

THE UN AND ENERGY

– AN INSTITUTIONAL GAP OR A PROMISE FOR THE FUTURE?

REPORT BY

Karolina Leopoldsson, MA, Swedish Institute of International Affairs



SUMMARY

This paper addresses the United Nation's role in global energy governance, aiming at giving an overview of how the UN has addressed energy issues over time, with a special emphasis on what the UN has governed in global energy governance. It concludes that energy issues have become more prominent within the UN since the 1970s and a common belief within the UN system today is that energy plays a key role in many of the challenges that the world faces. In relation to what the UN has governed, this study departs from four different aspects of energy: security, economic, environmental and social aspects. The findings indicate that

although the UN has addressed all four aspects, a special emphasis has been given to social and environmental aspects. In contrast to traditional ways to approach the energy question, security aspects have only played a minor role within the UN. Further, the UN has increasingly taken a broader view on energy issues, highlighting the need for cooperation and coordination between different policy areas. These findings indicate that even though the UN has not been a major player within global energy governance in the past, it has good prospects of becoming more prominent in forming future energy policy.

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LIST OF ABBREVIATIONS

CSD	Commission on Sustainable Development
DESA	(UN) Department of Economic and Social Affairs
G7/G8	The group of the 7/8 of the major industrial economies
IAEA	International Atomic Energy Agency
IEA	International Energy Agency
IEF	International Energy Forum
IPCC	Intergovernmental Panel on Climate Change
IPEEC	International Partnership on Energy Efficiency Cooperation
IRENA	International Renewable Energy Agency
NATO	North Atlantic Treaty Organization
OECD	Organization for Economic Cooperation and the Development
UN	United Nations
UN-Energy	United Nations Interdepartmental Agency on Energy Issues
UNEA	UN-Energy Africa
UNCED	United Nations Conference on Environment and Development
UNCSD	United Nations Conference on Sustainable Development
UNCHE	United Nations Conference on Human Environment
WSSD	World Summit on Sustainable Development

INTRODUCTION

The United Nations (UN) is one of the main arenas for issues of global concern, but it has rarely addressed energy related issues at an intergovernmental level. This is mainly due to the strong connection between energy issues and vital state interests, among which the primary concern has been the national security of supply. The historical exception has been nuclear energy, which is more closely connected to collective security concerns (Karlsson-Vinkhuyzen 2010). This has changed during the past decades as energy has been increasingly linked to global concerns. Today energy is a top priority on the policy agenda, increasingly linked to both poverty reduction and climate change and voices are now raised for enhanced global energy governance to tackle these challenges (Schubert & Gupta 2013). Nevertheless, is it reasonable to talk about global energy governance when energy issues are fragmented over a large number of policy areas? If so, what should be governed? Are there any aspects of energy that are not thoroughly addressed by other policy areas?

As energy has been framed in a more complex context, it is now deeply embedded in different sectorial and policy contexts. Consequently, energy governance has broadened to cover a wide range of issues related to energy. These can be grouped into four aspects: (i) the security aspect which is the traditional way of approaching energy where the objective is to secure nations' access to energy; (ii) the economic aspect that relates to the important role of energy as the motor in economic growth and to energy as one of the most traded commodities worldwide; (iii) the environmental aspect considering that the use and production of energy are major sources of environmental stress both at local and international level; and (iv) the social aspect relating to energy as a prerequisite for many basic human needs.

Besides the different aspects of energy and their interconnectedness, the global energy system¹ exhibits many of the key features of a complex system (unpredictability, nonlinearity, path dependency, openness, adaptability, and resilience)². A complex system is more difficult to understand, predict and influence and thus researchers argue that

global energy governance needs to become more of a polycentric governance system to fit the features of the system (Cherp et al. 2011). Global energy governance is often described as undeveloped and scattered, consisting of a range of actors, initiatives and processes, all with different entry points to what aspects of energy that should be governed and how this should be done (Goldthau & Sovacool 2012; Heubaum & Biermann 2010). Further, these parts are hardly ever fully interlinked and integrated and the existing knowledge of how these various actors, initiatives and processes do, or can, fit together is limited (Dubash & Florini 2011; Heubaum & Biermann 2010).

The small but growing academic literature on energy governance has to a large extent concentrated on who governs in global energy governance, covering the institutions and organizations that regulate energy markets and provide for energy security. However, the knowledge of what existing institutions and organizations govern or should govern is still limited and it has been identified as an area where further research is needed (Cherp et al. 2011; Goldthau 2011). Moreover, there is a wide range of actors, initiatives and processes involved in global energy governance and few researchers believe that any over-arching institution will emerge. Therefore we have to turn our attention back to fundamental questions such as the "what" and "how" in global energy governance. Only then can we fully understand the strengths and weaknesses of different governance mechanisms and how the existing governance structure may adapt to a more complex reality (Florini & Sovacool 2009).

