amount of academic literature written on sustainable development and security, on the practical side we can find a much larger use of security concerns in different setups of sustainable development.

One place to find many security concerns entering the sustainable development discourse are different European Union strategic plans and conference topics. Two examples for those strategic plans are, the 'Green Paper: A European Strategy for Sustainable, Competitive and Secure Energy' written by the Commission of the Europeans Communities (March 2006) and the paper 'Energy policy: Security of Supply, Sustainability and Competition' published by Dieter Helm (2001). In both of these strategic plans for achieving sustainable development, security is mentioned quite often. To highlight this point even further, not only European Union strategic plans on sustainable development put emphasis on security, but also European Union policy conferences. For example, the summary of the 'Pan European Conference on EU politics – Regional Environmental Initiative: South-Eastern Europe (Balkan) Regional Environmental Cohesion Initiative'³⁸ emphasizes that achieving sustainable development and security is the main goal. It is possible to conclude from these examples that security concerns inside sustainable development are common and acceptable. It is even possible to argue that it is an official policy of the European Union or at least an important perspective.

Another place to find security inside sustainable development is in the Chairman's summary on the Hague Conference on 'Pathways to Environmental Security'. The summary mentions the increase in 'security anxiety' also concerning sustainable development since the 2001 terrorist attack in the United States of America³⁹.

Yet, another place to find security concerns in sustainable development is at the World Bank which developed a special index where sustainable development and human security can be calculated and examined and are seen as interconnected⁴⁰. The concept of

³⁸ Mihajlov, Sep. 2008

³⁹ Spencer, 2004, p.3

⁴⁰ Lonergan, 2002, p.87

‘human security is closely linked to the World Bank’s work on sustainable development’⁴¹. The World Bank sees sustainable development as an essential tool in reducing poverty. This is where the connection between security and sustainable development is made. It seems that the view of the World Bank is the following: the less poverty we have, using sustainable development, the more security we will have and this is why security is an unquestioned part sustainable development.

Lastly, it is possible also to note the use of security in Agenda-21, which is a plan to achieve sustainable development. Agenda-21 is seen by many as the flagship of sustainable development. In Agenda-21 it is possible to find security mentioned however in a quite limited fashion. The words which appear for example are ‘to promote greater security’ or ‘food security’ or ‘social and welfare security’ and are mostly connected with human security issues of health, sanitation, personal safety, and accessibility to food.

In conclusion a possible way to describe in academic terms the increased use of security in sustainable development literature and especially in the practice of sustainable development is by the notion of 'securitization' which is 'exploring threats to referent objects...that are non-military as well as military'⁴². It is possible then to argue that with the extension of the security and sustainable development notions it became very tempting, for political purpose, to securitize whatsoever believed important.

Commission on Sustainable Development –

Security inside Sustainable Development in Practice

One of the clearest places to find security concerns entering the sustainable development in practice is at the Commission on Sustainable Development. The Commission on Sustainable Development was created in 1992 following the United Nations Earth Summit where leaders of states signed and adopted Agenda 21 – a plan to achieve sustainable development⁴³. The Commission on Sustainable Development works in three main paths: firstly in reviewing the progress of the implementation of Agenda-21 by the different actors (on both a regional as well as on a national level) which were decided in previous Commission on Sustainable Development meetings, secondly, to elaborate policy guidance and options for future activity in achieving Sustainable Development, and thirdly, to promote dialogue and build partnerships between the different actors

⁴¹ World Bank, 2007

⁴² Buzan, 1998, p.4

⁴³ UNEP, 2008

(governmental, Semi-Governmental, NGO's and regional). Each year, the commission, takes the shape of an open forum where all the actors have a place to express their ideas. At the forum each actor in his turn reads his official statement or statements, later on a conclusion of the main ideas and opinions that were raised on the issue are summarized by the Chairman's of the Commission. From the year 2003 the Commission on Sustainable Development has decided on, two year cycles that will focus on three to five topics each time. For example the 15th Commission was dealing with Energy for Sustainable Development, Industrial Development, Air Pollution and Climate Change. Each chosen topic is dealt with separately at the commission. The topics are from a range of sustainable development issues such as: agriculture, atmosphere, biodiversity, climate change, consumption and production, demographics poverty, desertification, energy, forests, freshwater and many more. Each Commission on Sustainable Development has about fifth three members, each serving a three year term, but the number of members changes and is usually higher than fifth three members.

One main issue that reflects the rise of security concerns in the sustainable development discourse is the issue of energy security which this research will focus on. Energy and energy resources were always a security concern, especially on the issue of oil⁴⁴. These works in international relations, made the link between security energy resources on the base of scarcity of sources. However, more recently did energy and energy resources become also an environmental concern, such as in concerns over global warming and pollution. This linkage between energy and environmental concerns did not do the same linkage to the scarcity of resources. Here the linkage was to do more with human security safety. For example energy in this case was connected to global warming that in consequences could cause the sea level to rise and thus create a human security problem such as epidemics and famine. Energy is one of the main if not the most important aspect of economic and development growth. In the sustainable development - security discourse, energy is very often one of the main topics⁴⁵. Moreover energy is today a top priority in developed countries such as the United States of America and the European Union countries, as well as developing countries, and in particular China and India. The focus and use of "energy security" in this research will be examined and will

⁴⁴ Adelman, 1977 & Kalicki, 2005

⁴⁵ Drexhage, 2007 & Helm, 2001 & Commission of the European Communities, 2006

help to close the knowledge gap on the input of security concerns in international sustainable development discourse⁴⁶.

Another issue that reflects the rise of security concerns in the sustainable development discourse is the issue of water security which this research will also focus on, in a smaller degree. This section regarding water was conducted to be a parameter for comparison with the section over energy. The decision to choose the water issue came from two main reasons. The first reason is that water and water resources were always an issue of great security concern⁴⁷. Problems of water scarcity and draught can cause security concerns for the security of societies as well as for entire regions. Two examples for water security issues are the draught in Ethiopia in the 1980s⁴⁸ that cause a great famine and destabilized the entire region and in the Middle East where water scarcity is always an issue raised in every peace negotiation and treaty⁴⁹. Furthermore, in recent years water was also seen as an environmental as well as an economic concern. The focus and use of 'water security' in the research will be examined and will help to close the knowledge gap on the input of security concerns in international sustainable development discourse⁵⁰.

In conclusion what we can find is a gap in knowledge between what is found in reality and what can be found in the academic literature. While on the practical side sustainable development and security go hand in hand and it is being used by policy makers, on the academic literature side sustainable development and security are dealt almost always separately. In consequence this research will try to examine and close the knowledge gap on how, by whom, when and under what conditions security discourse is built into the sustainable development discourse.

The next chapter, methodology, will elaborate the research design of this essay and will examine security concerns found in the statements of different countries which appeared in the Commissions on Sustainable Development on energy and water. This examination will allow us to compare and analyze differences using all sorts of parameters in the aim of getting answers to the research question.

⁴⁶ For more information see 'Methodology'

⁴⁷ Kliot, 1993 & Dinar, 2002 & Radoslav, 2002 & Swain, 1996, 2004

⁴⁸ Biel, 1990

⁴⁹ Amery, 2000

⁵⁰ For more information see 'Methodology'

Methodology

The research question which is divided into three parts specifically asking: In the international sustainable development discourse (1) who is raising security concerns, (2) to what degree are security concerns raised, (3) under what circumstances and conditions do different countries raise those security concerns.

This part of the paper will try to explain how the research was conducted. First of all an overview and an explanation on the data base of the Commission on Sustainable Development, the research unit and the chosen topics researched will be provided. Later an explanation of the discourse analysis will be given.

1. Database, Research Unit and Topics of the Research

The main **database** of this research will be the statements of the Commissions. The Commission on Sustainable Development has an untapped database that was used in this research to shed light on the links between security and sustainable development in practice. The data base of the Commission can be found on their internet site and it is open to public access and contains proceedings of commission meetings since its inception 16 years ago⁵¹. The database contains all the summaries and official statements of each of the countries represented there, as well as the chairman's summaries. The Commission on Sustainable Development database is a good and important representation of an international discourse on sustainable development. Despite the importance of the database, only two academic research papers so far were based on it: Funtowicz (1998) and Satterthwaite (2004).

