EBERHARD KARLS
UNIVERSITÄT
TÜBINGEN

Wirtschafts-und
Sozialwissenschaftliche Fakultät
Institut für Politikwissenschaft

Working Paper Series

Working Paper 5 (January 2014)

Germany and climate change: An ambivalent forerunner?

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DFG

The Securitization of Climate Change
Actors, Processes, Consequences

GERMANY

Climate Change and Germany – An ambivalent forerunner?

- ClimaSec Working Paper #5 (January 2013)

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* *Many thanks to the student research assistants Benno Keppner and Hanna Spanhel, University of Tübingen*

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Abbreviations

Abbreviation	English	German
AWI	The Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research	Alfred-Wegener-Institut für Polar- und Meeresforschung
BASE	Bottom-Up Climate Adaptation Strategies Towards a Sustainable Europe (Helmholtz-Centre)	
BAU	Business as Usual Scenario	
BAW	Federal Waterways Engineering and Research Institute	Bundesanstalt für Wasserbau
BBR/BBSR	The Federal Office for Building and Regional Planning	Bundesamt für Bauwesen und Raumordnung
BDI	Federation of the German Industry	Bundesverband der deutschen Industrie
BfG	The German Federal Institute of Hydrology	Bundesanstalt für Gewässerkunde
BfN	Federal Agency for Nature Conservation	Bundesamt für Naturschutz
BfS	Federal Office for Radiation Protection	Bundesamt für Strahlenschutz
BGR	Federal Institute for Geosciences and Natural Resources	Bundesanstalt für Geowissenschaften und Rohstoffe
BINGO	Business and Industry Non-Governmental Organizations	
BioKraftQuG	Law on Biofuel-rates	Biokraftstoffquotengesetz
BLE	Federal Office for Agriculture and Food	Bundesanstalt für Landwirtschaft und Ernährung
BMU	Federal Ministry for Environment, Nature Conservation and Nuclear Safety	Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit
BMZ		Bundesministerium für Zusammenarbeit
BSH	German Maritime and Hydrographic Agency	Bundesamt für Seeschifffahrt und Hydrographie
BSRN	Baseline Surface Radiation Network	
BTI	Bertelsmann Transformation Index	Bertelsmann Transformation Index
BUND	BUND Friends of the Earth Germany	Bund für Umwelt und Naturschutz Deutschland
CAN	Climate Action Network	
CBCC/NBCC	(National) Coordination Board on Climate Change	
CDC	Climate Data Center	
CDU	Christian Democratic Union of Germany	Christlich Demokratische Union Deutschlands
CEC	Climate & Environment Consulting Potsdam GmbH	
CHP	Law on the Preservation, Modernization and Development of Combined Heat and Power	Gesetz für die Erhaltung, die Modernisierung und den Ausbau der Kraft-Wärme-Kopplung
CLM Community	Climate Limited-are Modelling	
CM-SAF	Satellite Application Facility on Climate Monitoring	
COP/MOP	Conference of the Parties serving as the meetings of the Parties to the Kyoto Protocol	
CPI	Climate Performance Index (Germanwatch)	
CSC	Climate Service Center	
DAS	German Adaptation Strategy	Deutsche Anpassungsstrategie
DEHSt	German Emission Trading Authority	Deutsche Emissions-Handelsstelle

DFG	German Research Foundation	Deutsche Forschungsgemeinschaft
DKK	German Climate Consortium	Deutsches Klimakonsortium
DKRZ	German Climate Computing Centre	Deutsches Klimarechenzentrum GmbH
DNR	German League for Nature and Environment	
DPG	German Physical Society	Deutsche Physikalische Gesellschaft
DWD	German Meteorological Service	Deutscher Wetterdienst
EC	European Community	Europäische Gemeinschaft
ECOSOC	United Nations Economic and Social Council	Wirtschafts- und Sozialrat der Vereinten Nationen
EEA	European Environment Agency	Europäische Umweltagentur Deutsch
EED	Energy Efficiency Directive	
EEG	Law on the priority of renewable energies	Erneuerbare Energien Gesetz
EEWärmeG	Renewable Energies Heat Act	Gesetz zur Förderung Erneuerbarer Energien im Wärmebereich
EFTA	European Free Trade Agreement	
ENBW		Energie Baden-Württemberg AG
EnEV	Law on Energy Economization	Energieeinsparverordnung
ENGO	Environmental Non-Governmental Organizations	
EPA	Environmental Protection Agency	Umweltschutzbehörde
EPI	Environmental Policy Integration	Integration von Umweltpolitik
EU	European Union	Europäische Union
FDP	Free Democratic Party	Freie Demokratische Partei
FAO	Food and Agricultural Organization	Ernährungs- und Landwirtschaftsorganisation der Vereinten Nationen
FZ Jülich		Forschungszentrum Jülich
GATT	General Agreement on Tariffs and Trade	Allgemeines Zoll- und Handelsabkommen
GAW	Global Athmosphere Watch	
GCC	Global Collecting Centre	
GDP	Gross Domestic Product	Bruttoinlandsprodukt (BIP)
GDR	German Democratic Republic	Deutsche Demokratische Republik
GEF	Green Environmental Fund	
GFK		Gesellschaft für Konsumforschung
GFZ	German Research Centre for Geoscience (Helmholtz-Centre Potsdam)	Deutsches GeoForschungs Zentrum (des Helmholtz-Zentrum Potsdam)
GG	Basic Law (German Constitution)	Grundgesetz
GHG	Greenhouse Gas	Treibhausgas
GOSIC	Global Observing Systems Information Center	Informationszentrum für Globale Beobachtungssysteme
GRUAN	GCOS Reference Upper-Air Climate Observations Network	
HannoverRe	Hannover Re-Insurance Group	Hannover Rück-Gruppe
HDI	Human Development Index	Index des menschlichen Entwicklungsstandes
HZG	Centre for Materials and Coastal Research	Helmholtz Zentrum Geesthacht
IASS	Institute for Advanced Sustainability Studies	
ICLEI	International Council of Local Environment Initiatives	Internationaler Verband von Städten, Gemeinden und Landkreisen für Umweltschutz
IEKP	Integrated Energy and Climate Program of the Federal Government	Integriertes Energie und Klimaprogramm der Bundesregierung

IFM-GEOMAR	Leibniz Institute of Marine Sciences	Leibniz-Institut für Meereswissenschaften an der Universität Kiel
IfT	Leibniz Institute for Tropospheric Research e.V.	Leibniz-Institut für Troposphärenforschung e.V.
ILO	International Labour Organization	Internationale Arbeitsorganisation
IMA	Interministerial Working Group on Adaptation to Climate Change	Interministerielle Arbeitsgruppe Anpassung
IMF	International Monetary Fund	Internationaler Währungsfonds
IÖW	Institute for Ecological Economy Research	Institut für ökologische Wirtschaftsforschung
IPCC	Intergovernmental Panel on Climate Change	Zwischenstaatlicher Ausschuss über Klimaveränderung (Weltklimarat)
ITLOS	International Tribunal for the Law of the Sea	Internationaler Seegerichtshof
KHC	Know-How-Center	
KIT	Karlsruhe Institute of Technology	Karlsruher Institut für Technologie
KLIWAS	Research programme of the German Federal Ministry of Transport, Building and Urban Development: Impacts of climate change on waterways and navigation - Searching for options of adaptation	Auswirkungen des Klimawandels auf Wasserstraßen und Schifffahrt – Entwicklung von Anpassungsoptionen
Kompass	Competence Center for Climate Change Effects and Adaptation	Kompetenzzentrum Klimafolgen und Anpassung
KWKG	Law for the preservation, modernisation and development of combined heat and power.	Kraft-Wärme Kopplungsgesetz
LANUV	Regional Authority for Nature-, Environmental and Consumer Protection in North Rhine-Wesphalia	Landesamt für Natur, Umwelt und Verbraucherschutz Nordrhein-Westfalen
MORO	Spatial Development Strategies for Climate Change	Raumentwicklungsstrategien zum Klimawandel
MPI	Max Planck Institute	Max Planck Institut
MPI-BGC	Max Planck Institute for Biogeochemistry	Max-Planck-Institut für Biogeochemie
MPI-C	Max Planck Institute for Chemistry	Max-Planck-Institut für Chemie
MPI-M	Max Planck Institute for Meteorology	Max-Planck-Institut für Meteorologie
MunichRe	Munich Re Insurance Group	Münchener Rückversicherungs-Gesellschaft Aktiengesellschaft
NABU	Nature and Biodiversity Conservation Union	Naturschutzbund Deutschland e.V.
NAMA	Nationally Apropriate Mitigation Action	National angepasste Emissionsreduktionsmaßnahmen
NATO	North Atlantic Treaty Organization	Organisation des Nordatlantik Vertrages (Atlantisches Bündnis)
NCCAP	National Climate Change Action Plan	Nationaler Aktionsplan zum Klimawandel
NCCC	National Communication on Climate Change	
NCPP	National Climate Protection Programme	Nationales Klimaschutzprogramm
NDKZ	National Climate Data Centre	Nationales Klimadatenzentrum
NGO	Non-Governmental Organization	Nichtregierungsorganization
OECD	Organisation for Economic Co-operation and Development	Organisation für wirtschaftliche Zusammenarbeit und Entwicklung
OSCE	Organization for Security and Cooperation in Europe	Organisation für Sicherheit und Zusammenarbeit in Europa
PIK	Potsdam Institute for Climate Impact Research	Potsdam Institut für Klimafolgenforschung
RCC	Regional Climate Center	Regionales Klima-Zentrum

REC	Regional Environmental Center	Regionales Umwelt-Zentrum
REKLI		Studie "Regionale Klimadiagnose Thüringen"
REWA		Studie "Abschätzung regionaler Klimaänderungen für Thüringen"
SPD	Social Democratic Party of Germany	Sozialdemokratische Partei Deutschlands
SRU	German Advisory Council on the Environment	Sachverständigenrat für Umweltfragen
TEHG	Law on the Trade of Licenses for GHG Emissions	Treibhausgas-Emissionshandelsgesetz
Tereno	Terrestrial Environmental Observatoria (Helmholtz Society)	
UBA		Umweltbundesamt
UFZ	The Helmholtz Centre for Environmental Research	Umweltforschungszentrum Leipzig
UN	United Nations	Vereinte Nationen
UNBC	United Nations Convention on Biological Diversity	Übereinkommen der Vereinten Nationen über die biologische Vielfalt
UNCCD	United Nations Convention to Combat Desertification	Übereinkommen der Vereinten Nationen zur Bekämpfung der Wüstenbildung
UNCED	United Nations Conference on Environment and Development	Konferenz der Vereinten Nationan über Umwelt und Entwicklung
UNDP	United Nations Development Programme	Entwicklungsprogramm der Vereinten Nationen
UNEP	United Nations Environmental Programme	Umweltprogramm der Vereinten Nationen
UNESCO	United Nations Educational, Scientific and Cultural Organization	Organisation der Vereinten Nationen für Erziehung, Wissenschaft und Kultur
UNFCCC	United Framework Convention on Climate Change	Rahmenübereinkommen der Vereinten Nationan über Klimaänderungen
UNGA	United Nations General Assembly	Generalversammlung der Vereinten Nationen
UNHCR	The UN Refugee Agency	Hoher Flüchtlingskommissar der Vereinten Nationen
UNSC	United Nations Security Council	Sicherheitsrat der Vereinten Nationen
VDA	Union of German Automobile Producers	Verband der Automobilindustrie
vTI	Federal Research Institute for Rural Areas, Forestry and Fisheries	Johann Heinrich von Thünen-Institut (Institut für Agrarrelevante Klimaforschung)
WCRP	World Climate Research Programme	
WHO	World Health Organization	Weltgesundheitsorganisation
WTO	World Trade Organization	Welthandelsorganisation
WWF	World Wide Fund for Nature	
WZN	The Global Precipitation Climatology Centre	Weltzentrum für Niederschlagsklimatologie
ZKB		Zentrales Klimabüro
ZMAW	The Center for Marine and Atmospheric Sciences	Zentrum für Marine und Atmosphärische Wissenschaften