As one of the major actors on the global arena, the UN is usually the focal point of a multitude of studies, but research on the UN's role in global energy governance remains absent. Few studies focus solely on the UN (e.g. Najam & Cleveland 2003, Karlsson-Vinkhuyzen 2010, Hodas 2010/12), but several studies mention the UN's role in energy governance as consisting of various weak and relatively obscure UN agencies (Gunningham 2012, Goldthau & Sovacool 2012). Yet, the UN has great prospects of becoming an important actor in global

energy governance due to the near universality of governmental participation, its openness for non-state observers as well as the great amount of knowledge, resources and skills possessed by its agencies (Karlsson-Vinkhuyzen 2010, UN 2010a). Further, when energy issues expand to areas where the UN is considered to play a major role, such as climate change and poverty, there are reasons to expect an increased capacity of the UN to deliver on energy issues. As the number of studies on the UN and energy are still few in numbers, this calls for further investigation, both on the UN's role in energy governance and on which aspects of energy the UN has addressed in particular.

The purpose of this study is two-fold: first, to give a review of UN-Energy as representative of the work on energy that is carried out by UN-agencies and second, to map out what aspects of energy that have been addressed at multilateral summits and meetings within the UN environmental/sustainability framework. The events that have been chosen for the study are four major summits focusing on the environment; the United Nations Conference on Human Environment (UNCHE) -72, the United Nations Conference on Environment and Development (UNCED) -92, the World Summit on Sustainable Development (WSSD) -02 and the United Nations Conference on Sustainable Development (UNCSD) -12 as well as three high-level meetings within the Commission on Sustainable Development (CSD) framework where energy issues has been prominent (CSD 9, CSD 14 & CSD 15). It is mainly during environmental/sustainability events that the UN has addressed energy issues at the intergovernmental level and it is during the

aforementioned meetings and summits that energy issues have been most prominent. Further, these events cover a wide time-span and they have all been important events in the multilateral discussion on sustainable development issues, a term that has had great impact on policies worldwide. Lastly, the meetings and events cover a wide range of policy areas that in different ways are related to energy governance.

The primary objective with this mapping is to review the weight and importance of different aspects of energy in the UN's intergovernmental work since the 1970s, with the aforementioned aspects (security, economic, environmental and social)³ as point of departure. The meetings and summits are environmentally/sustainability focused, but there are reasons to expect that they have treated other aspects besides environmental aspects due to the strong interconnectedness between different policy areas. The main sources are mostly confined to official documents from the meetings, complemented with earlier studies and analyses of the official deliberations. The study will be carried out as a text analysis.

The paper is structured as follows; starting with a background to global energy governance, the major actors and organizations involved as well as a review of how energy has been managed within UN-Energy. It will then continue with a mapping of how the environmental/sustainability framework within the UN has managed different aspects of energy over time. The concluding section includes a summary of the findings as well as a discussion of future implications for global energy governance.

1.1 GLOBAL ENERGY GOVERNANCE

Energy is central to all countries' wellbeing due to its strong linkages to military security, industrialization and economic development. Therefore energy policy has been considered to be a matter of national and sub-national concern and multilateral cooperation on energy issues has been sparse. However, as the global energy system faces major challenges the need for efficient global governance has gradually become more apparent. Especially since future challenges are increasingly transnational or global in scale and thus require trans-boundary solutions (Dubash & Florini 2011).

Two of the major challenges the world faces today are the energy-related challenges of meeting the increasing demand of energy without a corresponding increase in emissions of greenhouse gases causing further global warming. The International Energy Agency (IEA) estimates that the global energy demand will rise by over one third by 2030. Although renewable energy sources are becoming more and more important, fossil fuels are expected to remain the dominant source of energy for some decades to come (IEA 2012 a/b). Fossil fuels are closely linked to climate change due to the emissions of carbon dioxide that the use and production of fossil fuels cause. Carbon dioxide is only one of several greenhouse gases, but it has been identified as one of the key culprits of global warming. It is estimated that energy systems produce some 60 percent of the world's total greenhouse gas emissions. Substantial reductions in greenhouse gas emissions and a transformation to a low carbon economy are necessary in order to limit climate change (IPCC 2013, Gunningham 2012).

Additionally, there is a social aspect to this. Approximately 1.5 billion of people around the world still lack access to modern energy services and there is a strong connection between access to energy and poverty reduction (AGECC 2010). Further, the future increase in demand will not primarily come from the western economies. Instead, emerging markets such as China, India and the Middle East are accounting for 60 % of the expected increase over the period to 2035 (IEA 2012). These countries are to a large extent securing their energy supplies by bilateral deals with producing countries instead of relying on

the international energy market. This makes it harder for the energy market to function smoothly and may endanger other countries' energy security (Cherp et al. 2011).

As there is no world government, global governance typically involves a range of different actors, including states, regional and international organizations, NGOs, and the private sector (Florini & Sovacool 2009). There is no single international organization that coordinates energy governance, instead there are several organizations and institutions involved (Heubaum & Biermann 2010). One of the first organizations established was the International Atomic Energy Agency (IAEA) set up in 1957 to promote technical and scientific cooperation in the peaceful use of nuclear technology (Karlsson-Vinkhuyzen 2010).

Besides the IAEA, there were few international organizations dealing with energy issues until the early 1970s when the Organization of Petroleum Exporting Countries (OPEC) became an important actor in the energy market. The creation of OPEC in turn led to the creation of the International Energy Agency (IEA) that represents oil-importing countries and focuses on energy issues among developed countries. The IEA is an autonomous agency of the Organization for Economic Co-Operation and Development (OECD) (Colgan et al. 2012).