The basic **research units** of this research are the sovereign states, this means that there was a focus on states' statements in the Commission on Sustainable Development. Despite this also the statements of the European Union, which is not a state, were to be examined. This is due to the fact that the European Union had a lot to say and had played an active and dominant role in the Commissions. The European Union was represented as one body, separate from the countries which compose it.

The two main **topics** of this research are energy and water. This research was interested in examining if a process of securitization in the field of sustainable

⁵¹ Although information on the commission is found of the last 16 years, not all of it can be used technically. Moreover, this essay due to its limit could not examine the commission for the last 16 years.

development exists. These two topics, energy and water, are already issues of established “real” security concerns, and at the same time contain an environmental component. This is why they were the natural candidates to be transferred also into the sustainable development discourse and securitizing it. Moreover, these two natural resources are highly critical resources which appear to be taking a high place in today’s international political discourse. This is why we expect them to enter these commission statements in a securitized manner. Lastly, another reason for choosing to examine energy and water was that two sessions of the Commission on Sustainable Development were dedicated to energy and two other sessions were held on water. The presumed resemblance of the water issue to the energy issue is why water was chosen as a comparison. The 14th and 15th commission which one of the topics dealt with was energy contains 126 statements on energy, and the 12th and 13th commissions which one of the topics dealt with was water contains 70 statements on water, both provides a wealth of information.

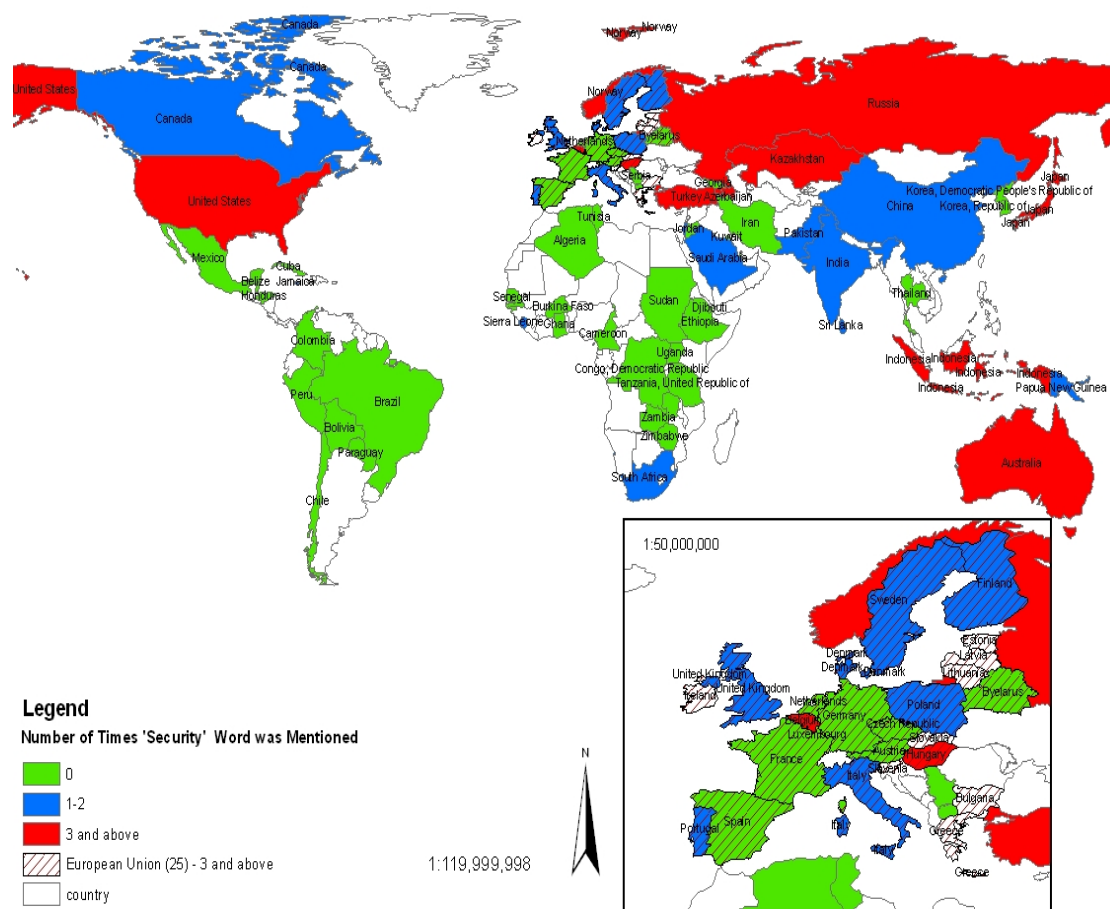
2. Research steps⁵²

Before we begin, it is important to grasp that discourse analysis is not an easy task since it evolves tracing part of speech. Part of this problem was avoided due to the fact that for this research an untapped and not yet used data base was available, the Commission on Sustainable Development statements. As was mentioned above, till present, no examination of these statements was done, so in this respect this research is a pioneer. The other challenge was the need to analyze such a large amount of material - statements, a total of one hundred and ninety six statements⁵³. For this reason it was essential to decide what exactly we are looking for. The goal of the examination was to find “traces of security” in the sustainable development discourse. This was done by going over each and every statement and counting parts of speeches which imply security, i.e. the word ‘security’ or a combination of it, such as ‘energy/water-security’, ‘security-demands/needs/risks’. The results were translated into two maps that presented the geographical spread of these concerns (see map-1 and 2) and two tables found below in the appendix (see Table -1 and 2, see ‘Appendix’).

⁵² The complete research steps and statisitcal discourse analysis can be found in the Appendix - I.

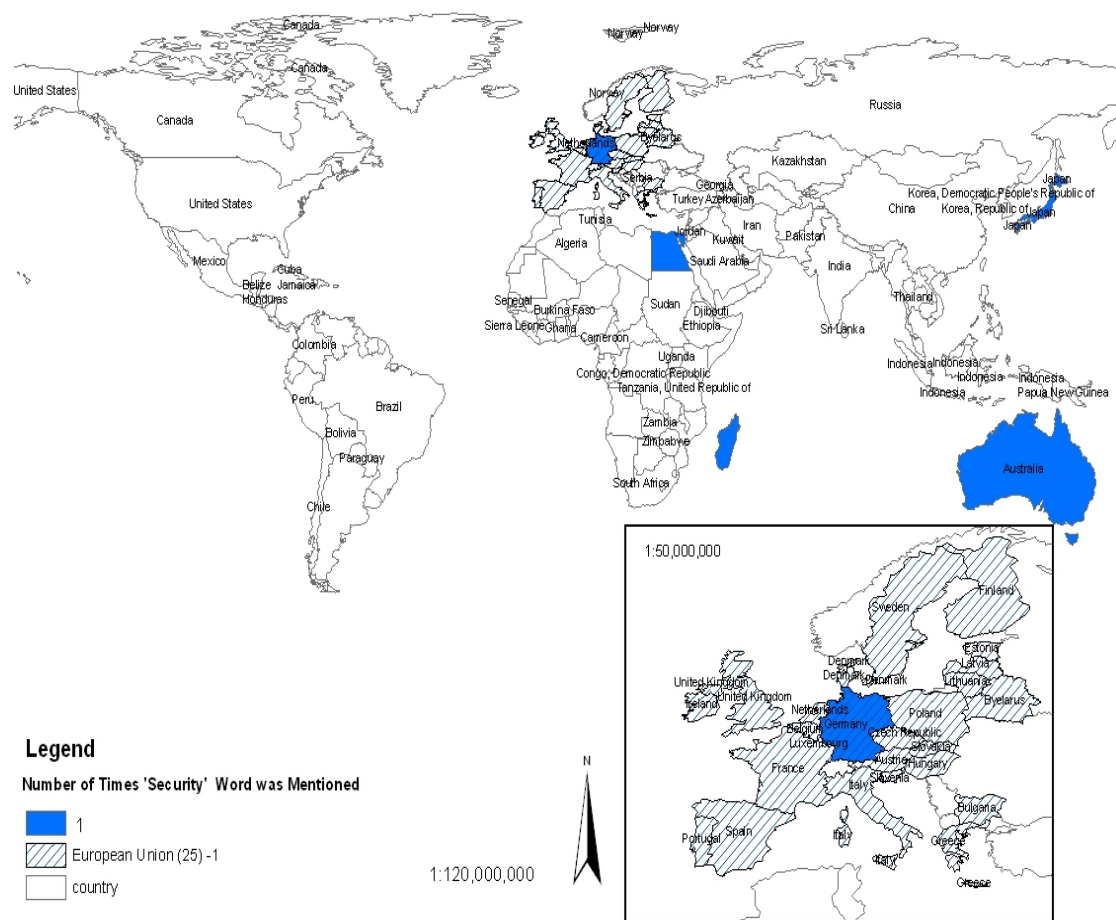
⁵³ 126 statements were over energy and 70 statements were over water.