1. Introduction

Since the discovery that there exists a growing anthropogenic influence on the global climate and that this in turn could lead to serious consequences for the human living conditions, global climate change has been framed in diverse ways in the international discussions. In the beginning it was mostly treated as an environmental issue (like acid rain, forest dieback etc.) to be left to specific advocacy groups, scientist or the ministries of the environment. At that time (approximately 1985 until 1992) environmental NGOs began to link the topic with security concerns to raise awareness and set it on the agenda of political leaders (*World Watch Institute*, the *Climate Institute*, the *New Economics Foundation* or the *Friends of the Earth*) (Oels 2012). One effect[1] of this first phase of securitization was the establishment of the United Nations Framework Convention on Climate Change (UNFCCC) in 1992 at the Rio Summit of the United Nations Conference on Environment and Development (UNCED) as well as the establishment of the Kyoto Protocol later on. The discussion shifted in a more economic direction after scientific evidence showed the serious anthropogenic effects on the global climate and the generation of immense costs that were associated with future adaptation measures. The debates were dominated by questions of the costs of climate adaptation and mitigation compared to non-action (see for example the Stern Report 2006, which can be regarded as the culminating point of this line of thinking). However, since the turn of the millennium the discussion about the possible security effects of climate change gained renewed momentum (Brzoska and Oels 2011). In line with more accurate forecasts about the widespread physical effects of climate change (e.g. more and more intense extreme weather events, altered precipitation, shifting climate zones, sea level rise, desertification etc.) and their effect on human habitats and lifestyles, the discussion about climate change as a security threat gained relevance. The primary actors raising awareness about the link between climate change and security were once again not solely political bodies but various Non-Governmental Organizations (NGOs), Think Tanks (Christian Aid 2007; CNA Corporation 2007; CSIS (Center for Strategic & International Studies) and CNS (Center for a New American Security) 2007; Smith and Vivekananda 2007) and

[1] The security discussion was apparently not the only cause that led to the establishment of the UNFCCC, but it certainly contributed to this process.

first and foremost groups of scientists (Unmüßig 2011: 49), that were partly also organized in such institutions. In this way, it were mainly (climate) scientists who alerted the international community to the threats that climate change posed to humanity (Unmüßig 2011: 49). Based on earlier debates on environmental security (Mathews 1989) and the possibility of widespread environmentally induced migration and conflict (Homer-Dixon 1994; Homer-Dixon 1999; Myers 1995, 2002) these actors pointed out how the effects of global climate change could contribute to the problem. It was only after these efforts that the climate security debate accumulated momentum in the political sphere as well. In the year 2007 the United Nations Security Council (UNSC) held its first session about the possible implications of climate change on international peace and security (UNSC (United Nations Security Council) 2007a), followed by a report of the secretary general (UNGA (United Nations General Assembly) 2009b), various resolutions (UNGA (United Nations General Assembly) 2008, 2009a) and a second session of the UNSC in the year 2011 (UNSC (United Nations Security Council) 2011a). In social and political sciences academia, this evolvement has been regarded with concern. Firstly, the direct link between climate change effects and conflict, which is drawn in some of these reports, is called into question in various publications (Pol. Geog 2006)[2]. And secondly there is a growing concern about the political effects of this "securitization" of climate change[3]. Departing from the Copenhagen School´s (Buzan *et al.* 1998) concept of securitization and combining it with the concept of discourse, the *ClimaSec* projects aims at uncovering these effects and the actors involved in the securitization process. From a comparative perspective, the project presents four countries which differ in regard to their socio-economic development and their standing in the international and domestic climate politics: the USA (industrialized country, laggard in the climate negotiations), Germany (industrialized country, vanguard in the climate negotiations), Turkey (emerging economy, laggard in the climate negotiations), and Mexico (emerging economy, vanguard in the climate negotiations). As mentioned, the climate security debate gained momentum especially

[2] Barnett and Adger (2007); Reuveny (2007).

[3] Brzoska (2009); Hartmann (2010); Oels (2012); McDonald (2005); McDonald (2008); Rothe (2011); Rothe (2012); Methmann and Oels (2013 (in press)); Methmann and Rothe (2012).

trough the involvement of scientists and researchers in the context of NGOs and think tanks, hence the *ClimaSec* project particularly looks at reports and contributions of these actors.

This paper presents the case of Germany as an "ambivalent forerunner". After introducing Germany as a country case and its important related factors such as the political system, economy, lawmaking and world politics (section 2), it outlines the evolution of Germany´s domestic climate policies (section 3) and its approach within the international climate change regime and policies (section 4).

In section 5, important actors, involved and active in the field, and debates on climate change and security in Germany, such as governmental, civil society and science actors as well as advisory bodies, lobby groups, business and others will be presented. The conclusion will draw an overall picture on the climate change-security nexus with special regard to Germany´s "ambivalent" country-specific elements and a comparative perspective on the case regarding the overall project.

2. Country background

Germany is located in the center of Europe and borders the North and Baltic Seas as well as nine European states. It is a highly industrialized country and faces a broad range of environmental and climatic problems, especially in the new federal states of the former German Democratic Republic (Neumann 1996). At the same time, it has already taken a broad range of measures to meet these problems and motivated other actors such as the EU to pursue further climate friendly policies such as mitigation and adaptation. On the other hand, Germany is, together with other industrialized countries, being historically held responsible for anthropogenic climate change and global warming that started with the industrial revolution and its intensive fossil fuel consumption at the end of the 18th century. In this way, Germany has always been a forerunner: at first in economic and industrial development during the first and second half of the 19th century, that came along with intense environmental stresses and strains, and later regarding environmental and climate protection, that brought along not only new regulations

and policies, but also a “green” economy and “green” technologies, that Germany has become famous for worldwide.

Germany´s forerunner position is also displayed in its high level of development as an industrial country. With indicators such as life expectancy, living standards, GDP and economic performance in the Human Development Indexes (HDI) and other comparative international statistics, Germany leaves most of the rest of the world behind. For an overall evaluation of Germany´s standing regarding climate policies, apart from these basic indicators, its political system, its actions taken with regard to climate change and its overall level of participation in international relations and the international climate change regime will be taken into account.

Regarding Germany’s general climatic conditions, the country is shaped by its temperate weather which is mostly cool and cloudy, with wet winters and summers and occasional warm mountain wind. Until today, Germany´s climate has been relatively stable with convenient climate- and rainfall conditions. The country therefore has provided a solid basis for a stable food supply of the population, human activity in general and secured living conditions. After the 1990s and even more intense from 2000 onwards, a relatively rapid rise in temperatures and changes in the rainfall patterns through climate change began to directly affect human environment. Annual temperatures have risen nearly by 0.9 degrees Celsius since 1901 and meteorologists recorded the warmest decade of the entire 20th century from 1990 to 1999 (BMU 2009). Apart from that, several extreme weather events have been ascribed to climate change and global warming in Germany (and Europe) such as severe floodings in 2003 and 2006 (Germanwatch 2007: 4). For Germany, future problems that will be caused by climate change are predicted to be the rise of sea and river levels, frequent extreme-weather situations and glacier-meltings (Germanwatch 2007: 8). The predictions are already said to be proven by the severe floodings of 2003 and 2006 (DER SPIEGEL 2013; Honnigfort 2013)

As of 2011, Germany was one of the most densely populated countries in the center of Europe with approximately 81.8 million citizens living on a territory of 357.000 km². About one third of Germany´s inhabitants live in one of the 85 cities, with a population over 100,000. Life expectancy is relatively high (78 years for men and 83 years for women) (UNDP 2010). Likewise,

Germany´s very high ranking Human Development Index rates improved even more in the years from 1980 to 2010 from approximately 0.73 to 0.92 points, which is 0.3 points above world average (about 0.58 in 1980 and 0.69 in 2010) and also above OECD average (UNDP 2010).

Considering its political system, Germany is a federal and parliamentary representative democracy (Beck *et al.* 2009: 12). The German Constitution (*Grundgesetz)* was adopted in 1949. Since its reunification in 1990, Germany is divided into 16 federal states, each of them having their own constitution and parliament as well as instruments for regional policy making such as referendums. Germany´s 12,300 municipal entities on the local level have self-administration privileges that are guaranteed by the constitution. Environment related tasks on the regional and local level include mandatory and voluntary duties (Weidner and Mez 2008: 370).

The German electoral and party system makes it difficult for only one party to rule. Generally, parties form coalitions. Germany´s party system has been dominated by the Christian Democratic Union of Germany (CDU) and the Social Democratic Party of Germany (SPD). An important facet and characteristic of Germany's climate and environmental policies is the success story of the Green Party, that began together with the environmental and anti-nuclear movement in the 1980s, grew stronger during the 1990s (Ağcı 2010) and culminated in the electoral success of the Red and Green parties in 1998 and the subsequent formation of a Red-Green coalition government. The Red-Green government introduced and implemented ambitious climate and environmental policies. The implementation of the Renewable Energies Act (EEG) in 2000, which lead to a share of 25 percent of renewable energies in Germany´s energy mix, was an important part of the success story. As a consequence, the Green party could continue its policies after reelection for a second term until 2005. The integration of a green political party in Germany´s political landscape distinguishes Germany from other countries such as the US, Mexico and Turkey. The success has been possible as the German electoral system is constituted by proportional representation together with a generous funding system for political parties. Once the five percent hurdle is crossed, a party is represented in the Bundestag (federal parliament) (Weidner and Mez 2008: 359).

There are 598 mandates in the Bundestag, half of them elected in the 299 electoral districts and the other half through party listings. The parliament has legislative power and also elects the Chancellor as head of the government. New laws can be proposed by the government, while the Constitution also allows for the federal parliament and the Bundesrat (federal assembly) to initiate laws. Expert committees such as the Enquete commission on the protection of the atmosphere (Deutscher Bundestag 2010) that are subordinated to the parliament, debate and counsel on amendments, make recommendations and provide evaluations of issues. The parliament controls and evaluates the work of the government. Also, parliamentarian control is executed especially by the parliamentary opposition and is transparent to the public. Concerning the government, the elected Chancellor appoints the ministers of his cabinet and determines their competences. Three decision-making levels constitute the administrative structure: the federal level, the federal states (Länder) and the local level, while legislative competencies are divided between federal authorities and the federal states (Beck *et al.* 2009: 12). The principle of subsidiarity applies. The competencies of the federal government *(Bundesregierung)* and the federal states *(Bundesländer)* are defined in the constitution (Hartmann 2013). The federal states affect a relatively high share of public life. Public administration is mostly executed by the federal states. The federal states are organized in the federal council, in which every one of the 16 federal states has at least three votes. In 2006, a reform of the German federal system was conducted and the competences of the government and the federal states where newly defined. The federal states can set goals for GHG reduction and issue laws considering environmental policies in the framework of communal law (Biedermann 2011: 16).

Regarding Germany´s industrial development and immense economic growth in the 1950s and 60s, the environmental situation in Germany became poorer as coal-burning and other industries led to a visibility of anthropogenic effect on the environment, such as contaminated water resources and polluted air (Kohout 2009; OECD 1993). Consequently, since the beginning of the 1970s, environmental protection became more popular in the country and laws and regulations have been enacted. “Environmental protection” as a national policy objective was

added to the constitution in 1994 (Article 20a), “acknowledging (…) responsibility to future generations” (Beck *et al.* 2009: 15; Kohout 2009).

As the world’s 5th largest economy, Germany´s economic policy making and development have an impact on other countries (OECD 2012: 8). In the Global Competitiveness Index of the World Economic Forum which assesses the competitiveness landscape of 148 economies, Germany ranked 6th (whereas the USA ranked 7^{th,} Turkey 43rd, and Mexico 58$^{th)}$ (Schwab 2013). After the worldwide recessions of 2008-2009, Germany displayed a rapid recovery compared to other European countries. Unemployment was about 7.1 % (as of 2010) and growth in Germany slowed down in the second half of 2011, but Germany´s economy still had an annual real GDP growth rate of three percent, which only decreased to two percent in 2013 (OECD 2012: 3). During the economic crisis, an above-average fall of the real GDP took place in Europe. Nevertheless, the unemployment rate increased only by 0.5 percent compared to three percent OECD average.

Notably, Germany´s policies against the economic and labor crisis comprised the strengthening of domestic demand and, in relation to climate protection, the exploitation of new sources of growth in climate change mitigation. In Germany environmental policies and green economy are regarded as increasingly important for growth, due to the fact that the government decided to conduct a relatively fast nuclear phase-out and now emphasizes renewable energies to meet ambitious reduction targets. Thus, Germany created very good framework conditions for “eco-innovation” (OECD 2012: 3) and green technologies as export products, while in the past, economic development was tied to industrial development, classical export products were far from being “green” and energy supply was largely met by nuclear energy, coal and other fossil energy sources. Together with the new “green” economic and industrial infrastructure that was built and pushed through policies since the 1990s, the pressure to advocate green policies, energies and technologies for export business on the international market grew. In the course of a growing popularity of sustainable economic activity and development, Germany has become a leader in green (environment and climate-friendly) technology exports: German enterprises achieved a market volume of 300 billion Euro which equals a market share of 16 percent. As experts predict a growing green market for the future (with a market volume of 4,4

trillion Euro by 2025), Germany is expecting further growth of the “green economy”, increased export and job opportunities (DIE WELT 2012).