Lately, several new actors have emerged such as the International Energy Forum (IEF) and the International Renewable Energy Agency (IRENA). The IEF includes OPEC and IEA members as well as oil-exporting countries outside OPEC and oil-importing countries outside IEA. It is one of the most inclusive energy forums and it is regarded as an opportunity for better cooperation between OECD and OPEC countries (Heubaum & Biermann 2010). The IRENA focuses on the field of renewable energy and is considered to be a large step forward in the institutionalized cooperation on renewable energy (Karlsson-Vinkhuyzen 2010). Moreover, organizations that were not founded specifically to address energy have started to discuss such issues. Groups such as the G7/G8 have recently given more weight to energy issues, and in 2008 they established the International

Partnership on Energy Efficiency Cooperation (IPEEC) (Lesage et al. 2009, Heubaum & Biermann 2010).

As aforementioned, global energy governance is often described as undeveloped and fragmented, consisting of a range of actors with divergent interests (Goldthau & Sovacool 2012). To a large extent, they continue to work independently from each other although the different aspects of energy are interconnected and needs to be addressed in an integrated way (Cherp et al. 2011). Moreover, it seems the existing organizations have not evolved with their challenges as institutions that were created to promote energy security have difficulties to remain relevant when patterns of consumption and production change (Victor & Yueh 2010). Further, the traditional emphasis on stable access to energy resources promotes fossil fuels and is thus in conflict with the increasing demand of a more sustainable energy system (Cherp et al. 2011).

Few scholars believe that an over-arching inter-governmental organization or regime will bring the major players together. Instead, many highlight the need for a more holistic approach as non-state

actors are becoming more important in shaping global energy policy (Goldthau 2011). Further, the increasing complexity of the energy system requires multiple actors across sectors and scale to enable a governance system more capable of addressing energy challenges effectively. Many of the existing institutions have limited membership or a mandate to address only a small subset of energy issues with little or no coordination between them. Hence, linkages and cooperation with and within different energy areas need to be strengthened to enable a more polycentric governance system (Cherp et al. 2011).

A more polycentric and interconnected system would be better at coping with existing trade-offs between different energy objectives such as the aforementioned challenge of increasing access to energy without a similar increase in the amount of greenhouse gases (Dubash & Florini 2011). Moreover, a multitude of actors and governance mechanisms that cooperate with each other would enable a system that is flexible enough to respond rapidly to changing conditions and at the same time provide the stability and coherence that is essential for an efficient governance system (Cherp et al. 2011).

1.2 THE UNITED NATION'S WORK ON ENERGY - UN-ENERGY

Energy issues have regularly come up on the UN agenda. Yet, the level of institutionalization on energy in the UN-system is low and there is no single UN-body responsible for UN energy governance. Instead, energy related activities are dispersed throughout the UN system. For a long time the IAEA was the only UN agency to focus primarily on energy, but in 2004 the UN established an interconnecting mechanism called UN-Energy. In the same year, UN-energy Africa (UNEA) was established as a sub-program focusing specifically on the African context (UN 2010a). This section focuses on UN-Energy and its coordinating role within UN's work on energy, the aim and organization of UN-Energy as well as a review of its performance so far.

UN-Energy was established in response to the World Summit on Sustainable Development (WSSD) in Johannesburg to support the transition to sustainable energy. It is formed as a nonhierarchical network mechanism aiming at connecting actors within the UN with each other as well as connecting UN-agencies with key external stakeholders (Schubert & Gupta 2013). The aim of UN-Energy is not to set policy, instead it aims to provide options, strategies and analyses to support the implementation of the sustainability framework and the Johannesburg Plan Of Implementation. Moreover, UN-Energy's activities should also promote policy coherence and information and knowledge management (UN 2010a).

UN-Energy is the first attempt within the UN to take a broader view on energy issues, connecting different areas of energy governance with each other. Prior to the creation of UN-Energy, the UN's work on energy consisted of a handful of scientific or intergovernmental meetings, addressing energy issues to a various degree (Karlsson-Vinkhuyzen 2010). UN-Energy is a lean body with a secretariat provided by the Department of Economic and Social Affairs (DESA) with few staff members. It possesses limited independent financial resources and depends largely on contributions from its 21 UN member agencies (UN 2010a). As a coordinating body, UN-Energy has limited formal power and influence, but it also has the advantage of being better at adapting to changes due to its small organization and limited bureaucracy (Schubert & Gupta 2013).

Since 2007, UN-Energy's work is organized around three clusters: access to sustainable energy, renewable energy, and energy efficiency. Each cluster is led by two United Nations organizations. UN-Energy has limited authority to direct and execute projects or implement decisions but instead works to encourage and facilitate joint programming among its members (UN 2010a). Energy related activities of the various UN agencies cover a wide spectrum, many of them working across the clusters. More than half of the programs that were started, implemented or finalized during 2008-2009 included multiple clusters (UN 2010b).