Energy - Map-1: Rise of Security Concerns over Energy found in the Commission on Sustainable Development 14th and 15th (2006-2007)



(Source: ESRI Data & Maps, Cartography: Gad Schaffer, July 2008)

Water - Map-2: Rise of Security Concerns over Water found in the Commission on Sustainable Development 12th and 13th (2004-2005)



(Source: ESRI Data & Maps, Cartography: Gad Schaffer, July 2008)

The maps show that security concerns are raised in energy and water. Moreover the maps also show that variation in the distribution and amount of raised security concerns exists, both between the countries and between the two topics, energy and water⁵⁴. What the maps do not reveal is what might be the **pattern/s** that may explain the variation in the distribution and amount of raised security concerns. This is why in the next step of the research a different dependent variables (see table – 3 and 5) and different independent variables (see table - 4 and 6) were investigated for correlations. The independent variables were chosen from a variety of spheres such as economic, social, physical geography and geopolitical. Several of the chosen independent variables are commonly used indicators of ranking countries by their economic performance or by their development.

⁵⁴ Further discussion of this can be found in the 'Discussion' chapter below.

Table-3: Dependent Variables – Energy

| Variable | System of Measurement | Source of Data |
|---|---|--|
| The number of times the word 'security' was mentioned in the statements | 1. Counting the word security or the combination of it in the statements 2. Dividing it into three groups. ⁵⁵ | Commission on Sustainable Development (2006, 2007) |
| The rationale behind the word 'security' | 1. Counting the word security or the combination of it in the statements 2. Dividing it into two groups. ⁵⁶ (economic security/ human security) | Commission on Sustainable Development (2006, 2007) |

Table-4: Independent Variables – Energy

| Area/Field | Variable | Measuring Unit | Source of Data |
|--------------------------------|-------------------------------------|-------------------------|--|
| Degree of economic development | Gross Domestic Product (GDP) | GDP (Per capita PPP) | United Nation Development Program (2007) |
| Degree of economic development | Human Development Index (HDI) | HDI | United Nation Development Program (2007) |
| Degree of dependency | Island / No Island | Yes/No | |
| Geographic location | Geographic division into continents | Africa, Europe, Asia... | |
| Political situation | Zone of disputes / Peace zone | Yes/No | Centre for the Study of Civil War (2007) |
| Energy dependency | Energy total final consumption | 1000 tones oil (ktoe) | International Energy Agency (2005) |
| Energy dependency | Total primary energy supply | 1000 tones oil (ktoe) | International Energy Agency (2005) |

⁵⁵ Here, the number of times a country mentioned security was all summed up and then divided, the results were put into one of the three categories: (1) countries which did not mentioned security at all; (2) countries which mentioned security once or twice; (3) countries which mentioned security three times and above.

⁵⁶ Here we took only the countries which mentioned security and we divided them into two categories: (1) countries using an economic security rationale; (2) countries using a human security rationale. To decide whether a country mentioned security concerns because of economic or human security reasons several operational variables were chosen (see Table – 7 ‘Appendix’). It is important to mention that we also added the countries which did not mention any security concerns due to statistical needs. Moreover, this dependent variable was not examined over water due to insufficient amount of countries mentioning security which did not allow us to conduct serious statistical analysis.

| | | | |
|-------------------|-------------------|-----------------------|------------------------------------|
| Energy dependency | Energy production | 1000 tones oil (ktoe) | International Energy Agency (2005) |
| Energy dependency | Energy import | 1000 tones oil (ktoe) | International Energy Agency (2005) |
| Energy dependency | Energy export | 1000 tones oil (ktoe) | International Energy Agency (2005) |
| Energy dependency | Energy dependency | 1000 tones oil (ktoe) | International Energy Agency (2005) |

Table-5: Dependent Variables – Water

| Variable | System of Measurement | Source of Data |
|---|---|--|
| The number of times the word 'security' was mentioned in the statements | 1. Counting the word 'security' or the combination of it in the statements. 2. Dividing it into three groups (see footnote 51) | Commission on Sustainable Development (2004, 2005) |

Table-6: Independent Variables – Water

| Area/Field | Variable | Measuring Unit | Source of Data |
|------------------------------------|----------------------------------|--|--|
| Degree of economic development | Gross Domestic Product (GDP) | GDP (Per capita PPP) | United Nation Development Program (2007) |
| Degree of economic development | Human Development Index (HDI) | HDI | United Nation Development Program (2007) |
| Degree of geo-political dependency | Access to sea / No access to sea | Yes/No | |
| Political situation | Zone of disputes / Peace zone | Yes/No | Centre for the Study of Civil War (2007) |
| Water dependency | Water scarcity per person | Cubic meter per person (m3/person) | United Nation Development Program (2006) |
| Water dependency | Water footprint ⁵⁷ | Cubic meter per capita per year (m3/capita/year) | Water Footprint (2008) |
| Water dependency | Water for agriculture use | Cubic meter per hectare per year (m3/hectare/year) | World Resource Institute (2007) |
| Water dependency | Agriculture input on GDP | Square kilometers | United Nation Development Program (2004) |

⁵⁷ Water footprint is an indicator of water use of a country. Knowing the amount of water a country has and subtracting the water footprint, allows us to know if a country has a surplus or lack in water.

Results

This chapter will lay out the results of the statistical analysis. This chapter is divided into two main parts: (1) the results on energy; (2) the results on water.

1. Energy

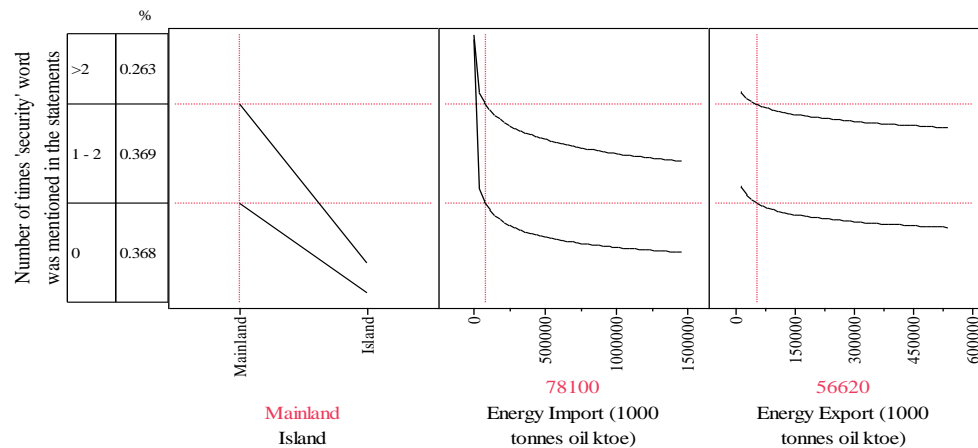
The last research step in the statistical analysis produced a final predictive model table⁵⁸, which is a numeric table that allows us to predict the raise of security concerns. The predictive model table, cannot demonstrate real life parameters, this is why the results were translated into three graphs.