To substantially contribute to the prevention of climate change and global warming, Germany has conducted a number of policies that put it in a forerunner position. For example, GHG emissions were reduced decisively during the past decades and to a considerably higher extent than in other countries. Compared to 1990, Germany´s emissions decreased by 26 percent until 2012. Thus Germany outperformed its Kyoto aims of 21 percent of reduction and also contributed to an overall success in EU reduction targets. Nevertheless, regarding these successes, one has to take into account that emission reductions were partly achieved by outsourcing effects, political events and factors such as the de-industrialization in the former GDR and German re-unification (Bayerisches Landesamt für Umwelt 2011: 4). Mitigation policies naturally contributed to this development, but could not exclusively cause such an amount of reduction. Notably, despite of Germany´s reduction efforts, the country remains one of the biggest emitters of GHG, partly due to its carbon-intensive energy mix and high degree of industrialization. Emissions per unit of GDP in 2012 were still above the EU-27 average (OECD 2012: 19). Contradictory facts and developments like that contribute to the fact that Germany, with regard to climate action, can be labeled as an “ambivalent forerunner”.

Considering its participation and engagement in international organizations and treaties, Germany is among the main contributors in important international organizations such as the European Union (EU) and the United Nations (UN). As one of its founding members, Europe´s largest economy and the country with the largest population, Germany is of high importance for Europe when it comes to economic, political and defense organizations. Germany contributes 26.6 billion Euro to the overall EU budget of 141 billion (2010) and at the same time is the third largest contributor to the UN after the United States and Japan. The country has been a UN member since 1973 and since 1996 is home to several UN institutions, among them the UNFCCC Climate Change Secretariat in Bonn (Hintereder *et al.* 2013). Germany is, apart from that, also home to the Secretariat of the United Nations Convention to Combat Desertification (UNCCD), the United Nations Volunteers (UNV) and the International Tribunal for the Law of the Sea (ITLOS) (Auswärtiges Amt 2013). Furthermore, the World Bank, the ILO, the UNESCO, the WHO,

the UNHCR also have offices in Germany. Additionally, Germany is a member to the Organization for Security and Co-Operation in Europe (OSCE), the World Trade Organization (WTO), the International Monetary Fund (IMF), the Organization for Economic Development and Co-Operation (OECD), Interpol, the Council of Europe and International commodity agreements and International Courts (Auswärtiges Amt 2013).

Though Germany has been a NATO member since 1955, after two devastating world wars, Germany has been known for developing a tradition of a rather peaceful and non-interventionist foreign policy as a civilian power (Maull 1993). Over all, Germany´s security policy should always be regarded in relation to the European context. Regarded in an international context, Germany belongs to the countries that already put climate change on their national security agenda, as the CDU-government released a security strategy in 2008 that formulated (1) the fight against terrorism, (2) nuclear proliferation, (3) energy and pipeline security, (4) climate change and the (5) prevention of conflicts as top security issues and national interests (Guerot and Korski 2008). As climate change is mentioned in Germany´s National Security Strategy, this underlines the fact that the issue is being regarded as a security issue. However, this is not necessarily an indicator for climate action, as even "laggard" countries such as Turkey and the U.S. introduced climate change as a security issue.

While the following section (3) takes a closer look at German climate policies in the last couple of years, section (4) examines the German position and performance in the International Climate Change Regime.

3. Overview of German climate policies

This section describes the historical and political background of climate policies in Germany. It details central themes of climate policies in Germany. Climate change policies and action gained importance in Germany as a significant part of society became aware of environmental problems and demanded appropriate answers from the government. In line with Germany´s label as an "ambivalent forerunner", before, the country belonged to the "laggards" in environmental policymaking in the 1960s. The US, Japan, Sweden and Great Britain for example where at the forefront of these developments (Weidner and Mez 2008: 358; Krueck *et al.* 1999:

8). Only after the 1970s, Germany gained a leading role in environmental and climate protection and became the second largest financial supporter of climate projects worldwide.

International comparative statistics such as the Climate Performance Index (CPI) display Germany´s worldwide leadership in climate protection. The CPI is published annually and aims at enhancing transparency in international climate policies. In the period from 2008 to 2013, Germany showed a very good climate performance and ranked among the highest of a number of approximately 60 states (see table 1 below). In 2013, only states such as Denmark, Sweden, Portugal and Switzerland ranked higher than Germany in climate performance (Germanwatch 2013). The figures show that Germany currently is one of the leaders in climate protection. Still, a clear downward trend has also become visible in recent years.

Germany's CPI Rankings and Scores 2008-2014

Year	Rank	Score
2008	2	64.5
2009	5	65.3
2010	7	65.3
2011	7	67
2012	6	67.2
2013	8	67.5
2014	19	61.9

Table 1 - Source: Germanwatch Climate Performance Index

**New Ranking since 2009, the first 3 ranks are left free to symbolically show that no country does enough to prevent climate change*

In the Climate Performance Index of 2014, Germany for the first time is not among the top-ten countries regarding climate performance. As the main reason for this development, Germanwatch states that Germany got negative policy evaluations by national experts who criticized that there is a reduced ambition of the federal government that has been slowing down the energy transition process together with a loss of the leadership in climate protection on the European level and even policies of blockade (Focus Online 2013). From 2012 to 2013,

Germany successfully blocked reforms of the European emission trading scheme (Burck *et al.* 2013; Burck *et al.* 2012: 5).

While the Climate Performance Index evaluates the performance of countries in climate protection, the Global Climate Risk Index (CRI) assesses the vulnerability and the effects of extreme weather events on countries. In the CRI average ranking between 1992 and 2011, Germany ranks 37th (CRI Score 49.83) of 131 ranks and is positioned in the third highest out of six vulnerability categories (Harmeling and Eckstein 2012). Germany showed a relatively high vulnerability together with other western European countries, the U.S. (rank 30, CRI score 45.33), Mexico (rank 48, CRO score 58.50) and the majority of Asia to the effects of climate change in the past, mainly due to extreme weather events like floods and live- and economic losses through climate change. Notably, Germany, as well as the U.S. and Mexico have been evaluated to be more vulnerable than for example Turkey on rank 106 (CRI score 98.50) (Harmeling and Eckstein 2012: 20).

Based on the measurement of the GAIN Index, which is a project of the Global Adaptation Institute that also takes future climatic changes, the vulnerability and readiness of the country into account, Germany performs better (ranks 11′ score 78.5) and is ranked higher than for example the U.S. (rank 15, score among 176 countries in 2011 (compared to Turkey on rank 60, Mexico on rank 65 and the US on rank 15) (Global Adaptation Institute 2011). Still, the overall predicted trend of Germany´s vulnerability and readiness concerning climate change and other global challenges is downward, whereas the predicted trend for example for Turkey (rank 60, score 65.0) for is upward.

Domestic Level

Scholars note that “Germany´s stance toward climate protection appears to be characterized by extremes” (Krueck *et al.* 1999: 1) and that Germany almost overnight “converted from laggard to leader” during the 1980s, when climate change became one of the main concerns, firstly of Germany´s research policies (Krueck *et al.* 1999: 1).

Before, in the 1950s and 1960s, just like in other countries, rapid construction and economic growth without any awareness of sustainability led to visible environmental pollution (OECD 1993; Kohout 2009). The formation of environmental movements since the 1970s, such as the anti-nuclear movement and the Green Party were a consequence of this. On the governmental level, distinct top-down environmental policies were introduced (Jensen 2009). During the chancellorship of Willy Brandt (SPD) and a SPD/FDP coalition government (1969 – 1974), the policy field of "*environmental politics*" was introduced. Important impulses for these developments also came from the newly introduced American environmental policies, the UN Climate conference in Stockholm in 1972 and other international programs and events. Under these influences discussions on environmental protection emerged. The government introduced the "Immediate Program for environmental Protection" (*Sofortprogramm Umweltschutz*) in 1970 and the "Environmental Programme" in 1971. Germany has often been regarded as a lead state in environmental protection due to its relatively progressive environmental policies at that time, although it has pushed for stringent environmental standards at the EU- and international level relatively late since the early 1980s (Beck *et al.* 2009: 17). Accordingly, while discourses on the visible and tangible environmental problems continued, the discourses on global warming and climate change emerged later (Feindt 2002). In 1972, through changes in the constitution (Art. 74 Nr. 24 GG), the competences of the federal government in environmental politics were widened and the enactment of the Waste-Disposal Law (*Abfallbeseitigungsgesetz*) constituted another important milestone in environmental policy (Bayerisches Landesamt für Umwelt 2011: 2). Nevertheless, as research fields, climate change and global warming were not regarded as important during the 1970s and 80s. It was international science that alerted the German scientific community of the possibility of human made effects on the atmosphere. Research associations such as the DFG (German Research Foundation) reacted and introduced new research programs. Likewise, the Max Planck Institute for Meteorology (MPI) was founded in Hamburg in 1975 (Krueck *et al.* 1999: 8; Krueck *et al.* 1999: 8). Generally speaking, scientists discovered the necessity of environmental protection and the existence of human made climate change earlier than the media and political actors. Also, the emergence of these topics can be regarded as a further differentiation of environmental issues and policies.

Helmut Schmidt, who succeeded Willy Brandt as chancellor in 1974, downgraded the importance of environmental issues and environmental policy integration (Beck *et al.* 2009: 14). It was the time of the oil crisis and a world-wide recession that persuaded the government to give priority to the consolidation of the flagging economy. Nevertheless, an important milestone in the Schmidt Era was the foundation of the "Federal Environmental Agency" *(Umweltbundesamt, UBA)* that signified an institutionalization of environmental policymaking on the federal level (Bayerisches Landesamt für Umwelt 2011: 2).

In the early 1980s, environmental issues such as forest death (Waldsterben) and acid rain enjoyed high attention of the public. Later, among other factors, these issues also drew public attention to the climate problematic ((Beck *et al.* 2009: 14). Additionally, through the oil crises of 1973 – 74 and 1978 – 79, the idea of conserving energy and using alternative energy sources gained popularity (Beck *et al.* 2009: 15).

In 1983, the federal government of Helmut Kohl (CDU) succeeded the government of Helmut Schmidt (SPD). It had promised comprehensive policies against air pollution and implemented them directly after election. The electoral success of the Green party in the 1983 elections contributed to the implementation of green policies by the government (Jänicke 2009). After all, the measures during the Kohl Era count as early policies of ecological policy integration, but generally speaking, climate change at that time was still regarded as a cost factor and job killer. Ecological and economic goals where polarized (Beck *et al.* 2009: 19).

When the Chernobyl accident occurred in 1986, the nuclear discussion and climate debate provided good preconditions for ambitious environmental and climate policies (Jänicke 2009). The controversy over nuclear power that was triggered by the accident constituted one of the origins of the debate on global warming (Beck *et al.* 2009: 15). It was perceived as a demonstration of the necessity to coordinate environmental policy at the federal level. As a consequence, the "Federal Ministry for the Environment, Nature Conservation and Nuclear Safety" (*Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, BMU*), in short, the "Federal Ministry of the Environment" *(Umweltministerium)* was founded the same year. At the

same time, Germany also emerged as a leading exporter of pollution-reduction technology (Weidner and Mez 2008; Beck *et al.* 2009: 18).

A central role concerning the popularity of climate change as an issue in the political debate has been played by a report called „*Warning of a threatening climate catastrophe*" by the German Physical Society (DPG) in 1986. After this warning, the influential German news magazine "Der Spiegel" placed environmental degradation and the "Climate Catastrophe" as a prominent topic on one of its issues and by doing this changed the agenda in Germany (DER SPIEGEL 1986; Beck *et al.* 2009: 14). As a result, awareness and sensibility concerning climate change rose among politicians, the media and society and the majority of Germans has not doubted the existence of global warming and the impacts of climate change since the 1980s and has been willing to accept ambitious reduction targets (Weingart *et al.* 2000; Beck 2004; Beck *et al.* 2009).