However, according to an UN-initiated review of UN-Energy, there are still a wide range of views among its members on what is important as well as on which interventions and activities that are appropriate to meet the global challenges. This incoherence can also be reflected in how UN-Energy is perceived by external actors. According to the review, UN-Energy's overall message is not clear to external actors, neither is what role it has, nor how it adds value to global energy issues. Therefore there are little incentives for its members to advocate on its behalf as well as to support the organization with necessary resources – both financial and human (UN 2010a). Such a conclusion is confirmed by Gupta & Ivanova who state that the mandate on energy issues are spread among many UN agencies and that no clear message is sent to the global community on global energy policy (Gupta & Ivanova 2009).

The main outputs from UN-Energy have so far been the publications produced and although the review from 2010 does not go further into how, it states that members are under the impression that these publications have had impact and have influenced debate as well as some policy and programmatic activity (UN 2010a). Yet, in a comparative study by Schubert and Gupta of three coordinating UN-mechanisms⁴ they concluded that the actual ability for UN-Energy to strengthen coherence is limited, as these outputs are not linked to existing policy processes or responses to formal demands (Schubert & Gupta 2013). Moreover, Gupta and Ivanova argue that although UN-Energy may promote collaboration within the UN and with external actors, it is not able

to take the leading role for a rapid and necessary advancement of energy policy (Gupta & Ivanova 2009).

Although UN-Energy only gives an overview of the work on energy within the UN, one can still claim that its efforts on energy represent the most prominent aspects of how energy issues are dealt with by UN-agencies. The role of UN-Energy is to be a coordinating mechanism for other UN-agencies and its three clusters address all four aspects (security, economic, environmental and social). However, a special emphasis has been on the social aspects of energy as these are represented in its own cluster (access to sustainable energy). The cluster on energy efficiency and the cluster on renewable energy address environmental and economic aspects while security aspects are included in the cluster on energy efficiency (UN 2010a).

This section has provided an overview of global energy governance and it has also expanded on the role and function of UN-Energy. The academic

literature on global governance highlights the need for coordination and linkages between different policy areas and UN-Energy is an example of such coordination effort. It involves both internal and external actors and aims at promoting coherence within energy governance. The review of UN-Energy provides some criticism and options for consideration on the organization and development of UN-Energy, notwithstanding it concludes that the reasons and rationale for setting up UN-Energy still exist. Even though UN-Energy has not developed as far as some stakeholders hoped for, it can achieve more. Further, a strong and effective inter-agency mechanism is viewed as necessary to enable the transition towards a more sustainable energy system (UN 2010a).

Moreover, UN-Energy does only represent the inter-agency cooperation on energy within the UN and not the meetings and sessions with the governments' representatives at intergovernmental level. A level that will be further explored in the next section through a mapping of the different aspects of energy within the UN's environmental and sustainability framework.

2 ENERGY ISSUES WITHIN THE UN'S WORK AT INTERGOVERNMENTAL LEVEL

This chapter will give a historical overview of how the four aspects of energy (security, economic, environmental and social) have been addressed in the UN's work at the intergovernmental level. Each

section deals with one aspect providing an overview of the most important developments of that aspect over time. The chapter ends with a summary of the results.

2.1 SECURITY AND ENERGY

Access to energy is necessary for all nations' wellbeing, both for the military and for the industry. Therefore access to reliable and affordable energy has traditionally been connected to national security. When addressing energy from a security perspective, the need for states to secure access to energy creates a zero-sum game where some states win and some lose as they compete with each other for a limited amount of resources (Dubash & Florini 2011). In recent years the academic discussion on energy security has broadened to include accessibility, affordability, efficiency, and environmental protection of the use and production of energy (Sovacool & Brown 2010). Even so, the global policy debate over energy security remains to a large extent a discussion about access to oil and natural gas, as fossil fuels remain as the most important energy source (Dubash & Florini 2011).

The oil crises during the 1970s and the rising oil prices that followed caused an upswing in nations' concern for their energy security in the 1980s. However, during the decades that followed there was a decline in oil prices which remained relatively low until the beginning of the 21st century. In the same period, there were no geopolitical events that triggered nations to fear for their energy security (Colgan et al. 2012). A more relaxed attitude to energy security can also be discerned in how energy was addressed within the UN during the same period. There are no references to energy security in the documentation from the United Nations Conference on Environment and Development (UNCED) in Rio 1992 (UN 1992a/b).

When the UN touches upon energy security issues at the 9th Commission on Sustainable Development (CSD)⁵ in 2001, they are framed in a slightly different way. Energy resources are described as plentiful

in the report from the 9th CSD and in chapter 1B, paragraph 4, it is stated that the transition towards a sustainable energy system:

"(...) will not be driven by resource constraints for a very long time to come. Energy for sustainable development can be achieved by providing universal access to a cost-effective mix of energy resources compatible with different needs and requirements of various countries and regions. (...)"

This is a stark contrast to the traditional discussion of scarce resources and competition between states. The CSD-9 report also contains references to energy as an area with strong interdependence where international cooperation should be promoted (see chapter 1B, paragraph 5 of CSD 2001). This may reflect an increasing understanding of the need for global cooperation on energy issues, even if the main aim with global cooperation is to secure nations' access to energy.