A. Predicting the Rise of Security Concerns

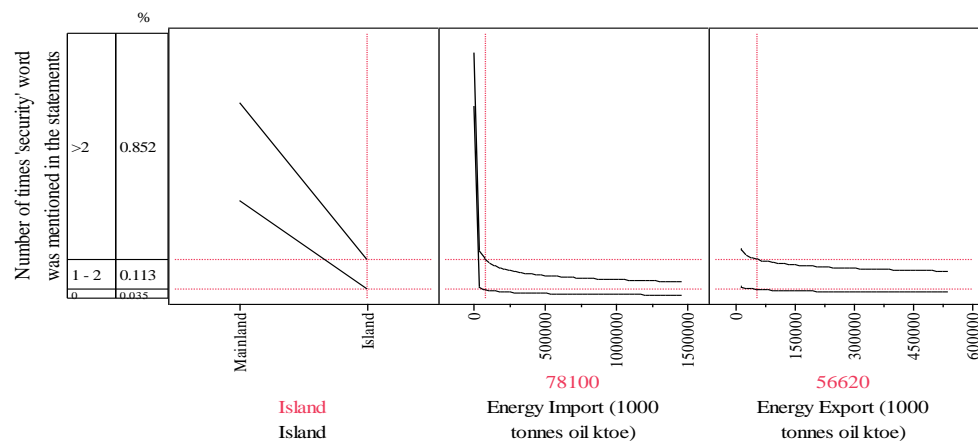
The first dependent variable in energy was the rise of security concerns. The first two graphs below (see Graph 1 and 2) represent the parameters for the raise of security concerns in the international sustainable development discourse. The two graphs are based on the same data but they show two different points in the horizontal axes, and this is why they appear different. Graph-1 represents an average starting point and graph-2 represents a middle point along the horizontal axes. We will examine both of the graphs together to see how the dependent variable changes following changes in the independent variable.

⁵⁸ Can be found in the Appendix – II

Graph – 1⁵⁹



Graph – 2



⁵⁹ How to read the graph:

- The vertical line represents the dependent variable, 'the number of times the word 'security' was mentioned', in two columns. The first column represents the number of times the word 'security' was mentioned in the statements ordered into three categories: countries which did not mention security concerns, 0; countries which mentioned security concerns once or twice, 1-2; and countries which mentioned security concerns three times and above, >2. The second column represents the percentage of countries that raised these security concerns with respect to the division that was made into three different categories (0, 1-2, >2).
- The horizontal axes represent the three independent variables: island, energy import, energy export, together with their unit measurement.
- The two black lines that appear in each and every box are the constant lines which represent the points of connection between the dependent and independent variables in each point along the horizontal line. The more the line is vertical the more significant is the correlation.
- The broken lines in the graphs represent the borders; the vertical one represent the current unit examined, the horizontal lines represents the borders of the three different representation of the dependent variable.

The **first finding** of the statistical analysis is that there are three main indicators that can influence the probability of raising security concerns in the international discourse over sustainable development: (1) whether the country is an island or not, (2) the scope of a country's energy import, (3) the scope of a country's energy export.

1. **Island**, from an examination of the two graphs we can note that:

- When a country is a mainland, 36.8% of all mainland countries will not raise any security concerns, on the other hand, when a country is an island only 1.5% of all island countries will not raise any security concerns. This means that only a small percentage of island countries do not raise any security concerns.
- When a country is a mainland, 36.9% of them will raise once or twice security concerns, on the other hand, when a country is an island, 11.3% of them will raise once or twice security concerns.
- When a country is a mainland, 26.3% will raise three times and above security concerns, on the other hand, when a country is an island 85.2% percent will raise three times and above security concerns. This difference is the most significant one and means that the amount of security concerns raised by islands are significantly high.
- First conclusion: if a country is an **island** the chances are higher that it will raise security concerns, than if it is a mainland country.

2. **Energy import** and **energy export**, since both of these independent variables changes in the boxes of the graph in the same mode, both units change in the same percentage, only an example of energy import is given (thus it is not represented in the graph). If we examine in Graph-1 the energy import, which stands on 15,000 tonnes of oil, i.e. low energy import, we can note that:

- 36.8% out of the countries which import 15,000 tonnes of oil, will not raise any security concerns, 36.9% of them will raise once or twice security concerns, and 26.3% will raise more three times and above security concerns. In theory, if we decide to move the horizontal broken line towards the right (for example to 100,000), meaning, raising the energy import of a country, then the dependent variable would change as follows: the percentage of countries which would not raise any security concerns would shrink, the percentage of countries which would raise security concerns once or twice would stay the same and on the other

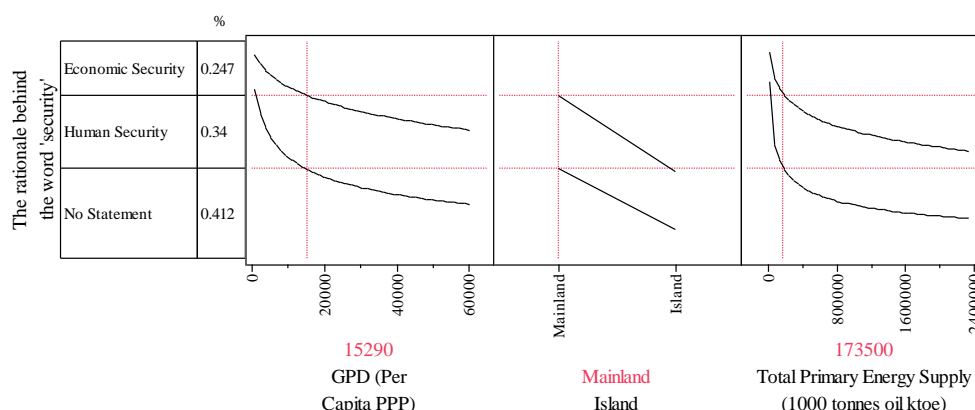
hand the countries which would mention security concerns three times and above would grow. The same case is valid also with our independent variable, energy export.

- Second conclusion: the more a country is an **energy importer** the higher is the chances that it will raise security concerns.
- Third conclusion: the more a country is an **energy exporter** the higher is the chances that it will raise security concerns.

B. Understanding the Rationale behind the Rise of Security Concerns

The second dependent variable in energy tried to capture the rationale behind the raise of security concerns. We divided the countries which did mention security concerns into two categories; first, countries whose rationale was an **economic security**, second, countries whose rationale was based on **human security**⁶⁰. The results of the table final predictive model were translated into a graph (see Graph-3)⁶¹.

Graph – 3



The **second finding** of the statistical analysis is that there are three different indicators which have a strong influence in determining whether the rationale is more a human

⁶⁰ For difference see 'Background', for how the distinction was made in the research see Table -7 in 'Appendix - I'.

⁶¹ Structure of the graphs:

Graph-3 is read in the same manner of the graphs explained above. There are only two differences:

1. Here, the vertical line represents the dependent variable the 'rationale behind the word security'. The first column represents the different rationale: no statement, human security, economic security. It is important to note that we also had to add the countries which did not mention any security concerns, due to statistical requirements.
2. The horizontal axes represent the three different independent variables: GDP, island, total primary energy supply.

security concerns or more an economic security concerns: (1) level of GDP, (2) whether the country is an island, (3) the total primary energy supply of the country.

1. **GDP**, from an examination and comparison⁶² of the graph we can note that:

- When a country has 15,290 GDP, 41.2% of them did not state any security concern, on the other hand when a country has 40,000 GDP, 29.5% would not raise security concerns.
- When a country has 15,290 GDP, 34% percent of them raised security concern over human security issues, on the other hand when a country has 40,000 GDP, 35% would raise security concerns over human security.
- When a country has 15,290 GDP, 24.7% raised security concerns over economic security, on the other hand when a country has 40,000 GDP, 35.5% percent would raise security concerns over economic security. Here what is interesting to note is that the raise of countries which mentioned security concerns over economic security, came mostly from the countries which did not mention any security concerns.
- Fourth conclusion: the higher its GDP, the higher the chances that a country will use an economic security rationale behind security concerns than a human security one.

2. **Island**, from an examination and comparison⁶³ of the graph we can note that:

- When a country is a mainland, 41.2% of them did not state any security concern, on the other hand, when a country is an island, 13.4% of them would not raise security concerns.
- When a country is a mainland, 34% of them raised security concern over human security issues, on the other hand, when a country is an island, 26.7% of them would raise security concerns over human security.
- When a country is a mainland, 24.7% raised security concerns over economic security, on the other hand, when a country is an island, 59.9% percent would raise security concerns over economic security. This is the most significant difference between the two.