Between 1987 and 1994, Germany further developed its role as a leader in environmental protection, especially during the mandate of the environment minister Klaus Töpfer (1987-1994). Climate policy emerged as a separate policy field in 1987, when a commission of inquiry for the "Prevention for the Protection of the Atmosphere" (*Vorsorge zum Schutz der Erdatmosphäre*) was convoked and the German climate research system had become one of the best in the world (Krueck *et al.* 1999: 1). In 1990, an "Interministerial Working Group on CO-2 Reduction" (*Interministerielle Arbeitsgruppe CO2 Reduktion*) was founded, the aim to reduce GHG emissions by 25 percent until 2005 was set (Feindt 2002; Bayerisches Landesamt für Umwelt 2011: 2) and a purchase guarantee for renewable energy was released (*Stromeinspeisungsgesetz)* (Deutsches Klima Konsortium 2013a; Bayerisches Landesamt für Umwelt 2011: 2). A consequence of these developments was that Germany became a leader in environmental protection and policies (Feindt 2002). Through the adaptation of the precautionary principle (*Vorsorgeprinzip*) for the national response to climate change (Beck *et al.* 2009: 15), German environmental and climate policies transformed from the rather reactive technically oriented environmental protection to preventive climate protection (Bayerisches Landesamt für Umwelt 2011: 2).

The success of the German Green Party especially helped to anchor climate and environmental issues in German politics. The original ”Green Party” (*Die Grünen*) was founded in 1979 as a consequence of the environmental movement in the country and was joined by the citizens movement of the Alliance 90 (Bündnis 90) that was founded in East Germany during the reunification in 1990 (Ağcı 2010). After Germany´s reunification, other issues such as social and economic concerns began to occupy the political agenda and environmental issues lost their political prominence (Jänicke 2009). The support for environmental regulation weakened in the early 1990s (Beck *et al.* 2009: 17). By merging as “Alliance 90´/The Greens” (Bündnis 90´/Die Grünen), the two parties lay the fundament for becoming an influential player in Germany´s future climate and environmental policies (Beck *et al.* 2009: 17).

After the reunification of East- and West Germany in 1990, there was a priority shift from environmental policy-making to social and economic interests. Despite of this fact, a period of institutionalizations of scientific political consulting started when the *“Wuppertal Institute for Climate, Environment and Energy”* was founded in 1991 by the then prime minister of the federal state North Rhine-Westphalia (NRW), Johannes Rau. Its foundation in North Rhine-Westphalia with the “Ruhrgebiet” as an important industrial location for coal mining can be regarded as symbolic. The institute was financially and economically tied to the ministry of economics of NRW (Wuppertal Institut für Klima, Umwelt, Energie GmbH 2013). It was only since the late 1990s that Germany focused its attention on the concept of sustainability (Beck *et al.* 2009: 18) and the Wuppertal Institute conducted the influential study *“Sustainable Germany“* in 1996.

The growing interest of discovering the impact of climate change also led to the foundation of the *“Potsdam Institute for the Research of Climate Impact”* (PIK) in 1992 (Stecker *et al.* 2012: 185) and the foundation of the *“Max Planck Institute”* (MPI) in Stuttgart in 1995 that tried to explain climate change by referring to anthropological influences (Krueck *et al.* 1999: 8). The PIK is one of the most important and influential climate research organizations in Germany and also internationally well known. It is a member of the German Leibniz Society that aims at supporting science and research and employs a staff of 300. It is basically financed by the government on

state and federal level with a budget of 10 million Euro and just as much third-party funds (PIK 2013).

Another important milestone in the 1990s was the amendment of the German constitution (*Grundgesetz*) in 1994 through which the concept of environmental protection became a national objective: „*The state within its responsibility for future generations preserves the natural resources*" (Article 20a GG) (Jensen 2009; Kohout 2009).

The period of setbacks in climate protection and environmental policies that had started after reunification, continued when the Kohl government was re-elected in 1994 and Angela Merkel replaced Klaus Töpfer as environment minister (Beck *et al.* 2009: 16; Jänicke 2009). In the context of the Rio Summit in 1992 for example, Germany was one of the last industrialized countries to submit a formal strategy of sustainable development in terms of the Agenda 21 (Jänicke 2009).

On the European level, the implementation of a GHG/energy tax was discussed, but the member states could not achieve an agreement when the EU commission submitted a draft for a regulation. Consequently, countries such as Denmark, the Netherlands, Sweden and finally also Germany introduced an ecological tax reform single-handedly (in 1999). Notably, considering an energy or GHG tax, it was not least prevented by Germany, as the government pointed to the voluntary declaration of the German economy and industry for climate protection (Damm 1996: 25).

In 1998, the Green Party, together with the SPD, won the elections and formed a coalition for the first term from 1998 to 2002 and for a second term from 2002 to 2005. The government under chancellor Schröder attempted to overcome the standstill in climate policies after its election in 1998 (Beck *et al.* 2009: 17). The nuclear phase-out together with new climate policies that began in 2000 became an important pillar of the "Ecological Modernization" of Germany (Bayerisches Landesamt für Umwelt 2011: 2). The decision was as a signal and big step in Germany´s environmental policies. Traditionally, energy issues in Germany are closely linked to the problem of climate change. For example, scientists had used the term "climate catastrophe" to advocate the use of nuclear power (Beck *et al.* 2009: 15). Despite opposition from certain

groups, the red-green government agreed on a step by step retreat from nuclear energy and simultaneously on the "Ecological Modernization" process. The process had started with the Ecological Tax Reform (*Ökosteuer*) that was introduced in 1999 and the "Strategy for sustainability" in 2000. The program for Ecological Modernization furthermore comprised 1) the development of combined heat and power, 2) the doubling of the share of renewable energies in the energy mix, 3) a regulation for energy saving and 4) a support program for the restoration of old houses (BMU 2007). Generally, the "Ecological Modernization" framework can be characterized by its strong focus on the potential of new technologies for solving environmental problems (Beck *et al.* 2009: 18; Jänicke and Jacob 2006). Through the logic of ecological modernization, the problem of climate change was reframed: climate change stopped to be perceived as a threatening global risk and became associated with economic opportunities for Germany that enabled it to transfer green technologies and innovations internationally (Beck *et al.* 2009: 19).

A series of laws and regulations on renewable energies were introduced in the period of 2000 to 2004 and also later in 2005, such as the National Climate Protection Program and the already mentioned Ecological Tax. The introduction of the laws and measures left the impression that the German Kyoto aims of reducing GHG emissions by 12 percent during the period from 1990 to 2008 where realistic. An agreement on the nuclear phase-out was made in 2002. As a consequence of Germany´s successful environmental policies, the German environmental industry gained a leading position in the world market in 2003. While during the Kohl-Era climate change was regarded as a cost factor and job killer, the Red-Green coalition framed climate issues as a driving force for innovation and modernization. Ecological and economic objectives, that were polarized before, now became complementary (Beck *et al.* 2009: 19).

In 2005, a new grand coalition government of Christian and Social Democrats (CDU/CSU-SPD) was elected with Angela Merkel as the new chancellor. Important measures, though contested earlier, were maintained. Merkel resolutely continued the international role of Germany as a leader in climate protection and green policies (Jänicke 2009), set new demanding national climate change and energy goals and actively supported international climate negotiations, also encouraging EU policies (Weidner and Mez 2008: 356). The "National Climate Protection

Program" (*Nationales Klimschutzprogramm*) was updated in 2005. The former analysis was balanced and proposals for further solutions were made. In the course of the program, Germany committed itself to reduce GHG emissions by 21 percent for the period of 2008 to 2012 (Bayerisches Landesamt für Umwelt 2011: 2). This time, a change in government did not lead to a change in policy direction, as various international events helped to keep attention on climate change, after the Grand Coalition came to power in 2005. Noteworthy events were the publication of the Stern Report (Stern 2006), the IPCC Reports (IPCC 2007), hurricane Kyrill and the bestowal of the Nobel Peace prize to Al Gore and the IPCC (Weidner and Mez 2008: 371).

In 2006, important steps considering climate protection included the foundation of the "*Competence Center for Climate Impact and Adaptation*" in 2006 and the Düsseldorf Declaration (*Düsseldorfer Erklärung)* that outlined new and demanding national (and EU) climate targets and was passed in a joint conference of the federal government and the "Länder" in 2007 (Weidner and Mez 2008: 371). As an influential report on global environmental questions, the "Security Risk Climate Change" (*Welt im Wandel: Sicherheitsrisiko Klimawandel*) report was published in 2007 by the German Scientific Advisory Council WBGU (*Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen*)(WBGU (Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen) 2007).

In May 2007, Germany hosted the G8-Summit in 2007 in Heiligendamm, put climate protection as an important topic on the summit agenda and re-activated the process of international climate negotiations through the commitment of important participating industrialized states for GHG-reduction (Bauchmüller 2013). Additionally, the Grand Coalition of SPD and CDU decided on an "Integrated Energy- and Climate Protection Program" (*IEKP; Integriertes Klimaschutzprogramm*) that foresaw a reduction of GHG emissions by 30 percent until 2020 (based on 1990 figures), also known as "Energy Transition" (*Energiewende*) (Bayerisches Landesamt für Umwelt 2011: 2). The IEKP comprises fourteen laws and regulations and seven further measures that where formally agreed on in May 2008 (BMU 2013), when the second package of the IEKP and the *"German Adaptation Strategy" (Deutsche Anpassungsstrategie, DAS)* was presented (Stecker *et al.* 2012: 186).

In the DAS, the German government planned to spend about 3.5 billion Euros on the research and development of sustainable energies for the period from 2011 to 2014 and to reduce GHG emissions by 40 percent until 2020. Assuming that there are different impacts on different regions and sectors in Europe and Germany, a principle goal of the DAS is the strengthening of specific ecosystems and specific groups. The German government supported the actions and efforts of regional actors in the country through DAS. The federal states participated actively in the creation and implementation of the Bali action plan. The implementation in Germany was coordinated by the Interministerial Working Group of Adaptation (*Interministerielle Arbeitsgruppe Anpassung, IMA*) of the German Parliament.

For the reduction of the use of carbon and energy in the framework of the „Energy Transition“ (*Energiewende*), Germany set distinct quantitative goals. These included the aforementioned reduction of GHG emissions by 40%, the goal of growing energy productivity by 3% per annum, so that in 2020 the country is twice as energy-efficient as it was in 1990, and a steady increase in the proportion of renewable energies.

Apart from that, in 2008 and 2009, a series of influential reports was published, such as the “Environmental Audit” (*Umweltgutachten*) of the German Advisory Council on the Environment (*Sachverständigenrat für Umweltfragen, SRU*). To meet the objectives of the Integrated Energy- and Climate Program, biodiesel was added into the diesel mix in 2009. A series of laws that related to the IEKP where enacted in 2009, such as the Renewable Energies Heat Act (EEWärmeG), a reform of the road tax and the Law on Preservation, Modernization and Development of Combined Heat and Power (CHP).

After the Fukushima incident in March 2011, the coalition government of CDU and FDP decided to implement the nuclear phase-out earlier than planned and further the Energy Transition, despite the fact that until then, it had been opposed to a complete nuclear phase-out (Seils 2012).

It inspected all 17 German nuclear power stations and as a consequence switched off seven (Döring 2012). The Federal Government re-determined its objectives concerning energy until 2050 on the 6th of June 2011 in the framework of the “Energy Transition” (BMZ 2013a).

Germany now aimed at a reduction of the GHG emissions by 40 percent until 2020 and by 80 – 95 percent until 2050 on the basis of 1990 figures with all parties supporting the Energy Transition. Furthermore, the governing coalition decided on May 30, 2011 to switch off all German nuclear power stations until 2022 latest, on the basis of a final report by the German ethics commission on "Secure Energy Supply" (Ethik-Kommission Sichere Energieversorgung 2011).

An important pillar of climate policies in Germany is the voluntary commitment of the German industry and economy for climate protection, which is also common concerning environmental policies in general and on the European level (Knebel *et al.* 1999: 62). Since the 1980s, there have been close to 90 voluntary commitments concerning environmental protection of the German industry (Knebel *et al.* 1999). In 1995, a "Declaration of the German Economy on Climate Protection" (*Erklärung der deutschen Wirtschaft zur Klimavorsorge*) was made and the aim for a reduction of GHG by 20 percent until 2005 (on the basis of 1990 figures) was set. A reduction of 18 percent was achieved already in 1998, but mainly due to the collapse of the heavy industries sector of the former German Democratic Republic (GDR). Without doubt, interests of the German industry and economy are one of the main reasons for the country´s ambivalent standpoint considering climate and environmental protection policies. In the case of the aforementioned "Declaration of the German Economy on Climate Protection", the motivation for the declaration was a prevention of further regulations and taxes on GHG and energy (Damm 1996: 25; Nordbeck 2002: 32). Further declarations such as the "Climate prevention agreement" (*Klimavorsorgevereinbahrung*) in 2000, the "Climate prevention declaration of the German petroleum industry" (*Klimaschutzerklärung der deutschen Mineralölwirtschaft*) had similar climate protection goals (BMU 2013a). Opponents and critics of voluntary declarations as an instrument for environmental policy implementation state that political responsibility is yielded to the economy and that it represents an annulation of democratic decision making for the sake of economic interests or the "delegation of state responsibility to private polluters" (Holzhey and Tegner 1996: 428).