Since 2001, rising energy demands and turmoil in the Middle East have caused the prices for oil and most energy commodities to rise again and to become more volatile (Umbach 2010). Further, as local fuel supplies have run short, major energy consumers are now forced to depend on longer (and thus more fragile) supply chains (Victor & Yueh 2010). This has given security aspects more prominence and it was brought up as one of the key energy policy options by several countries during the CSD 14/15, in 2006/2007 (see e.g. chapter 2, paragraph 200 of CSD 2006 and chapter 2, paragraph 80 and 83 of CSD 2007, UN 2006).

However, it was not only energy-consuming countries that expressed their concern for energy security. Many oil-producing countries are highly dependent

on its oil revenues and the existing resources of easy-to-reach oil are dwindling (Dorian et al. 2006, Umbach 2010). Hence, energy suppliers have started to question whether demand is certain enough to invest in new capacity (Victor & Yueh 2010). During the CSD 14/15, they stressed the need to expand the concept of energy security to involve stability of demand as an element in energy security (see e.g. chapter 2, paragraph 145 of CSD 2006 and chapter 2, paragraph 82 of CSD 2007, UN 2006).

To conclude, although energy security has been mentioned as a reason for why the UN has failed to agree on a global energy policy, it is not the dominant issue when addressing energy within the environmental/sustainability framework. However,

countries are searching for new ways of achieving energy security and both energy efficiency and energy conservation have been connected to energy security (see e.g. chapter 1B, paragraph 15, sub-clause (c) of CSD 2001 and chapter 2, paragraph 22 of CSD 2006). This enhanced understanding of energy security is in line with the academic literature where the concept of energy security has broadened beyond nation's access to resources. It may indicate that security aspects are becoming more prominent within the UN's work on environmental and sustainability issues. Another interpretation is that countries have realized that other aspects of energy, e.g. economic aspects, are becoming more important as private actors have emerged as important actors in global energy governance.

2.2 ECONOMY AND ENERGY

Although important energy sources such as oil and natural gas often have been highly politically charged and thus part of the national security, they are still commodities. The exploration, trading and consumption of energy are therefore mainly organized by private actors, which interact with each other through market-based interactions. These non-state actors have come to play an important role in global energy governance as energy markets are becoming increasingly international in nature (Goldthau 2011).

Yet, energy markets and market-based interactions are still structured by state institutions setting the “rules of the game” and economic aspects of energy governance addresses the need for governance in terms of securing, building and extending energy markets, addressing market failures and setting standards (Goldthau & Witte 2009). Further, economic aspects of energy also relate to the importance of energy in economic development. Energy plays a central role in the production of goods and services and there is a strong relationship between the amount of energy that a country consumes and the size of its economy (Najam & Cleveland 2003).

The early 1980s were marked by an economic recession that affected most of the developed world and there was a revival of neoliberal economic policies. However, this emerging order promoting economic growth while minimizing state-interference was in conflict with the accelerating environmental degradation stemming from industrialization (Hague 1999). The Brundtland report presented in 1987 was intended as a response to this conflict and it redefined the concept “sustainable development”⁶ arguing that environment and development issues were entwined and thus had to be resolved simultaneously (Robinson 2004).

This new way of framing development is also notable in how energy issues were treated during the Rio Conference in 1992. The conference sought agreement on concrete measures of how to reconcile economic growth with environmental protection and many of the references that deal with energy emphasize that environmental aspects need to be

balanced with economic aspects (see e.g. section 4.18 of UN 1992b, Najam & Cleveland 2003). The idea of pursuing development through economic growth without endangering ecological values is also expressed in other parts of the Agenda 21 document. In this document, paragraphs that deal with energy addresses the linkage between the amount of energy that a country uses and the size of its economy. It emphasizes the need to find new means of increasing economic growth without a corresponding increase in energy use (and the environmental degradation stemming from energy use) (see section 4.10 of UN 1992b).

The Rio Conference marked the beginning of a new shift as economic aspects of energy became part of the discussion on energy (Najam & Cleveland 2003, Karlsson-Vinkhuyzen 2010). During the decades that followed, the central role of energy in economic growth was increasingly mentioned together with the ecological and social aspects of energy, reflecting the strong influence of the concept of sustainable development (see e.g. paragraph 9 of UN 2002 and in the Chairperson's summary, paragraph 9 of CSD 2007). But during the United Nations Conference on Sustainable Development in Rio 2012, there was a notable shift in the weight between the three aspects, as the economic aspect became one of the most salient features during the meeting. A “green economy” was flagged as one of the key themes, but this emphasis on economic aspects was not notable in how energy issues were treated, the sections that deal with energy is mostly connected to the social aspects of energy (see e.g. paragraph 125-129 of UN 2012).

In addition to the increasing weight of economic aspects when addressing energy within the UN one can also discern a shift in how the UN addresses other economic aspects. This shift within the sustainable development context has also been confirmed by Zaccai (2012). During the 1970s the main focus was on donations from members to enable the development of poorer member states as well as on different types of financial support organized through the UN system (see e.g. paragraph 4 in the preamble of 1972a). Further, there are no

references to private actors and energy markets in the documentation from the Stockholm Conference (1972a/b). Over time this state-centered approach became less prominent in favor of solutions that involve private actors, where states primarily work to strengthen energy markets and institutions that regulate markets (see e.g. paragraph 20, sub-clause (o-r) of CSD 2002).