⁶² The vertical broken line in the first box representing a countries which have a 15,290 GDP (Per Capital PPP), which is considered a low GDP. Moreover, let us imagine a broken horizontal line put where the GDP of a country is 40,000 GDP (per Capita PPP) and compare the two.

⁶³ The vertical broken line is on mainland (only mainland countries). Moreover, let us imagine a broken horizontal line put on island (only island countries) and compare the two.

- Fifth conclusion: if a country is an island there is a higher chance that its rationale behind the security concerns would be mostly an economic security one rather than a human security one.

3. Total primary energy supply. From an examination and comparison⁶⁴ of the graph we can note that:

- When a country total energy supply is of 173,500 tonnes, 41.2% of them did not state any security concern, on the other hand, when a country total energy supply is of 1,600,000 tonnes, 21.3% of them would not raise security concerns.
- When a country total energy supply is of 173,500 tonnes, 34% of them raised security concern over human security issues, on the other hand, when a country total energy supply is of 1,600,000 tonnes, 32.7% of them would raise security concerns over human security.
- When a country total energy supply is of 173,500 tonnes, 24.7% percent raised security concerns over economic security, on the other hand, when a country total energy supply is of 1,600,000 tonnes, 46% would raise security concerns over economic security.
- Sixth conclusion: the higher a country's total primary energy supply is the higher chances are that the rationale behind security concerns would be principally an economic security one rather than a human security one.

The importance of these graphs is that we can predict what will be the rationale of a country when it raises security concerns in the international discours on sustainable development. In other words, if we have a country that is an island and has a high GDP and has a big amount of totally primary energy supply, such as England, the rationale of raised security concerns are of an economic security type. The next part of this chapter outlines and explains the research results over water.

⁶⁴ The vertical broken line in representing a country which has a 173,500 tonnes of oil supply, which can be seen as a small amount of oil supply. Moreover, let us imagine a broken horizontal line put where the total primary energy supply of a country stands on 1,600,000 tonnes of oil and compare the two.

2. Water

The research over water ended one step before energy. The last step that was taken concerning water was examining if any correlations existed between the eight independent variables and one dependent variable. The results of the correlations were transformed for internal testing into a table of tendencies⁶⁵, prior to the final predictive model table. By examining the table of tendencies, it was easily notable that no significant correlations were found between the eight independent variables and the dependent variable, concerning the raise of security concerns over water. In other words this means that we did not find any indicator that could explain the raise of security concerns over water by those groups of countries which did raise concerns. Moreover, we did not find any indicator which would bond those countries, which raised security concerns, in any way different than the other countries which did not mention any security concerns. These results are not surprising, since already from the maps above it was possible to note that there was a weak indicator for the rise of security concerns. Since in the examination of water no tendencies were found between the dependent and independent variables, no solid results could be deducted. Nevertheless, in the next chapter, the lack of results is addressed.

⁶⁵ For table of tendencies see Table – 9 in ‘Appendix - III’.

Discussion

In this essay one main research question was raised and divided into three parts dealing with: In the international sustainable development discourse (1) who is raising security concerns, (2) to what degree are security concerns raised, (3) under what circumstances and conditions do different countries raise those security concerns.

Concerning the **first research question**, who is raising security concerns in the international sustainable development discourse, the maps provides us with an answer. As we saw in the previous chapter, the raise of security concerns in the international sustainable development discourse are from a large variety of countries. We have countries from different geographical sizes, such as Bahamas, Israel, Hungary, Russia, or countries from different geographical type and locations such as, Jamaica, a Caribbean island, or Belgium, a European mainland country, or Australia, a Pacific continent. Moreover, there are countries from a variety of political-economical level, such as the USA, today the biggest political-economic power, Japan, a strong economic power, Solomon Islands which does not have an economic nor political strong influence. In conclusion, the raise of security concerns over sustainable development is global.

Concerning the **second research question**, to what degree are security concerns raised in the international sustainable development discourse, here once again the maps and the tables following it provided us with a clear distribution of the variation in the amount of raised security concerns. Despite not finding any difference in the degree of raised security concerns over water (the countries which mentioned security over water, mentioned it only once) with respect to energy we noted that variation in the degree of raised security concerns exists. We noted that some countries raise more security concerns than others. For example we had countries which mention security three times and above, such as Turkey, Indonesia, Japan, Hungary and the USA and on the other hand we had countries that mention security only once or twice, such as Canada, India, Italy, Denmark and the United Kingdom.

With respect to the **third research question**, under what circumstances and conditions do different countries raise security concerns in the international sustainable development discourse, the statistical data provided us with an answer. From the findings it was discovered that there are in total six crucial parameters that have a strong influence on the raise of security concerns and the rationale behind it. Three parameters influence

the raise of security concerns (island, energy import, energy export) and three others influencing the rationale behind the raise of security concerns (island, GDP, total primary energy supply). In conclusion we can argue that a country which is an island and has a high amount of energy import or is a big energy exporter has a bigger probability to raise security concerns than a country that is a mainland, is not a large energy importer or a large energy exporter. Moreover, a country that is an island, has a high GDP and has a large total primary energy supply its rationale is more probable to be on economic security than human security.

A. The Importance of the Statistical Predictive Tools

The statistical findings are an initial, important and useful tool for further research, and also hold practical implications. Concerning future research, the research conducted here can serve as a baseline and an example for future research on other topics of the commission. Moreover, the tools found can be used in examining if changes in the discourse occur and why⁶⁶. Concerning the practical side, by knowing under what circumstances and conditions security concerns are raised in the international sustainable development discourse, practitioners may be able to limit securitization of the discourse or increatse it consciously by manipulating the membership of the commissions. In other words, we can use the parameters found as predictability tools to know which country has a higher or lower chances of raising security concerns. This in consequence can be used, in practice, to construct a group of countries that will raise more security concerns or will avoid raising security concerns, in the future Commissions on Sustainable Development. For example, if we want security concerns over sustainable development to be the main topic of a commission session on energy, we will use the parameters found to invite countries with higher chances of raising security concerns. In this case, these countries will be more island countries, and countries with high energy import or high energy export.

B. The Securitization of Sustainable Development

To convincingly establish a process of securitization we would have to examine the statements over a long period of time. Since this research examined two different topics,

⁶⁶ For example to find out if securitization of sustainable development exists, this issue will be discussed in the next part.

each one over a period of two years, and a longer time examination was not possible⁶⁷, we cannot declare that securitization of sustainable development is indeed happening. Nevertheless, we could argue that there are signs of an initial process of securitization. From the research we can learn that security concerns were clearly found in the international sustainable development discourse over energy and, to a lesser extent, over water. Moreover, security concerns were also found in other topics, which were not systematically researched, such as: food, sanitation and poverty.

Research on securitization, such as on natural resources, was conducted by different scholars⁶⁸. On the other hand, research on the securitization of sustainable development was not conducted; this leaves us with a big knowledge gap. The initial data base that was gathered in this research can be a helpful tool for future research on this issue. The importance of knowing the circumstances and conditions under which international sustainable development discourse is being securitized is crucial. Securitization of an area can be used as a powerful tool, since it raises the ‘securitized’ area, from low politics to high politics, an act that puts more attention into it⁶⁹. In today’s international political world securitizations can be found in different political sectors⁷⁰. Securitization, as was mentioned in the background, can change the entire discourse⁷¹. Securitization has the power to bring to greater collaboration and cooperation, as well as to bring more funds into the area securitized. On the other hand, securitization can create new political fractions and arguments it can be also used in a wrong non proportional political move. This in consequence can lead to less collaboration and cooperation, and finally to an entire halt in the discourse of the securitized area. In other words, too much securitization can stop any other possibilities of discourse.

Reaching sustainable development requires several conditions to succeed both in the local as well as in the national and international level. Sustainable development requires a balance between the three pillars that compose it: environment, economy, and society. Moreover, to reach sustainable development it requires negotiating, collaborating, making compromises, respecting each other. Only in this way it is possible

⁶⁷ Past statements of the Commission were not available for technical reasons and since future statements are still not found, an examination of a process can not be achieved.