According to Germanwatch, Germany´s "Energy Transition" and the support and further development of renewable energy sources have been stumbling in 2012, 2013 and the years

before. Nevertheless, Germany is determined to fulfill its climate protection goals, disregarding a demotivating, uncertain and slow global development of climate protection policies, but assessments such as the Climate Performance Index of 2014 proof that these ambitions could remain unaccomplished (Burck *et al.* 2013).

Regarding law-making on climate change and the environment in Germany, it is split and fragmented among institutions, administrative regulations and laws. There have been several attempts to form a coherent environmental law, but without success. As the implementation of legislation in Germany is the task of the federal states (Article 83 GG), the federal state governments are especially concerned with environmental protection, but are restricted through federal and European law (Biedermann 2011: 16). All in all, there has been much legislation in recent decades on the federal as well as state level to contribute to the protection of the atmosphere and the global climate (Neumann 1996: 79).

Among the most important laws in relation to climate change are the Ecological Tax Reform (*Ökologische Steuerreform*), the Renewable Energies Act (*Erneuerbare Energien Gesetz*), the Law on Energy Transition *(Energiewendegesetz),* the Law on Nuclear Energy and its Amendments and the Grid Expansion Acceleration Act *(Netzausbaubeschleuningungsgesetz)* (Jensen 2009). The Ecological Tax Reform that came into effect in 1999 by an initiative of the Green Party and was amended in 2000 and 2003 aimed at the redistribution of tax loads according to ecological aspects, while the Renewable Energies Act aims at the support of energy production through clean and sustainable energies. The law came into effect in 2000 and was amended in 2004, 2009 and 2010 (Bayerisches Landesamt für Umwelt 2011: 3). Related laws, mostly enacted within the framework of the Energy Transition are the Law for the Preservation, Modernization and Development of combined Heat- and Power (*Kraft-Wärme-Kopplungsgesetz, KWKG*), enacted in 2002 and the Energy Saving Ordinance (*Energieeinsparverordnung, EnEV*). Furthermore, the Greenhouse Gas Emission Trading 11 (*Treibhausgas-Emissionshandelsgesetz, TEHG*) that was enacted in 2004 and amended in 2009 is the foundation for an EU-wide trade with emissions (Bayerisches Landesamt für Umwelt 2011: 4). In 2007, the Biofuel Quota Act (*Biokraftstoffquotengesetz, BioKraftQuG*) was enacted in 2007 and obligates the Fuel Industry to support a growing minimum share of bio-fuels. In 2009, both the Renewable Energies Heat Act

(*Erneuerbare-Energien Wärmegesetz*) as well as the Reform of the Automobile Tax *(Reform der Kraftfahrzeugsteuer*) were enacted (Bayerisches Landesamt für Umwelt 2011: 4). From the broader perspective of environmental protection, further related laws are the Federal Soil Protection Act (*Bodenschutzgesetz*), the Federal Immission Control Act *(Immissionsschutzgesetz)*, the Noise Protection Act *(Lärmschutzgesetz)*, the Water Protection Act *(Wasserschutzgesetz)* and the Environmental Impact Assessment *(Umweltverträglichkeitsprüfung)* (Henle 2009). Recently, Germany has been criticized for slowing down the Energy Transition and climate action. This has also become visible regarding legislative processes. The CDU/FDP coalition government during its term from 2009 to 2013 was partly blocking itself with contradictory policy aims. Accordingly, no progress was ascribed to Germany in the third GLOBE Climate Legislation Study of 2013 that was conducted by the London School of Economics and the World Summit of Legislators comparatively in 33 countries, while Mexico and the US where accredited progress in their climate legislations. Turkey was not included (Townshend *et al.* 2013).

Summing up climate change as a policy issue in Germany, one can say that there have been attempts to securitize climate change by the government, also on the international level, especially within the EU and UN. Germany has been supporting research on climate change and global warming and the threats posed by it. Politicians and decision makers on all levels, from the regional to the presidential level are widely convinced that climate change poses a huge challenge that grows and continues to threaten individuals, societies and the planet as a whole and that becomes increasingly urgent as time passes by. Compared to the climate action of countries such as Turkey and the U.S., Germany can be labeled as a forerunner. Nevertheless, the climate change has not always enjoyed the same amount of attention at all points in time. Domestic strains of diverging interests may have led to the fact that Germany was and continues to be an ambivalent forerunner with regard to climate change.

4. Germany and the International Climate Change Regime

As environmental degradation and climate change do not stay within national borders, international policies and legal cooperation concerning the environment is at least as important

as national implementation of policies and legislation. Clearly, domestic and international climate policies are not always easy to separate. Therefore, regarding Germany´s performance in the international climate change regime, the national context, including changing governments and other influence factors such as extreme weather events and economic and social pressures should be kept in mind.

The international climate change regime operates on the following three levels: the multinational treaties on the United Nations level, multi-lateral or bilateral treaties and, regionally, the European Union law. Regarding environmental and climate change policies, Germany, from a relatively early stage, took over a forerunner strategy which was in part driven by the desire to catch up with internationalization and in part also by the desire to internationalize German perspectives (Beck *et al.* 2009: 16). Climate change, as Weidner and Mez state, has "if anything, remained one of the German government´s most prominent foreign policy issues" (Weidner and Mez 2008: 364). Since the 1970s, when Germany adopted a relatively coherent domestic environmental policy, it also pushed for clear standards at European Union and International levels in the early 1980s (Beck *et al.* 2009: 17). At the same time it implemented EU laws and regulations and signed and ratified most of the multinational treaties of the United Nations (Neumann 1996: 80).

Germany´s relatively early exemplary efforts compared to other countries concerning climate protection became visible in the late 1970s, 80s and early 1990, though, as described before, priorities also changed together with governments and decades. Already in 1978, the German Environmental Agency organized an international expert conference on climate issues and a governmental committee on "Climate Research" was established the following year (Weidner and Mez 2008: 362).

In 1979, Germany signed and ratified the Convention on Long Range Transboundary Air Pollution as well as its follow-up protocols (Neumann 1996: 79). Germany also signed and ratified the Vienna Convention for the Protection of the Ozone Layer in 1985, the Montreal Protocol on Substances that deplete the Ozone layer of 1987, as well as the UNFCCC, the Agenda 21 and the Convention on Biological Diversity that were proposed at the Rio Earth

Summit in 1992 (Bayerisches Landesamt für Umwelt 2011: 2). Germany´s active stance in international climate negotiations also became visible through its willingness to support the process logistically and to provide space for UN institutions such as the UNFCCC secretariat that was opened at the UN Campus in Bonn after its ratification (Gemeinsame Informationsstelle der UN-Organisationen in Bonn 2013). Starting in 1997, the "Bonn Conferences on Climate Change" of the subsidiary bodies of the UNFCCC have been held annually and sometimes even more frequently in Bonn with the aim to prepare the sessions of the conferences of parties (UNFCCC 2013a).

Through their active stance and initiatives, German chancellors and ministers of environment have gained much attention at international conferences, such as the UN Earth Summit in Rio de Janeiro in 1992. Also, at the various conferences of parties to the UNFCCC and the G7 and G8 summits, they have been known to advocate ambitious international environmental and climate policies. Germany has also shown a willingness to go further than various EU member states by unilaterally making commitments to GHG reduction to shape the agenda at international conferences (cf. Weidner and Mez 2008: 357) and by constituting new fora for the discussion of international climate policies such as the Petersberg Climate Dialogue (cf. Deutsches Klima Konsortium 2013a). The successful conclusion of the Kyoto protocol is in part indebted to the committed preparatory work of Angela Merkel, then Minister of the Environment, at the 1995 Conference of parties in Berlin (COP1) and her diplomatic activities during the COP session in Kyoto in 1997. The conferences of parties started to be held annually in the aftermath of COP1 in Berlin (Deutsches Klima Konsortium 2013a). Concerning the reduction of GHG emissions, Germany adopted the highest commitment in comparison to other powerful EU member states in the framework of the Kyoto negotiations in 1997: While the European Union had agreed on the common objective of minus eight percent, for Germany, a reduction goal of minus 21 percent was foreseen (Werland 2012: 55). However, one has to keep in mind the advantage that Germany took of re-unification in 1990 and de-industrialization in the former GDR.

At a German Energy summit in July 2007, Chancellor Angela Merkel declared climate protection to be the biggest challenge of the twenty-first century and thereby continued with Germany´s foreign policy emphasis on climate change. On the EU level, Germany´s persistent political

efforts primarily led to the adoption of the 20-20-20 by 2020 goal by the European Union (Weidner and Mez 2008: 364). At the COP-13 in Bali in December 2007, Germany, by introducing the demanding "Integrated Energy and Climate Program" (IEKP) once again demonstrated its commitment to a progressive climate policy during the "post-Kyoto" negotiations in Bali. Additionally, the extremely difficult climate negotiations profited once more from a very committed German delegation and the German National Adaptation Strategy was agreed on in 2008 as a consequence of the Bali Action Plan (Clémençon 2008; Weidner and Mez 2008).

During its EU and G8 presidencies in 2007, Germany highlighted climate policies and set signs, not only at the 33rd G8 summit in Heiligendamm, where climate change was one of the top issues on the agenda (BMU 2013b). The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety started a National and International Climate Protection Initiative for the implementation of climate protection projects in Germany as well as in developing countries and newly emerging industries the same year (Deutsches Klima Konsortium 2013a).

Another example for Germany being a driving force of the international climate change process was the initiation of the Petersberg Climate Dialogue that was held for the first time in 2010. The dialogue has been set up through the personal initiative of chancellor Merkel after the conference of parties in Copenhagen in 2009 (COP-15) that was widely perceived as a disappointment and is designed as a forum for exchange on ministerial level. The Petersburg dialogue was meant to bridge the time between the conferences of parties on ministerial level and provides assistance for action within the UNFCCC process (Deutsches Klima Konsortium 2013a). The dialogue annually brings together environment ministers from industrialized countries, emerging economies and developing countries with the aim to further international climate negotiations (BMU 2012). For the first Petersberg Climate Dialogue "Building Momentum for Mexico", Germany and Mexico jointly invited 43 countries to meet at the Petersberg in Bonn in May 2010. The aim of the conference was to locate the state of the UNFCC process before the next formal negotiation session that took place at the end of May 2010 in Bonn and ahead of the COP 16 in Cancun, Mexico in 2010 (Deutsches Klima Konsortium

2013a). Indeed, the Petersberg Dialogue contributed significantly to the development of the "Cancun Package" (BMU 2013b).

In preparation of the COP17 in Durban, the second Petersberg Climate Dialogue was held in 2011 in Berlin and themed "Rising to the Climate Challenge". It was meant to continue the spirit of the first Petersberg Dialogue and to contribute to the preparation of COP 17 in Durban/South Africa (BMU 2013b). Half a year after the Conference of Parties in Durban (COP 17) in December 2011, the "Bonn Climate Change Conference", the meeting of the subsidiary bodies of the UNFCCC, started into a new round in April 2012. A new and legally binding agreement was meant to be negotiated by 2015. The effectiveness of this agreement is highly depending on the power relations of the most important actors.

While the official response of the German government to the UN Climate Convention after the Durban summit was positive, the opposition together with environmental organizations in Germany regarded the results as disappointing. Within the European Union, it was not possible to agree on a reduction aim of 30 percent that was an important objective of Germany, especially because of the massive opposition of Poland. After the Cancun and Durban conferences, the implementation of concrete climate protection instruments, such as the "Green Climate Fund" was discussed and Germany applied to be the host of the fund (BMU 2012; Green Climate Fund 2013). At the same time, as a non-permanent member of the UN Security Council, Germany´s "forerunner identity" managed to put climate change as an issue on the agenda of the council (Germanwatch 2013).