There are references to private actors and market-based solutions as governance measures already in the Agenda 21 document from the Rio Conference in 1992, but they were not related to energy (UN 1992b). It is not until the 9th CSD that efforts to promote enterprises and well-functioning energy markets were linked to energy (see e.g. chapter 1B, article 31 and article 23, sub-clause (c) of CSD 2001). This was further elaborated during the World Summit on Sustainable Development (WSSD) in

2002. The report from the summit mentions efforts to improve energy markets and refers to consumer access instead of state access to energy services (see paragraph 20, sub-clause (o) of UN 2002). This may suggest that consumers are becoming increasingly important when the liberalization of energy promotes less state-interference and an increasing reliance on energy markets and private actors.

In conclusion, economic aspects are given more weight in energy governance and private actors and market-based solutions are more important today compared to when energy was first addressed within the UN. However, energy governance is still struggling with the environmental degradation that comes with the increasing use of energy related to economic growth, which brings us to the environmental aspects of energy.

2.3 ENVIRONMENT AND ENERGY

Energy extraction, processing and use are linked to environmental quality and protection in several ways. Atmospheric emissions from the energy system cause a range of environmental problems such as climate change, acid deposition and urban smog. Moreover, the extraction of oil, natural gas, shale gas and other energy sources may have a significant impact on the environment e.g. through toxic and hazardous waste from drilling. The energy sector is also depending on and closely linked to water since about 15 % of the world's freshwater withdrawal is used in energy production (Najam & Cleveland 2003; IEA 2012a/b).

Awareness of environmental degradation was first raised in the 1960's and 1970's and during the decades that followed, there was a growth in public concern in many countries over the negative environmental impact of specific energy sources (Karlsson-Vinkhuyzen 2010). Further, the Stockholm Conference on the Human Environment in 1972, was the first occasion where environmental problems received considerable international attention. This was also the first time that the UN addressed environmental aspects of energy use and production, although energy only played a minor role during the meeting (Najam & Cleveland 2003).

The conference declaration from 1972 makes no reference to energy, but the Stockholm Action Plan includes a more comprehensive framework for international action and three of the 69

recommendations deal with energy (UN 1972a/b). All three recommendations address environmental aspects of energy and emphasize the need for more knowledge on the environmental effects of energy use and production as well as on the environmental consequences of different sources of energy. At that time, the knowledge of the climatic effects and its connection to energy was still low and although the possibility of climatic effects is mentioned in the Action Plan it makes no reference to energy (see recommendation 57-59 of UN 1972b).

The connection between energy and environmental degradation becomes more notable in the documentation from the Rio Conference in 1992. Although the Agenda 21 document contains few references to energy these mainly discuss the environmental aspects of energy. For example, it mentions the environmental stress and degradation that arise from energy use and production and there are also references to energy in the section that deals with protection of the atmosphere (see section 4.18 and 7.49 and chapter 9 of UN 1992b).

One year prior the Rio Conference, the IPCC produced its first assessment report on climate change and the increasing knowledge on climate change is reflected in how energy was addressed during the conference. Energy was for the first time linked to climate change and both energy efficiency and new and renewable energy resources

were mentioned as means to control emissions of greenhouse gases (see chapter 9 of UN 1992b). The conference also resulted in the international treaty on cooperation to limit average global temperature increases and the resulting climate change called the United Nations Framework Convention on Climate Change (UNFCCC). As energy accounts for a majority of the greenhouse gas emissions, the UNFCCC and its subsequent process are expected to be one of the most significant policy processes on energy (Karlsson-Vinkhuyzen 2010, Dubash & Florini 2011). Since the Rio Conference, climate change has continued to dominate the agenda when addressing environmental aspects of energy during the 21st century, with an increasing emphasis on energy efficiency, energy-efficient technologies, and renewable energy (see e.g. paragraph 125-129 of UN 2012).

Today, the environmental debate is dominated by global, cross-border problems and in relation to energy this is most visible in the increasing importance that is given to its connection to climate change. Furthermore, the environmental aspects were predominant when energy issues were first addressed within the UN during the Stockholm Conference, but they are no longer the only aspect of energy that are addressed. As mentioned in previous sections, energy governance has included security, economic, environmental aspects of energy and it has also broadened to include social aspects, which will be further elaborated on in the next section.

2.4 SOCIAL/HR AND ENERGY

Approximately 1.5 billion people – one of five of the world's population – lack access to electricity and about 3 billion people still rely on traditional biomass for cooking and heating. For the “energy-poor”, this comes with both health and economic consequences. Access to energy is linked to reducing poverty, improving both women's and children's health as well as broadening the reach of education (AGECC 2010). Although social aspects are related to security aspects of energy governance, there is an important difference. The social aspects relate to access to energy as a basic human right and address the unequal distribution of energy whereas security aspects relate to nations' secure access to energy sources.