⁶⁸ Kilot, 1993 & Homer Dixon 1994 & Hauge 1998

⁶⁹ Waever, 1995

⁷⁰ Buzan, 1998

⁷¹ Balzacq, 2005

to reach the goal of sustainable development⁷². In the last years, it seems as if sustainable development discourse is stuck because of much disagreement between the parties involved. This can be seen especially concerning issues highly securitized in sustainable development and attribute to it. An example of the situation can be found in the last session of the Commission on Sustainable Development on energy in 2007. The disagreements were expressed in the Chairman's summary: 'delegates...remained divided on key points in the energy...chapter' and 'Germany, on behalf of the EU...rejected the decision text because agreement could not be reached' and in conclusion 'no consensus could be reached on initiating a formal agreement process'⁷³. It can be seen very clearly that the Commission on Sustainable Development is facing several major problem. The Commission that should represent a forum where new ideas are put in and where collaboration and compromises should be found are not found. This raises the big question, whether the current situation that exists in the Commission on Sustainable Development is due to its securitization. Hopefully, future research on this issue will reveal the answer to this. In conclusion, maybe after all, the Commission on Sustainable Development is not the right forum to discuss sustainable development and highly securitized areas such as energy. Perhaps, highly securitized areas should be dealt with in regional forums.

C. The Rationale behind 'Security' in Sustainable Development

Another aim of this research was to understand what stands behind the raise of security concerns in sustainable development. Once again statistical tools were used for this purpose. Often, raising security concerns or securitization on an area is driven by certain political actors as it serves them to promote their agenda⁷⁴. From the literature on security concerns in sustainable development they were usually divided into two areas, the economic and the human one. This is why in the statistical research we divided the rationale also into the same two categories. The results of the research, concerning energy, showed that three influential parameters existed in determining the rationale of raised security concerns, which are: island, GDP and total primary energy supply.

⁷² Since environmental issues are mostly cross-border problems or have a cross-border effect, the way to tackle them is by dealing with them on several levels (local, national, international) simultaneously.

⁷³ Commission on Sustainable Development, Feb 2007

⁷⁴ Waever, 1995 & Balzacq, 2005

The first parameter that was found to influence the change in raised security concerns rationale was island. The reason is that the economy of an island, opposite than a mainland country, in most cases is highly dependent on outside energy sources for its economic and development growth. Moreover, an island, unlike a mainland country, is even more fragile to changes in energy supply⁷⁵. Unlike a mainland country, which has ready built infrastructures to several different countries and can switch easily from one pipe line to another, an island does not have this option. For these reasons, island countries rationale behind raised security concerns in sustainable development is more towards economic security.

The second parameter that was found to influence the change in the raise of security concerns rationale was GDP (per Capita PPP). The reason for this is quite simple, the more a country GDP is lower, this means that this country is a poor or a developing country, the higher the tendency will be to worry about the immediate human problems such as sanitation, health, social unrest, poverty and in smaller degree with development. This is why raise of security concerns in sustainable development by countries with lower GDP will have a human security rationale in mind. On the other hand, countries with high GDP, which are mostly developed and well off countries, have less poverty, health, sanitation problems to deal with. Those countries are economically well off and their main concern is to keep the development and the economy in a constant growth.

The third parameter that was found to influence the change in the raised of security concerns rationale was total primary energy supply. In other words, this means the amount of energy a country has for immediate use for consumption. What was found is that countries with less energy supply for consumption will have a rationale orientated towards the human security. On the other hand, it was found that countries with high energy supply for consumption will have a rationale orientated towards the economic security. In general, energy consumption in developed countries is higher than in developing countries. Moreover, in most cases developed countries have a higher energy supply, since its entire economy is based on continuous use of energy and this is why those countries have to ensure high energy supply. On the other hand, less developed countries and developing countries, where consumption is still low compared with developed countries, are in some degree less worried with their immediate energy supply.

⁷⁵ Stuart, 2005

Their aim to have a large energy supply is related to the will to lower the poverty rate and try to develop in the future.

D. The European Union – A Main Actor

An interesting aspect of these research findings is that the European Union is one of the main actors in raising security concerns of energy in the international sustainable development discourse. Although the European Union is not a sovereign country as the other examined countries, it was decided to include it since it seemed to be one of the main actors in the Commission on Sustainable Development. Indeed, the European Union was in the first place in the amount of raising security concerns over sustainable development⁷⁶. The European Union, unlike the different countries that compose it, raised security concerns always at the highest degree (more than three times and above). These findings go hand in hand with the literature review which noted that security concerns entering the sustainable development discourse are found also in different European Union strategic⁷⁷ or in the European Union plans and policy conferences⁷⁸. The research results further bolster the statement that the official policy of the European Union is towards a higher degree of securitization of the sustainable development discourse. In conclusion, after going over the facts, now it would be accurate to formally state that the raise of security concerns in sustainable development is an official policy of the European Union or at least an important perspective.

To better understand why the European Union behaves in this manner we can use the parameters found in the research concerning the third research question: under what circumstances and conditions do different countries raise those security concerns in the international sustainable development discourse. In the statistical analysis we found three indicators that raise the chance of a country to raise security concerns in the international sustainable development discourse, which are: island, energy export and energy import. The European Union fits with two of the parameters described: island and energy import. Although Europe is not an island geographically, it is an island with respect to energy. The European Union is composed mostly of developed countries which are highly industrialized and have large amount of consumption. The economy as well as the

⁷⁶ The European Union raised sixteen times security concerns in both the commissions together.

⁷⁷ 'Green Paper: A European Strategy for Sustainable, Competitive and Secure Energy' written by the Commission of the European Communities, March 2006

⁷⁸ 'Pan European Conference on EU politics – Regional Environmental Initiative: South-Eastern Europe (Balkan) Regional Environmental Cohesion Initiative', 2008

development of the European Union is largely dependent on foreign energy. Although some countries in the European Union have natural resources to produce energy, and although the European Union is connected with pipelines to different energy suppliers, it is still very dependent on it. In this respect the European Union is like an island in energy import. Furthermore, as we said above, most of the energy of the European Union is heavy imported. Therefore it can be argued that since the European Union is also an island with respect to energy and is also a heavy energy importer it has a higher chance to raise security concerns over sustainable development. And indeed it goes hand in hand with the findings of the literature review.

To better understand the rationale behind European Union raise of security concerns in the international sustainable development discourse we can once again use the three other parameters found in this statistical analysis, which are: island, GDP and total primary energy supply. The European Union fits with all the three parameters above. The European Union is an island with respect to energy, as mentioned before, this is why it has a higher chance that its rationale of raising security concerns would be more economic security ones than human security ones. Moreover the European Union is highly ranked above many other countries, in its GDP and in total primary energy supply. This is noteworthy since the higher the percentage of GDP and total primary energy supply the higher the rationale will be an economic security one. In conclusion, the rationale of the European Union concerning security concerns over sustainable development is economic security rather than human security. This is quite reasonable, since the European Union is a developed economic area which is more preoccupied with securing a constant economic and development growth, than with human security issues that are mostly found in the poorer countries. Therefore it can be argued that from both the literature review as well as from the research results, the European Union is the major actor that seems to push towards the securitization of the international sustainable development discourse. The agenda that stands behind it is securing a constant economic and development growth.

E. The Peculiar Gap Found Between Energy and Water

Concerning energy and water, a large difference was found in the raise of security concerns between the two areas. As was mentioned in the literature review, both energy and water are seen in international relations as highly securitized issues. This is why the

findings of this research are so peculiar. From the results, on energy, thirty four countries in both the commissions together raised security concerns, in different degrees. On the contrary, on water, only eight countries in both commissions together raised security concerns, and only once.