The UNFCCC process after Durban continued in Germany with the third Petersburg Climate Dialogue that took place in July 2012 in Berlin and was themed "Matching ambition with action" under the presidency of Germany and Qatar, where the next conference of parties was planned to be held in Winter 2012 (BMU 2013c; Deutsches Klima Konsortium 2013a). At Petersburg III, ministers from 31 countries met to negotiate and discuss the new and upcoming protocol on climate protection for the period after 2012 and emission reduction policies (BMU 2013c). Germany continued to aim at achieving an international agreement for climate protection that keeps the global temperature rise at a level of maximum two degrees Celsius on the basis of

pre-industrial figures (BMU 2012), while the United Nations Environmental Program, UNEP, published the "Emissions Gap Report 2012" that showed the gap between acceptable emissions to reach the 2° goal and the actual emissions (Deutsches Klima Konsortium 2013a). At the same time, the World Bank published the study "Turn down the heat – Why a 4 °C Warmer World must be avoided" of the Potsdam Institute for Climate Impact Research. The fourth Petersberg Climate Dialogue themed "Shaping the Future" was held in May 2013 and organized by Germany and Poland in preparation of the COP19 in November 2013 in Warsaw (BMU 2013d). While the positive and partly already institutionalized effects of innovative climate policies that where implemented from the 1990s onwards continue to ascribe Germany the role of a leader in climate action, the country at the same time and especially during recent years demonstrates an ambivalent stance in international climate negotiations by giving in for example to influential lobby groups such as the German automobile industry (VDA) or blocking further CO2 emission reduction policies on EU level (Focus Online 2013; BÜNDNIS 90/DIE GRÜNEN Bundestagsfraktion 2013)**.** Especially when it came to the implementation of the EU Emissions Trading System ETS or the so-called backloading proposal, the German government has, according to Germanwatch, transformed from a climate leader to an anti-progressive force. Accordingly, it has been Germany that stopped the EU from being a climate leader (Bals *et al.* 2013: 6). To conclude this section on Germany´s behavior in international climate negotiations, it has become clear that Germany put forward a comparatively active stance, sometimes even being in a leading or key position as a motor for climate change policies, but also restraining, where powerful economic and industrial arguments put pressure on climate negotiations. *Figure 1* gives a graphical overview of the most important German decisions, initiatives, events and actors concerning the domestic and international climate debates since the beginning of the UNFCCC process. *Table 2* in the appendix gives a more detailed account of these milestones.

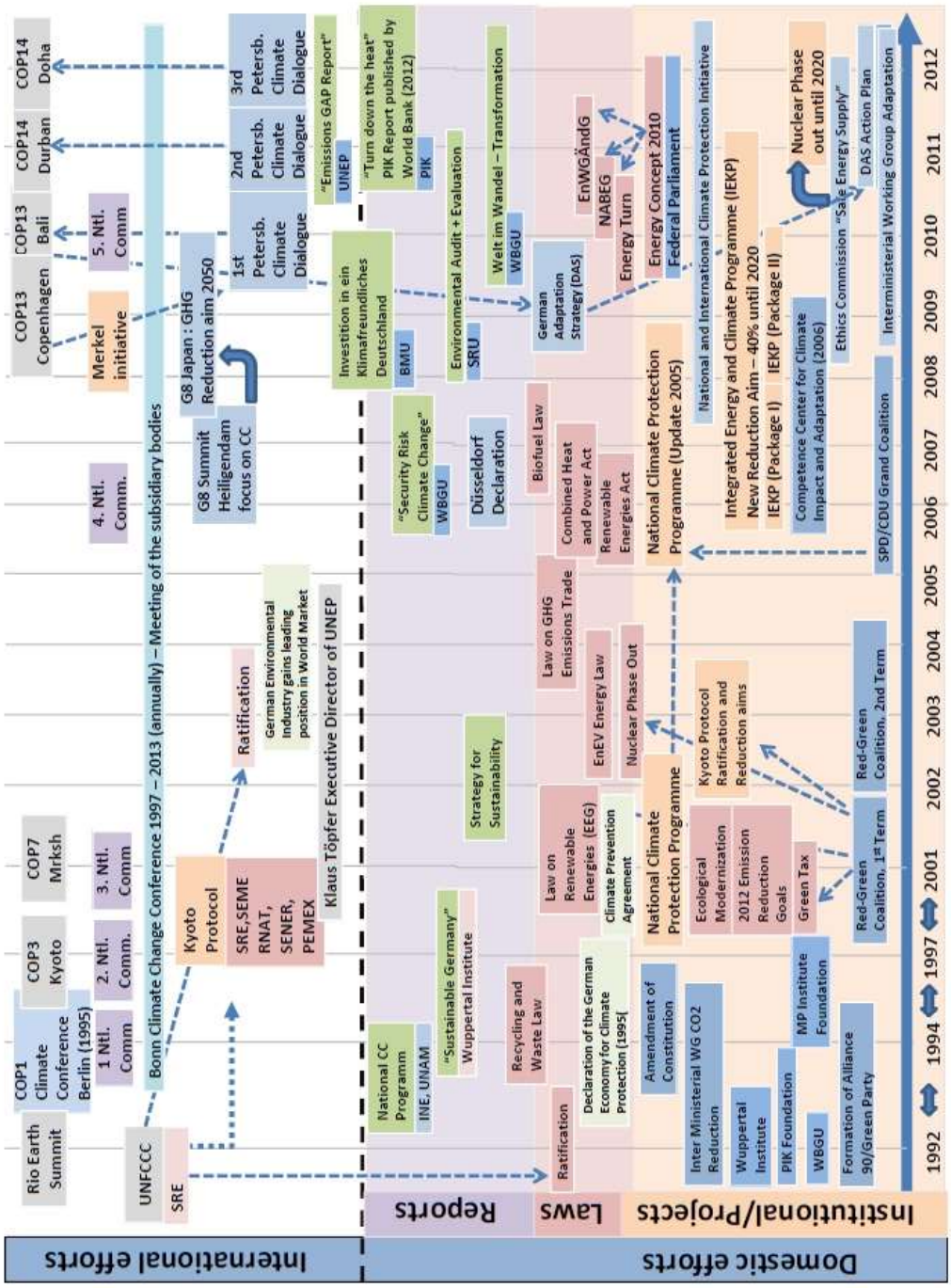

Figure 1: Milestones in German domestic environmental and climate policies; International climate policies

5. Actors in the climate field

This section provides an overview of the most important actors of Germany´s climate politics. Special attention is given to actors that have participated in the climate-security debate.

We distinguish actors in the field of climate action between governmental organizations and non-governmental organizations. As we are specifically interested in the actions and the impact of non-governmental organizations, this analysis focuses on their activities and describes the most important and effective NGOs in Germany with regard to the climate change-security nexus, such as foundations, associations, umbrella organizations and branches of international NGOs. One may not always be able to make a clear distinction between governmental and non-governmental organizations, as there is a growing interdependence between government and non-government levels. For example, there are many research institutes in Germany that are semi-state-financed (by the federal government or EU) and considered as NGOs, but formally belong to the government level. Furthermore, as in other countries, scientists or universities are often involved in research for governmental institutions. Similarly, non-governmental organizations are often involved in governmental programs and projects on climate change. Some of the most important climate-NGOs in Germany, such as for example the Potsdam Institute for Climate Research (PIK), are for example partly state-financed. For a clearer illustration, distinctions have been made into governmental and civil society actors, science actors, business organizations and lobby groups, umbrella organizations and others.

We have identified more than 50 organizations in Germany that act along the climate-security nexus through activities such as research, publications and presence in the international climate change regime. More than 200 organizations claim to be active in climate protection in Germany generally or are listed in climate change databases or networks such as the Climate Action Network CAN or the German Climate Consortium (DKK 2013). Not all of these organizations are influential in the climate change debate, as they are sometimes very small sub-groups of organizations such as “Brot für die Welt” or “Diakonie” that have their main occupations in areas such as development or humanitarian aid.

5.1. Government Organizations

In Germany, climate policies are integrated on the national, regional and local Level. Despite of environmental state institutions, almost all relevant governmental units have undertaken

efforts to demonstrate their commitment to Germany´s ambitious national and global climate policies. For example, the Ministry of Agriculture has pushed development aid and research and the Ministry of Environment has positioned itself as a proponent of ecological industrial transformation and innovation (Weidner and Mez 2008: 357). Environmental protection was first institutionalized when the Federal Environmental Agency, which is now subordinated to the Federal Ministry of Environment, Nature Conservation and Nuclear Safety, was founded.

The Federal Ministry of Environment, Nature Conservation and Nuclear Safety, which is the central state organization for climate action today, was founded as an environmental governmental institution after the Chernobyl incident in 1986. The ministry is the highest institution in the framework of the federal government. It is responsible for defining the objectives and measures of environmental policy and the construction of a framework and setup of conditions for their implementation (BMZ 2013b). There are three further important public authorities subordinated to the BMU: The Federal Environmental Agency UBA that was mentioned before; the Federal Agency for Nature Conservation, (*Bundesamt für Naturschutz, BfN*) founded in 1993, and the Federal Ministry of Radiation Protection (*Bundesamt für Strahlenschutz, BfS*), founded in 1989. These institutions have the responsibility to support the ministry with scientifically verified background data and produce proposals on how to achieve the environmental goals of the government. Additionally, there are scientific advisory councils with experts of different professions, which critically assess the political process (Jensen 2009); that are explained in the section on scientific research on climate change in Germany.

As a second important state organization, the Federal Environmental Agency was established in 1974 as a “non-executive superior federal authority“ under Article 87 III (GG) (Neumann 1996: 11). The funding and support of environmental research projects are among its tasks, as well as monitoring and documentation of the environment situation. Every two years, it issues a report concerning the environmental situation in Germany (Neumann 1996: 11). The UBA comprises specialized units such as the Competence Center for Climate Change Effects and Adaptation *(Kompass).* Kompass supports the Ministry of Environment in the creation of an action plan for adapting to climate change. Apart from the UBA, the Federal Agency for Nature Conservation

and the Federal Ministry for Radiation Protection are subordinated to the BMU, but their tasks are different from global warming and climate change issues.

As a sub-organization of the UBA, the German Emission Trading Authority *(Deutsche Emissions-Handelsstelle, DEHSt)* is „the competent national authority to implement the market instruments of the Kyoto Protocol“, such as the „Joint Implementation“ and „Clean Development Mechanism“ (DEHST 2013). The UBA and DEHSt both aim at informing companies, interest groups, expert units and media, that are involved in emission-trading about tasks, outcomes, experiences and findings of the global warming and climate change (DEHST 2013).

Apart from its main responsibility of weather forecasts and analysis and similar to the World Meteorological Organization *(WMO)*, the German Meteorological Service *(Deutscher Wetterdienst, DWD)* is active in the field of climate analysis. It conducts a series of important research such as climate predictions, climate monitoring and the gathering of climate data. Several subordinated institutions conduct research on climate and climate change in the framework of the DWD, as is outlined in the section on climate research in this paper. According to the law the DWD is responsible for monitoring weather and climate phenomena and has the function of warning the government if the climate endangers the security and law and order of the state (DWD 2013a). The service is relatively successful in fulfilling its duties and can be regarded as one of the securitizing scientific actors due to its appearance in the media and its influence on public actors (Frankfurter Rundschau 2013; Deutsche Welle 2013).

As climate change has been one of the priorities of German foreign policy since the 1980s, the Federal Foreign Office *(Auswärtiges Amt)* as well as the Ministry of Development and Cooperation *(Bundesministerium für Zusammenarbeit, BMZ)* are state organizations dealing with climate change that are more concerned with the subject on an international level.

As for Germany, issues such as environmental protection and climate change belong to the top global challenges of the 21st century, climate change together with energy security gain importance for the formulation and formation of foreign policy and development policy in the course of a growing global demand and instable regions in the world. The Foreign Ministry underlines the fact that a healthy climate and environment cannot be reached in a national

framework. In the framework of its engagement, the German representations abroad support projects with the help of the climate fund of the German Government in the areas of Climate Change and Environmental protection (Auswärtiges Amt 2013). As development aid in Germany is regarded to be an essential measure to counter the threats that climate change poses to developed as well as developing countries, the Federal Ministry for Economic Cooperation and Development BMZ together with other state development organizations such as the KfW and GIZ *(Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH)* conducts projects related to climate change and development aid in developing countries (BMZ 2014).

Further subordinated German state-institutions, such as the Federal Institute for Geosciences and Natural Resources *(Bundesanstalt für Geowissenschaften und Rohstoffe, BGR)* and the Federal Office for Agriculture and Food *(Bundesanstalt für Landwirtschaft und Ernährung, BLE)* provide support in special areas related to climate change. Questions on natural resources, environment and resource protection, biological diversity, including climate change with topics such as CO2 storage, are tackled (Bundesanstalt für Geowissenschaften und Rohstoffe 2013; Klimanavigator 2013).

On the parliamentary level, investigation commissions *(Enquete Kommission)* support the Federal Parliament in special matters such as climate change and environmental protection. Prominent examples include the commissions on "Protection of the Atmosphere" *(Enquete Komission zum Schutz der Erdathmosphäre)* and "Protection of Human Life and the Environment" *(Enquete Komission zum Schutz des Menschen und der Umwelt)* (Deutscher Bundestag 2013; Jänicke and et al. 2001).