Historically, there has been a complex relationship between energy and UN-led initiatives on global poverty and sustainable development due to the potential conflict between environmental sustainability and increasing economic growth. Hence, for a long time the social aspects of energy were absent in UN energy governance and some even argue that this tension was part of the reason as to why there is no Millennium Development Goal (MDG) on energy (Hodas 2010/2012, Dubash & Florini 2011). This may also be a reason for why there are no references to social aspects in the documentation from the Stockholm Conference in 1972 (UN 1972a/b). However, this ambiguous perspective on energy and poverty started to change with the Rio Conference in 1992 where energy was mentioned as a basis for human development (see section 7.27 of UN 1992b). The social aspects of energy became even more prevalent during the 9th CSD, where sections that deal

with energy emphasize that sustainable energy has to be socially acceptable (see e.g. chapter 1B, paragraph 3 and paragraph 12 of CSD 2001) and where access to energy is highlighted as a key issue (see chapter 1B, paragraph 12 of CSD 2001).

In 2002 during the WSSD in Johannesburg, energy became more clearly linked to human rights and the Johannesburg plan of implementation includes several references to energy and sustainable development. Moreover, the Johannesburg Declaration is the first declaration text that contains a direct reference to energy where energy is clearly defined as a basic human need (see clause 18 of the WSSD declaration in UN 2002). This is further developed in the Johannesburg Plan of Implementation, where energy is also connected to the MDGs (see e.g. paragraph 9 of UN 2002). The fact that social aspects of energy are mentioned in the declaration text confirms the growing importance of energy issues in global affairs but also the increasing weight of social aspects within energy governance.

The social aspects of energy, as well as the linkages between energy and poverty alleviation/MDGs remain important when discussing energy issues during the remainder of the 21st decade. Further, the tension between increasing access to energy and environmental sustainability has diminished and during the Rio+20 Conference in 2012 the “Sustainable Energy for all” initiative was launched as a global initiative to address the inter-twined challenges of access to energy and climate change (see paragraph 129 of UN 2012).

2.5 RESULTS

When examining how energy has been managed within the UN, it is clear that energy is given more prominence today compared to when the UN first addressed energy issues in 1972 (UN 1972 a/b). In the aftermath of the oil crisis in the 1970s and with an increasing awareness of the climatic effects from the production and use of energy, there was a growing interest in energy from the 1980s and onwards (Karlsson-Vinkhuyzen 2010). This is also notable in the UN documentation as the number of references to energy increases over time and energy dominates the agenda as one of four clusters during CSD 14/15 (CSD 2006/2007, IISD 2006, UN 2007, Hodas 2010/2012). Further, when energy was added as a sectorial theme during the 9th CSD, it became clear that energy was no longer a facet of other issues and the UN started to deal with energy as an issue in its own right (CSD 2001).

With the twin energy-related challenges that the world faces today, it is hardly surprising that energy issues have become more prominent within UN's work on environmental/sustainability issues. This has also been concluded in earlier studies (Najam & Cleveland 2003, Hodas 2010/2012 & Karlsson-Vinkhuyzen 2010). However, this study aimed at mapping the development of different aspects of energy within the UN's work on environmental/sustainability. What can be discerned from this mapping is that the meetings and summits have addressed all aspects but the weight of different aspects has shifted over time. In the beginning the emphasis was solely on environmental aspects and when the concept of sustainable development was launched the emphasis shifted to include all three

pillars of a sustainable development (the social, economic and ecological dimensions). Moreover, security aspects of energy have been addressed, but not to the same extent as other aspects.

The most significant change in relation to the different weight of the aspects over time is the increasing emphasis on the social aspects of energy. The UN did not even address the social aspects during the first decades, but these aspects have since become more and more important from the Rio Conference in 1992 and onwards. Today, energy is strongly linked to poverty alleviation although it was not part of the original MDGs and energy has also been mentioned as a possible theme for the Sustainable Development Goals (see chapter 4 of UN 2004). Moreover, these aspects are no longer addressed individually as there are increasing attempts to take a broader view linking them to each other, for example with UN-Energy.

Although this study intends to give an overview of the “what” in global energy governance and not how it is governed, one may discern a certain change relating to the latter. Energy policy seems to have gone from a limited amount of policy and mostly state command and control towards a situation where the solutions include a variety of policies and instruments relating to energy. Another tendency that relates to this is a stronger emphasis on private actors and on the importance of well-functioning energy markets in global energy governance. This is most obvious in relation to the economic aspects but it is also notable in sections that deal with other aspects of energy.

3. CONCLUDING DISCUSSION

The purpose of this study has been two-fold: first, to give a review of UN-Energy as a representative for the work on energy that is carried out by UN-agencies and second, to map how energy has been managed at multilateral events and meetings within the UN framework. Consequently, it cannot claim to have the answer to how energy issues have been addressed within the UN as a whole, but only to how energy has been managed within a part of the UN. Nonetheless, the findings of this mapping together with the overview of the work of UN-Energy represent two of the major efforts to address energy within the UN framework. Thus, it can provide some guidance for further research as well as some tentative suggestions on the future development of energy governance within the UN.