At the beginning of 1990s many authors saw conflicts over water as the next main political issue that will dominate the security arena. For example Starr (1991) argues that ‘water security will soon rank with military security in the war rooms of defense ministries’ and warned on the coming ‘water wars’⁷⁹. Today with retrospective view we can argue that water did not take the main stage as a security concern. Moreover, also the research results on securitization over water contradict those arguments of water as a potential source of war; the raise of security concerns on water in sustainable development discourse proved to be very limited. Selby (2005) argues the water security discourse suffers from a weakness, since the scarcity of water is not caused by the Malthusian⁸⁰ assumption on limited sources, but of uneven economic development. Malthusian assumption on natural resources in general argues that natural sources are limited and with population growth, these resources are bound to finish. However, as we know water, unlike energy, is an indefinite source. On this point, Malthusian assumption argues that in any case the problem will arrive sooner or later from the unbalance between supply and demand, produced not only because of population growth but also because much of the water will be polluted and in consequence will bring to a definite conflict. Nevertheless, today we can note that the water scarcity does not derive from limited resources and pollution growth but mostly from ill management and uneven economic development. The main question to ask is why energy and not water is being more securitized?

The important point to grasp is that today, both water and energy, are important with regard to their significance to the industrial capitalistic economy. When a natural resource is endangering the continuity of possible growth and development, this resource becomes a security matter. There two main possible reasons for a larger degree of security concerns on energy than on water. The first reason is that energy today, unlike water, is a necessity strategic commodity for developed as well as developing countries. With today’s unprecedented degree of production and consumption ‘Oil is a resource that

⁷⁹ Starr, 1991, p.19

⁸⁰ Malthus Thomas, 1766-1834

is needed to a much greater degree, and in much greater quantities'⁸¹ than water. The second reason is that concerning energy we have an uneven distribution of oil to a much greater degree than with water. The unevenness distribution in energy is so isomorphic that most countries are dependent heavily on foreign energy import, not unlike water that most countries are still self dependent.

⁸¹ Selby, 2005, p. 206

Conclusions

The geographical maps as well as the statistical analysis succeed to give answers to the main research questions: In the international sustainable development discourse (1) who is raising security concerns, (2) to what degree are security concerns raised, (3) under what circumstances and conditions do different countries raise those security concerns.

This research, in addition to answering the main question also provided further findings on the issue of sustainable development and security. The most important finding for future research on this issue is that the statistical parameters used to examine the raise in security concerns can be used for future predictions and as a practical tool for in future commissions on sustainable development. This research also succeeded partly to close the knowledge gap in the typology on sustainable development. The research added valuable information on who are the main actors who push towards a higher degree of security concerns in the international sustainable development discourse. Moreover, this research also added valuable information on the circumstances and conditions that causes countries to raise more or less security concerns. Finally, this research added new information on the reasons that stand behind the raise of security concerns, meaning the actors' agenda. All of this information found was missing in the previous literature.

Lastly this research proved that security issues are found in the discourse of sustainable development. It looks as if a process of securitization of sustainable development has started. It would be interesting to see if indeed securitization is happening in the international sustainable development discourse. This research provides tools which are a good to start such an examination. Moreover, it would be interesting to examine if there is a way to combine the notion of security inside sustainable development, without it being a barrier or taking the main focus of the discourse. Furthermore, this essay dealt with a discourse, but one thing is discourse, meaning talking about an issue and the other thing is doing something about it. It would be interesting to examine how words are translated into actions, and to what degree are security concerns changing the practice of doing things. Lastly, it would be also interesting to see whether the securitization of sustainable development is just a passing fashion, such as 'the end of history'⁸² or President Bush's 'war on terrorism'⁸³, or is it here to stay for a longer time.

⁸² Fukuyama, 1992

⁸³ The White House, 2001

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Appendix

Appendix - I

Research Steps:

Before we enter into the methodology steps, it is important to clarify several points. First, two different dependent variables on the amount of security concerns found in the statements were created: one, 'the number of times security word was mentioned in the statements' which was divided into three categories (0, 1-2, >2), two, 'the number of times in **average** per statement the word 'security' was mentioned' which was ordered in a continuous way (1, 2, 3, 6, 9...). The dependent variable that was ordered in a continuous way has been examined but could not produce any solid data and thus was put aside; this chapter will not deal with it.

Second, a decision to combine the data of the two energy commission's years and the two water commission's years was taken. Two new years were 'created': 06-07 for energy and 04-05 for water. This was done in both cases since a big part of the countries did not mention any 'security' and some other countries which did mentioned security but the data was unavailable, so in both respect, could not be helpful. It is important to note that although two new years were 'created', with regard to energy the statistical analysis was conducted also on the year 2006 and 2007 separately, in contrast, the statistical analysis on water was conducted only on the year 04-05 due to small amount of countries mentioning security (in total eight). Since at the end of this research the results are based on the combined years of energy and water (06-07 and 04-05), in most parts of the methodology and the results chapter, these years will be used to demonstrate the research procedures.

First Step

The research's first aim was to find whether a securitization of the international sustainable development discourse did occur and whether there is a variance between the countries. In this part the focus was on finding 'traces of security' in the statements. This was done by examining the parts of speeches; going over the statements of each country represented in the Commission on Sustainable Development and counting the word 'security' or the combination of it, such as: 'energy/water-security', 'security-demands/needs/risks'. With respect to **energy** the statements of the 14th and 15th

commissions (2006 and 2007) were examined. With respect to **water** the statements of the 12th and 13th commissions (2004 and 2005) were examined. (Commission on Sustainable Development, 2006 & 2007).

Second Step

After putting each country into one of the three categories (0 - did not mention security, 1-2 - mentioned security once or twice, > 2 - mentioned security three times and above), the results were translated into two large world maps and two tables. The first map and table represents the results of both commissions on **energy** together - Commission on Sustainable Development 14th and 15th (see Map-1, Table-1). The second map and table represents the results of both the commissions on **water** together - Commission on Sustainable Development 12th and 13th (2003 and 2004) (see Map-2, Table-2).

The maps show the spatial distribution and variation of securitization in the international sustainable development discourse among the different countries concerning energy and water. The table provides us with accurate numbers on the amount of securitization mentioned by each country separately.

Energy - Table-1: Raise of Security Concerns over Energy found in the Commission on Sustainable Development 14th and 15th (2006-2007)

| Country Name | Number of times 'security' word was mentioned | Country Name | Number of times 'security' word was mentioned |
|---|---|----------------------------|---|
| High Rank in Security Concerns | | Belize | 0 |
| EU (25) | 16 | Bolivia | 0 |
| Azerbaijan | 8 | Brazil | 0 |
| Australia | 6 | Burkina Faso | 0 |
| Turkey | 5 | Cameroon | 0 |
| Armenia | 4 | Chile | 0 |
| Indonesia | 4 | Colombia | 0 |
| Japan | 4 | Congo, Democratic Republic | 0 |
| Norway | 4 | Cuba | 0 |
| Belgium | 3 | Czech Republic | 0 |
| Hungary | 3 | Djibouti | 0 |
| Kazakhstan | 3 | Ethiopia | 0 |
| Russia | 3 | Fiji | 0 |
| United States | 3 | France | 0 |
| Middle Rank in Security Concerns | | Georgia | 0 |
| Canada | 2 | Germany | 0 |
| China | 2 | Ghana | 0 |

| | | | |
|-----------------------------|---|---------------|---|
| India | 2 | Guinea-Bissau | 0 |
| Italy | 2 | Honduras | 0 |
| Portugal | 2 | Iran | 0 |
| Saint Lucia | 2 | Jordan | 0 |
| South Africa | 2 | Korea, North | 0 |
| Bahamas | 1 | Korea, South | 0 |
| Denmark | 1 | Kuwait | 0 |
| Finland | 1 | Luxembourg | 0 |
| Israel | 1 | Macedonia | 0 |
| Jamaica | 1 | Mexico | 0 |
| Pakistan | 1 | Netherlands | 0 |
| Papua New Guinea | 1 | Paraguay | 0 |
| Poland | 1 | Peru | 0 |
| Saudi Arabia | 1 | Qatar | 0 |
| Sierra Leone | 1 | Senegal | 0 |
| Solomon Islands | 1 | Serbia | 0 |
| Sri Lanka | 1 | Spain | 0 |
| Sweden | 1 | Sudan | 0 |
| United Kingdom | 1 | Tanzania | 0 |
| No Security Concerns | | Thailand | 0 |
| Algeria | 0 | Tunisia | 0 |
| Antigua and Barbuda | 0 | Uganda | 0 |
| Austria | 0 | Zambia | 0 |
| Belarus | 0 | Zimbabwe | 0 |

Water - Table-2: Raise of Security Concerns over Water found in the Commission on Sustainable Development 12th and 13th (2004-2005)

| Country Name | Number of times 'security' word was mentioned |
|---------------------------------|---|
| Raised Security Concerns | |
| Antigua and Barbuda | 1 |
| Australia | 1 |
| Egypt | 1 |
| EU (25) | 1 |
| Fiji | 1 |
| Germany | 1 |
| Japan | 1 |
| Madagascar | 1 |

From the maps we concluded that:

- Both maps show the raise of security concerns over energy and water in the international sustainable development discourse.