In Germany, the regional ministries of the federal states play an important role in the climate change policy implementation. The federal states have their own climate protection programs. The framework in which regional climate protection policies can be exercised is predetermined by international treaties, laws and regulations, but national and European regulations are implemented according to the principle of subsidiarity (Bayerisches Landesamt für Umwelt 2011: 8).

Activities and institutions working on climate change and environmental issues also reach out to the regional level of the federal states. There are coordination units such as the conference of environment ministers of the federal states *(Umweltministerkonferenz der Länder)* and interministerial working groups *(Intermnisterielle Ausschüsse/Arbeitsgruppen)* of the federal government, such as the Interministerial Working Group of Adaptation *(Interministerielle Arbeitsgruppe Anpassung, IMA)* of the parliament. (Jänicke 2009). On the federal state level, support programs of the government, such as KLIWAS, MORO and KLIMZUG are implemented. KLIMZUG is an initiative to support regions in adapting to climate change. It is institutionally supported by the Institute of the German Economy (DIW) in Cologne and comprises seven interrelated projects for regional adaptation: dynaklim, INKA BB, KLIMZUG-NORD, KLIMZUG-Nordhessen, nordwest2050, RADOST and REGKLAM.

5.2. Civil Society Organizations, NGOs and Think Tanks

Generally speaking, "Non-Governmental Organization" is a general term for sometimes quite different civil-society organizations as well as umbrella organizations, networks and even partly state-financed or business organizations. When the UNFCCC was first initiated, there were about 171 organizations registered. This number grew to 530 organizations in the year 2000 and 1.297 in 2011. Just as in other umbrella organizations, the relatively wide understanding of what an NGO is leads to these high numbers of registered organizations (Unmüßig 2011: 46–47). Actually, at the beginnings, the big transnational environmental organizations were the only NGOs present at COP summits. Examples are the WWF and Greenpeace, national environmental organizations such as the German *BUND*, networks such as the *Climate Action Network (CAN)* together with highly specialized organizations such as *Germanwatch* (Unmüßig 2011: 19–20). As the number of member organizations to the umbrella organization "Climate Alliance Germany" shows, there are 479 active in the field of combating climate change in Germany and about 117 of them are registered at the UNFCCC as civil society observers (UNFCCC 2013c). The NGO database of the Climate Alliance in Germany comprises churches, development organizations, trade unions, consumer protection organizations, youth organizations, trade

associations and others. In this paper, we take only those ones into account that are primarily committed to climate action in such a way that they decisively have the capability to make influential statements on climate change and security that may affect the policy process, intended or unintended. Among the most popular, active and influential NGOs in Germany are the “usual suspects” of international NGOs and their national branches such as Greenpeace, the World Wide Fund for Nature (WWF), Robin Wood and the International Council of Local Environment Initiatives (ICLEI). These are at the same time also observer organizations to the UNFCCC (UNFCCC 2013c).

Influential and popular national NGOs with a wider scope on the environment that also tackles climate change are “Friends of the Earth Germany“ (BUND), and the “Nature and Biodiversity Conservation Union“ (NABU). Highly professionalized NGOs and Think Tanks, such as the “Potsdam Institute for Climate Impact Research“ (PIK), “Germanwatch“, “Climate Analytics“ and “Adelphi Consult“ belong to the actors that clearly act as securitizing. Partly, these actors can be located on the state level as they are often financially supported by the government or EU. These actors have, also compared to cases such as Mexico and Turkey, an incomparably high output of warnings, reports and data that are mainly alarming, call for immediate action concerning climate protection and are relatively successful and can therefore be regarded as clearly securitizing actors. For example, Germanwatch appears in important national media such as “Der Spiegel” and international media such as “Bloomberg” (Nicola 2013; Bojanowski 2013). The PIK has a media occurrence of 3 to 4 articles per month in both national (for example: N-TV 2013; DER SPIEGEL 2012) and international (for example: AFP 2012;; DAPD 2012) media. The impact on government institutions and probably policy makers, even on the international level, can be regarded as very successful, as for example Hans-Joachim Schellnhuber, director of the PIK, was, apart from UN Secretary Ban Ki Moon and Worldbank President Rachel Kyte one of the lead-speakers at the UN Security Council debate on climate change and security in 2007 (Germanwatch 2013).

As an indicator of the importance and activity of NGOs in the field of climate politics, their membership in the international Climate Action Network (CAN) can be taken into account. CAN is a global network of over 320 NGOs in 81 countries. It is seen as one of the most successful

networks created and supported by its members as well as governments and charitable organizations (Oberthür *et al.* 2002: 121). There are 21 German NGOs or German sub-organizations of international NGOs that participate in CAN. Among them are transnational NGOs such as "WWF Germany" and "Friends of the Earth Germany" as well as NGOs with a religious background, such as "Bread for the World", "Misereor", the „Protestant development service" (EED) and the "Welthungerhilfe". Think tanks such as the "Wuppertal Institute for Climate, Environment and Energy"; "Climate Analytics"; "Germanwatch"; the "Ecologic Institute" and the "Institute for Applied Ecology" (*Öko-Institut e.V.*) participate in CAN as well as networks and umbrella organizations such as the "Climate Alliance"; the "German League for Nature and Environment" (DNR); the German NGO "Forum on Environment and Development" and the "German Union for Nature Conservation"(CAN 2013), whereas CAN can itself be regarded as a newly founded umbrella organization such as the "Climate Alliance" (Unmüßig 2011: 56).

A number of influential and big foundations focus on climate protection in Germany. Among them are the German Federal Foundation for the Environment *(Deutsche Bundesstiftung Umwelt, DBU*), founded in 1990, which is one of the most influential environmental foundations in Europe and focuses on education and projects on climate change with a starting capital of 1.3 billion Euro. The Allianz Environmental Foundation (*Allianz Umweltstiftung*) was founded with a financial volume of 100 million DM and finances education, research and renewable energies with regard to climate change. It constitutes an intersection of civil society and economy, as it was initiated by the Allianz Insurance Group. Apart from the well-known WWF foundation, the Selbach Environment Foundation *(Selbach Umweltstiftung)*, founded in 2003, is conducting action for climate protection and organized the "Munich Forum for Sustainability" since 2005 (Pohl 2010; Bischoff *et al.* 2011).

Among the most influential national associations with regard to climate protection in Germany are the Friends of the Earth Germany that was founded in 1975. It is one of the largest German environmental organizations and primarily works in the fields of renewable energies, the protection of the forest, prevention of waste, healthy food and the protection of water. The BUND has regional organization on the state level, such as the BUND NRW that concentrates on

regional problems apart from the BUND activities. The NABU association is another popular non state national environmental organization and engages actively in nature protection. Lobby groups such as the "Alliance of Energy Consumers" (*Bund der Energieverbraucher e.V.)* are active in the fields of an environmental friendly energy management.

Another noteworthy category of non-governmental organizations is the category of organizations such as "Bread for the world" *(Brot für die Welt)*, that are nationally based but act internationally. Professional organizations with an emphasis on ecology, such as the "Ecological Hunting Organization" (*Ökologischer Jagdverband*) can be identified, as well as initiatives, such as the "Initiative for Species Prevention" (*Aktionsgemeinschaft Artenschutz e.V.*) which belong to NGOs. Umbrella organizations such as the German Environmental Protection Circle (DNR – Deutscher Naturschutzring) or the "Climate Alliance" (*Klimaallianz*) unify organizations active in environmental and climate protection in Germany. While the "climate alliance" is the umbrella organization and initiative of the industry, the "National alliance on professional environmental protection" (*Bundesverband beruflicher Naturschutz*) is a non-governmental umbrella organization of professionals working in the field of environmental protection. The "German Climate Consortium" (*Deutsches Klima Konsortium e.V., DKK*) is an association that is subordinated to the Max-Planck Institute for Meteorology in Hamburg and is state-financed. It is one of the leading players of German climate research and comprises more than 20 renowned research bodies in Germany, among them the German National Meteorological Service (DWD), the Helmholtz-Centers, the German Climate Computing Center (DKRZ) and the Max Planck Society (Deutsches Klima Konsortium 2013c). Similar state financed research organizations are the "Climate Network Saxonia", "RADOST", the "Climate Platform" – a research platform on climate change in Potsdam, the Max-Planck Institute for Biochemics and the Helmholtz-Network REKLIM (DKK 2013; Jensen 2009). The "Climate Navigator" (*Klimanavigator*) is a coordinating virtual umbrella organization and is run by the state-financed „Helmholtz-Center" in Geesthacht. It is expected to provide a professional overview on organizations that are active in the field of climate protection in Germany (DKK 2013).

5.3. Science Actors and Advisory Bodies

Knowledge about climate change is generally produced by science. Science steadily improves the understanding of phenomenon's, its causes and consequences (Schmidt 2012: 69). While climate research was relatively unpopular in Germany during the 1970s and 1980s, by the 1990s, the German climate research system had become one of the best in the world concerning equipment and reputation (Krueck *et al.* 1999: 1). German climate research in general is based on a diverse, at times strongly subdivided system which includes various actors: federal authorities, the federal states, the institutions of the German scientific associations "Helmholtz Association", "Leibnitz Association" and "Max Planck Society", universities, cooperative institutions as well as companies that are organized in such federations as the already mentioned "German Climate Consortium" (Deutsches Klima Konsortium 2013b). Compared to other countries, there is an exceptionally high number of state-financed as well as semi-state financed and independent scientific actors that conduct research and provide services and knowledge on climate change, aiming at informing policy makers as well as the general public.

Activities in German climate research include the collection of climate data and the observation of the climate, modulation, projection and prediction of climate phenomena, evaluation and assessments, consulting and worldwide capacity building (DWD 2013a). The German Meteorological Service, together with some of its subordinated institutions (NKDZ, CDC, WZN, GCC, GAW, CM-SAF, BSRN, GRUAN, RCC) and some Institutions of the Helmholtz Society (HZG, AWI, UFZ, KIT, DLR, GFZ, FZ Jülich, TERENO) together with insurance companies such as MunichRE, HannoverscheRE observe climate development and conduct data collection(DWD 2013b). Concerning climate modeling, organizations of the Max-Planck-Society (such as the MPI-M), the Leibniz Society, to which the well-known Potsdam Institute for Climate Impact Research (PIK) belongs to and the Helmholtz Society, apart from diverse networking-institutions and institutes at Universities (such as the DKRZ, ZMAW and CLM) are active in this field.

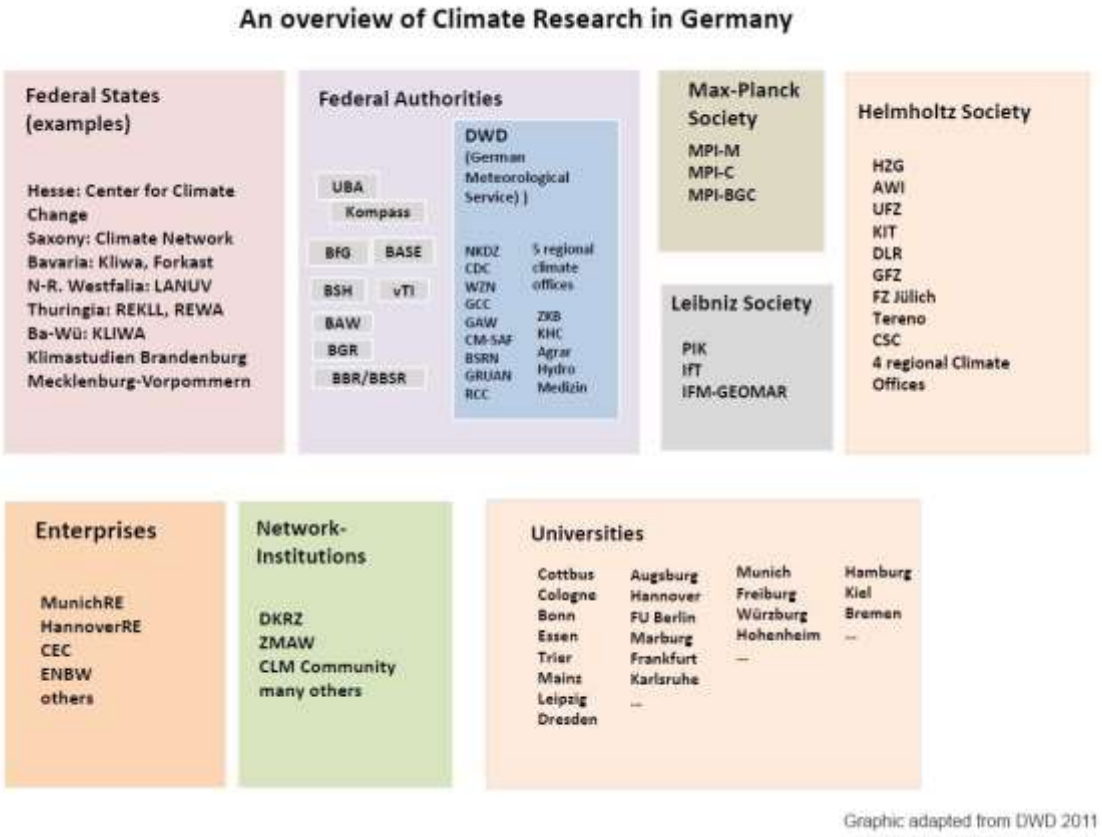

Figure 2: An overview of Climate Research in Germany

Concerning the German research societies, for example the Helmholtz Society alone, which comprises climate and environmental research institutions all over Germany (`such as the Helmholtz Centre Geesthacht, the "Geomar" in Kiel or the Alfred Wegener Institute for Polar Research in Bremerhaven) comprises over 36.000 employees and an annual budget of 3.8 billion Euro (Helmholtz-Gemeinschaft 2013). Regarding consulting on matters of climate change, the most important actors are state agencies and civil services such as the German Meteorological Service, Regional Climate Centers as well as the UBA, CSC and the regional climate offices of the Helmholtz Society. Considering the evaluation and assessment of climate data and models, this is primarily the task for state agencies and institutions on federal and regional level (DWD 2013b).