As earlier studies have shown, energy has not played a major role within the UN and there is not much substantial output from the UN on energy. This can be confirmed by the findings of the mapping as well as from the overview of UN-Energy. Over time, several efforts have been made focusing on different aspects of energy both among UN-agencies and at the intergovernmental level. Further, over the last decade energy issues have gradually been given more prominence and there have been serious attempts of global energy governance where energy is treated as an issue in its own right. The establishment of UN-Energy was an important step forward in terms of energy governance within the UN-system and it has the potential to become a coordinator of the UN's work on energy.

Moreover, the findings of this study indicate that there has been a shift within the UN. The discussion has moved away from a traditional view on energy where the primary concern is on national security towards a discussion that emphasizes energy as an area of strong interdependence. Part of the reason may be that energy issues are framed in another context today as several policy areas have been linked to energy. The UN (and UN-Energy) has broadened its perspective on energy to include several interconnected aspects of energy and the emphasis has been on the policy areas where the UN traditionally has been a strong actor, such as the environment and issues of poverty. A reason

for this may be that these aspects have a stronger connection to issues of global concerns compared to e.g. energy security. Nations may therefore find it is easier to address environmental and social aspects at the multilateral level.

Further, it has been said that governments traditionally have been reluctant to deal with energy at the global level due to its strong connection to national security. The findings of this study indicate that energy security has not been the dominant aspect when the UN has discussed energy issues at the intergovernmental level. However, there have been great difficulties in reaching a decision on any global policies on energy within the environmental/sustainability framework and there are few binding agreements on energy. This could be ascribed to the member states' concern of energy security although it is not visible in the official documents.

Another reason for the limited number references to security aspects of energy within the UN's environmental/sustainability framework might be that nations choose other arenas that are more concerned with issues of national security (e.g. NATO) to address those aspects. This could also explain why an increasing emphasis has been given to social and environmental aspects of energy. These are policy areas where the UN is considered to be an important actor and hence it may be considered as more fruitful to address those aspects of energy within the UN system.

So, what could these findings imply for future energy governance? It is most likely that state objectives of secure access to energy will continue to influence global energy governance to some extent. Yet, this study indicates that the UN has taken a broader approach to energy issues, including all four aspects reported on in this study as well as highlighting the linkages to other policy areas, a development that is visible both in the work of UN-Energy and in the UN's intergovernmental work. This could enable a UN energy governance that is more able to identify gaps and overlaps in the governance structure as well as possible linkages and areas of cooperation with other actors involved. Further, this could increase the willingness of UN member states to commit to a

global energy policy, as they will understand that they have more to gain from international cooperation.

Moreover, there will probably be a continued emphasis on the economic aspects of energy, with a reliance on private actors and market-based solutions. Private actors already play an important role in global energy governance, as they are the main actors in organizing the exploration, trading and consumption of energy sources. Moreover, the transition to a sustainable energy system will require huge investments and the inability to agree on binding targets and timetables indicates that governments are not ready to shoulder this burden. A further involvement of private actors and market-based solutions might be a good strategy to achieve a sustainable energy system. However, one has to remember that stable regulatory regimes are needed for markets to function properly and this cannot be guaranteed in all countries. Hence, no matter the strategy or solution, it has to be adapted to the national and local context in order to be effective.

This study did not aim at assessing UN's performance in global energy governance; instead it intended to give an historical overview of what aspects of energy that the UN has addressed. As such, it may reflect the historical development of other organizations and institutions involved in global energy governance, but it can be valid only for the UN. Further studies on other organizations and institutions involved in global energy governance are necessary to shed more light on that question as well as more in-depth studies on how UN-Energy and other UN-agencies have managed energy issues.

In relation to how the UN has managed energy issues one may conclude that it is reasonable to talk about global energy governance although energy issues are fragmented over a large number of policy areas. Even if many of the different aspects of energy are part of other policy areas, there is an apparent need for a more coherent and effective global energy policy, especially as energy plays a key role in some of the major challenges that the world faces today.

ENDNOTES

- ^[1] The global energy system includes the production, transportation and use of different sources of energy as well as the governance of these systems.
- ^[2] Key features of a complex system that has been identified and summarized by Cherp et al. (2011).
- ^[3] These aspects have been identified in the existing literature on global energy governance (Goldthau & Sovacool 2012, Victor & Yueh 2010, Cherp et al. 2011, Florini & Sovacool 2009; 2011, Goldthau 2011, among others). They are the most important aspects of energy and cover a wide range of policy areas relating to energy issues. Further, they represent traditional aspects of energy, e.g. security aspects, as well as other aspects that more recently have been linked to energy.
- ^[4] Except from UN-Energy, the other two mechanisms that were included in the study were UN-Environment and UN-Water. All three mechanisms aim at enhancing coherence among its member agencies (UN 2010a).
- ^[5] The CSD was created to foster the development of Agenda 21. The CSD activities are divided into clusters reflecting the nine chapters of Agenda 21. As there is no chapter on energy in Agenda 21, there was originally no energy cluster (IISD 2006).
- ^[6] The idea of a sustainable development emerged already in the 70s, but was then considered as in opposition to economic growth due to the environmental problems steaming from industrialization and economic growth (Dyzek & Schlosberg 2005).

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Visiting Address: Drottning Kristinas väg 37, Stockholm
Postal Address: Box 27 035, 102 51 Stockholm
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