- Both maps show the existence of *variation in the distribution* of raised security concerns, around the world. Some countries mention security more than others.
- The maps show that a *difference* in raised security concerns exists between energy and water. There is a higher securitization over energy than over water.
- Since the European Union has taken a strong active role in raising security concerns in the Commission on Sustainable Development independently than the sovereign states which compose it, it was represented with the same colors of the categories but with strips over the area of the Union.
- The maps *do not reveal* what may be the *patterns* that may explain the variation in the distribution and amount of raised security concerns.

From the tables we concluded that:

- There is a large *variation in the amount* of raised security concerns made by the countries over energy. Some countries mention security eight times, other five times and some one time only. On the other hand, over water there is no variation in the amount of security concerns, the countries which mentioned security, did it only once.

In conclusion, from examining the two maps and two tables, variation in degree of security concerns were found in both the topics, but the reason for them at this stage was not yet evident. The next step was to identify and measure the key independent variables that can account for variation in countries' mentioning of security concerns.

Third Step

For each natural resource examined, several specific and different independent and dependent variables were chosen. The independent variables were chosen from a variety of spheres such as economic, social, physical geography and geopolitical. Several of the variables are commonly used indicators of ranking countries by their economic performance or by their development.

First, regarding **energy** two dependent variables and eleven independent variables were chosen (see Table – 3 and 4). Second, regarding **water** one dependent variable and eight independent variables were chosen (see Table – 5 and 6).

Table – 7: The Rationale of Raise Security Concerns – Operational Variables

| Economic Security | | Human Security |
|-------------------------------------|--|--------------------------|
| GDP | | Poverty |
| Prosperity | | Social unrest |
| Economic development | | Public health |
| Inflation – Prices – Value - Budget | | Sanitation |
| Stability | | Development - Developing |
| Investment | | Public goods |
| Dependency | | Pollution |
| Price surging | | Global warming |
| Finance | | CO2 raise |
| Market oriented | | Sea level rise |
| Affordability | | House hold capacities |
| Energy capacities | | |
| Refining capacities | | |

Fourth Step

The fourth step was conducted as an internal test to examine the correlations between the dependent and independent variables. Each of the ordinal coefficient regression (ordinal dependent variable) was examined separately using ‘chi’ square test.

Both in energy and in water, the results were transformed into a table of tendencies to see, if there are any trends (positive, negative or no tendency). Concerning **energy** some correlations were found and thus further examination was necessary. On the other hand, since in the examination over **water** no tendencies were found between the dependent and independent variables no further research steps were taken concerning water (see Table-9 ‘Results’).

Fifth Step

The fifth step was conducted only over energy. This step examined the relative contribution of each independent variable on the dependent variables, in the purpose of explaining the variation in the distribution and amount of security concerns found in the previous maps. In this step the results of the analysis was translated into a table of predicting models (see Table – 8, ‘Results’). The calculations of this table were made automatically by using the ‘Stepwise Technique’ with the JMP statistic program. The final predictive model table which is a numeric table is very important because it allows us to do three things. First, it gives us information on which of the countries has bigger

propensity of raising security concerns in the international discourse. Second, it also enables us to predict when a country will start raising security concerns or when a country will stop raising security concerns. Third, it will also allow us to predict what will be the rationale behind the raise of security concerns.

Appendix - II

Final Predictive Model

In the first part, the results of the analysis, of the relative contribution of each independent variable on the dependent variable, was translated into a table of predicting models (see Table – 8 below).

The structure of the Table-8:

- On the upper horizontal row we have our two dependent variables: ‘number of times ‘security’ word was mentioned’ and ‘rationale behind the word security’.
- One line below the row of dependent variables, we have a row representing the years, both separately (2006, 2007) as well as combined (06-07).
- On the left vertical column we have: first, our five independent variables which showed a correlation with the dependent variable: energy **import**, energy **export**, totally primary energy **supply**, **island**, and **GDP**.
- Second, ‘C1’ and ‘C2’, both of them are a way to examine the constant, which means, do the lines that appear in the graphs resulting from the above data, cross each other at one point or not (see Graphs -1).
- Third, the signs ‘ χ^2 ’, which is an examination of the significance of each model (all the correlations found in that specific year together) separately. The higher the number the stronger it is.
- Fourth, we have ‘Observed’, which means the number of countries examined in that specific year.
- The first number that appears inside the different squares, e.g. -0.453, represents the parameter estimate for this variable. Its negative sign reflects its reverse relation, to the probability of not stating security in the context of the energy debate. The parameter estimate is important for predicting purposes; if energy import falls by one unit, the probability to raise security concerns grows by the natural logarithm of this figure.

- The number that appears in brackets, e.g. (0.0014), is the Pvalue of a statistic test examining whether the parameter estimate is significantly different than zero. Using the 10% significant level determines the importance of including the variable in the model. The smaller the number in brackets is the better.

Table-8: Final Predictive Model - Energy

| Independent variables | Dependent Variables | | | | | |
|-----------------------|---|--------------------|--------------------|--------------------------------------|--------------------|--------------------|
| | Number of Times 'Security' Word Was Mentioned | | | Rationale Behind the Word 'Security' | | |
| Year | 2006 | 2007 | 06-07 | 2006 | 2007 | 06-07 |
| Import | -0.453 (0.0014) | | -0.316 (0.0289) | -0.462 (0.0017) | | |
| Supply | | -0.823 (0.0012) | | | -0.726 (0.0021) | -0.432 (0.0146) |
| Island | | -2.206 (0.0322) | -2.780 (0.0156) | | | -1.514 (0.0661) |
| Export | | | -0.178 (0.0979) | | | |
| GDP | | | | | | -0.535 (0.0618) |
| χ^2 | 12.033 (0.0005) | 19.554 (<.0001) | 11.755 (<.0001) | 12.515 (0.0004) | 13.323 (0.0003) | 20.053 (0.0002) |
| Observed | 58 | 53 | 64 | 58 | 53 | 67 |

*Pvalue is the number shown in brackets.

From Table-8 we can conclude that:

- Only five out of the eleven independent variables examined showed a correlation with our two dependent variables. The independent variables are: energy import, energy export, total primary energy supply, island, GDP.
- Concerning the first dependent variable, the number of times security concerns are being raised, the most significant year that represents it is '06-07'. This can be seen by looking at χ^2 and 'observed'. Although with respect to χ^2 in 06-07 it takes only the second place after the year 2007, in 06-07 we had much more observations, and this is what makes the year 06-07 the most significant to represent the raise of security concerns.
- Concerning the raise of security concerns in the year 06-07, the three independent variables that best explain it are: **energy import, energy export and island.**

- With regard to the second dependent variable, the rationale behind the raise of security concerns the most significant year that represents it is 06-07. This is since both the χ^2 and the 'observed' are the highest than the other two years.
- With regard to the rationale behind the raise of security concerns in the year 06-07, the three independent variables that best explain it are: **island, GDP and total primary energy supply**.
- The table does not represent real life energy parameters with respect to the raise of security concerns. For this a graph is necessary.
- The table does not allow us to see when the rationale changes more towards an economic security one or more towards a human security one. For this a graph is also necessary.

Appendix - III

Table-9: Tendency Results of Correlations - Water

| Independent Variables | Tendency |
|--|-----------------|
| Ln GDP (Per capita PPP) | = |
| Economic Development – HDI | = |
| Access to the Sea | = |
| Zone of Disputes - Intrastate Conflict | = |
| Water Scarcity Per Person | = |
| Water Footprint | = |
| Water for Agriculture Use | = |
| Agriculture Input on GDP | = |

Legend:

= - No tendency