Another important advisory body with a considerable influence on governmental organizations is the Commission for Environment, Environmental Protection and Nuclear Safety *(Ausschuss für*

Umwelt, Naturschutz und Reaktorsicherheit des Bundestages) in the Federal Parliament that is state financed but consists of parliamentarians as well as external experts. The parliamentary commission on the environment has 31 members who follow the legislation process and take into consideration the requests for modifications of the different parliamentary parties. Main responsibilities of the commission comprise climate change, nuclear and renewable energies and environmental and animal protection (Jensen 2009).

Likewise, the "German Advisory Council on the Environment" and the "German Advisory Council on Global Change" are important advisory bodies to the government. The SRU was founded in 1971 in order to advise the German government on questions of the environment and was one of the first academic advisory bodies in the country (SRU 2013). The SRU works interdisciplinary and determines the focus and scope of its reports independently. The German Advisory Council on Global Change was set up by the German Government as an independent, scientific advisory body in preparation to the Rio Earth Summit in 1992 (WBGU 2013). The Council analyzes global environmental and developmental problems and publishes reports every two years. The government can commission the council to prepare special reports and policy papers. An important document with a high impact on policy makers and the public was the already mentioned "Flagship Report" "Climate Change as a Security Risk" of 2007 (WBGU (Wissenschaftlicher Beirat der Bundesregierung Globale Umweltveränderungen) 2007).

Considering independent foundations and research institutions on climate change, the Ecological Institute, the Institute for ecological economic research *(IÖW)* and Germanwatch are well known for climate activities. Furthermore, a series of foundations such as the Robert Bosch Foundation, the Volkswagen Foundation, the Mercator Foundation GmbH and the Alexander von Humboldt Foundation and the Heinrich Böll Foundation, among several others, conduct and support research on climate change, global warming, renewable energies and emission reductions (Pohl 2010). Regarding some of these organizations, the sometimes almost invisible transition and intersection of the governmental level, the civil society level and the business level becomes even more blurred, such as in the case of the Allianz Environmental Foundation, that is tied to insurance industry as well as in the case of the Volkswagen Foundation which is close to the automobile industry.

5.4. Lobby Groups and other actors

Apart from actors in politics and science, a set of representatives and lobby groups of the industry and commerce influences discourses on climate change in Germany. The environmental industry and economy is, compared to other countries, an important environmental actor in Germany on the one hand as a supporter and on the other hand as an opponent of green technologies. This again displays Germany´s ambivalent role as both a forerunner and a laggard concerning climate protection. Still, there is a relatively high acceptance of environmental protection in Germany´s economic sector. Associations of enterprises that aim at ecological modernization (such as *BAUM, BJU, Förderkreis Umwelt future, UnternehmensGrün, Modell Hohenlohe*) participate actively in the public environmental discourse (Jänicke 2009). .

One of the most influential lobby groups is the Federation of the German Industry (*Bundesverband der deutschen Industrie, BDI*). Apart from that, there are lobby groups of individual sectors of the industry, such as the automotive industry. The Union of German Automobile Producers (VDA) is important in this respect. Additionally, important initiatives of the industry, such as the "3 C Initiative" (Combat Climate Change), in which influential international and some of the world's largest companies are involved, try to influence climate policies nationally as well as internationally. Among the German supporters of the 3C initiative are Bayer, the Deutsche Bahn, Deutsche Post, Lufthansa, Munich Re Group, Otto Group and Siemens (Combat Climate Change 2013).

6. Conclusion

To sum up, Germany has shown a mostly outstanding and increasing performance since the 1980s in climate protection. "It almost overnight turned from laggard to leader", as Peter Weingart has put it. Germany´s energy and resource-consuming level of industrial and economic development and lifestyle as a developed country on the one hand and its priorities and pledge for climate and environmental protection on the other hand explain why it has been regarded

as an “ambivalent forerunner” in climate change policies (Germanwatch 2013). Especially in the beginnings of climate protection, Germany did not perform exemplary. Climate and environmental research and policies were motivated from outside during the 1960s and 70s. It was international science that alerted the German scientific community of the possibility of human made effects on the atmosphere. The topic of anthropogenic climate change had then been discovered only by few “insiders“ in science. The forerunner role in environmental policymaking developed only later. At first, the issue also found no resonance in the public, but today climate change belongs to the standard repertoire of discussions on politics and the environment in Germany (Bechmann and Beck 1997: 121). Coming along with developments and events in the international climate change regime during the 1990s, such as the Rio Earth Summit, the foundation and support of important scientific research networks and institutions led to an institutionalization and professionalization of climate research in Germany, despite of the fact that the focus in Germany had shifted away from environment matters to rather economic and social matters after reunification in 1990. Reunification and its priorities on the one hand, and the willingness to act according to the international climate change regime on the other hand illustrated Germany´s ambivalent stance in the implementation of climate policies once again. One also has to keep in mind that through the process of industrialization since the early 19th century, Germany has been one of the main producers of emissions and industrial waste worldwide and can therefore at least be held co-responsible for human made climate change. Paradoxically, Germany´s conviction to mitigate climate change and to adapt to its effects can be assigned to its capacities as a highly developed country and economy. Another influence factor on Germany´s commitment to environmental protection could be its limited dimensions and terrain of nature, at least compared to countries such as the US, Mexico and Turkey.

Summing up, perhaps the most important influential factor on Germany´s ambivalent standing in climate policies is the tradeoff between climate protection and economic-industrial development and lifestyle, that despite of new and greener economies and technologies is still vital for its export-oriented industry and a society accustomed to resource and energy consumption. Quite often, economic interests have prevailed against climate protection in

Germany, despite the fact that a number of German industries have made declarations for commitments considering emission or energy consumption reductions. For example, Helmut Schmidt, who succeeded Willy Brandt as a German chancellor in 1974, downgraded the importance of environmental issues and environmental policy as it was the time of the oil crisis and a world-wide recession that persuaded the government to give priority to the consolidation of a flagging economy (Beck *et al.* 2009: 14). Later, during the Era of Helmut Kohl ambivalence was displayed as the measures during this time on the one hand counted as early policies of ecological policy integration, but on the other hand, climate change at that time was still regarded as a cost factor and job killer. Ecological and economic goals where polarized (Beck *et al.* 2009: 19). A younger example for the tradeoff between economy and ecology are the exception-rules for energy intensive industries in the Ecological Tax and the EU emissions trade that have been pushed for by specific German industries and in the end also by the government. The countless declarations of the economy and the industry together with the hesitant implementation of climate policies by the government show that it is despite all efforts and a rising consciousness still difficult to accomplish climate policies against economic interests. Germany, mainly through Minister of Economic Affairs, Phillip Rösler, literally hindered a reform of the EU Emissions Trade System and therefore a leading role for Europe in climate protection during his term in 2012 and 2013 (Germanwatch 2013). Despite of these hindrances, compared to other countries, Germany has been on a good path for the fulfillment of short- and long range international agreements. As already mentioned, the contributions of German chancellors and ministers to international conferences in advocating ambitious international environmental policies have been immense (Weidner and Mez 2008: 357). In 2013, only states such as Denmark, Sweden, Portugal and Switzerland ranked higher than Germany in the Climate Performance Index CPI. Weidner and Mez conclude that “there is good reason to speak of 20 years of positive path dependency in Germany´s climate and energy policies”, as Germany largely sustained its leadership role in matters of climate policies “despite changing governments and party affiliations” (Weidner and Mez 2008: 357). As a consequence of the path dependencies, climate change in Germany has a strong institutional basis in science and politics (cf. Krueck *et al.* 1999: 14). Though the figures show that Germany currently is one of

the leaders in climate protection, a clear downward trend has become visible in recent years. Germany performed weaker in climate actions and faced a new coalition government in the fall of 2013 without the green party as a strong advocate for climate action. This is also why a big question mark prevails on the future of climate action in Germany. Anyway, more active and effective platforms on climate change and global warming are to be found in different areas than in the interstate or state levels. For example, clean technology markets, transnational partnerships and bilateral and national climate protection funds. The importance of non-governmental organizations continues to grow. Therefore, a complete overview of a country´s protection activity requires a differentiated look on global climate governance and policies and processes beyond UN negotiations (Never 2012). This is also why this study, apart from governmental actions and policy analysis focuses on civil society and other influential actors and networks from science, economy and industry that participate in the discourse on climate change and security from a securitization perspective. Compared to the cases of Mexico, the U.S. and Turkey, Germany clearly is in the position of a forerunner. Not at least due to its broad and differentiated network of climate research institutions and other influential civil society organizations. A securitization of climate change in Germany and also forced by German actors internationally gained momentum especially in 2007, when numerous fora on climate change, global warming and security where held in Germany and abroad, such as the "17. Forum Globale Fragen" of the Federal Foreign Office, the G8 summit in Heiligendamm, where Germany put global security and climate change on top of the agenda, and the UN Security Council Debate, where the director of the Potsdam Institute for climate impact research, Hans Joachim Schellnhuber, was one of the key speakers.

Germany´s case with regard to climate change policies and the climate change security nexus in comparison to other countries such as the US, Mexico and Turkey is clearly the case of a vanguard in climate policies and the securitization of climate change, but at the same time an illustrative case of ambivalence. The case generates a set of interesting further questions that will be tackled in the research project: "Why has climate change as a topic gained such an exceptional importance in Germany?" (cf. Bechmann and Beck 1997: 121) and "How and for whom with what aims was it possible to securitize climate change in Germany?"

“To what extent do economic considerations and other important influence factors such as energy security play a role in climate change discourses?” “To what extent was a securitization of climate change important and referred to by the military?” and “Have there been any actions – such as the narrowing down of policy options or democracy as a consequence of a securitization of climate change?” By reconstructing and analyzing the policy process in Germany, Turkey, Mexico and the US from a comparative perspective in the framework the research project, appropriate answers to these questions shall be provided.

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Annex

Table 2: Climate Change Policies in Germany and the International Climate Change Regime

Date	Type	Event National - International
1950s-60s		Environmental Program of the Federal Government pollution in Germany caused by industrial and economic development becomes visible
1070s		
1970s	CIVIL SOCIETY	Anti-Nuclear and Environmental Movements
1969	INT. REGIME	The US National Environmental Policy Act influenced German lawmaking
1969-74	INST. /POL.	Chancellorship of Willy Brandt - "environmental Politics" introduced as policy field
1970	INST. /POL.	Immediate Program for Environmental Protection
1970	INT. REGIME	First Int. Environmental Conference in Stockholm; Foundation of UNEP
1971	INST. /POL.	Environmental Programme of the Federal Government
1972	INST. /POL.	Competences of government in environmental policymaking widened (Art. 74 Nr. 24 GG)
1972	LAW	Law on Waste Disposal
1974	INST. /POL.	Helmut Schmidt elected as chancellor - downgrading of environmental policies
1974	INST. /POL.	Foundation of the Federal Environmental Agency (UBA)
1974	LAW	Federal Law on Emissions Protection
1974	INST. /POL.	Foundation of the SRU (Advisory Council on the Environment)
1975	CIVIL SOCIETY	Max Planck Institute (MPI) founded in Hamburg
1978	INST. /POL.	Federal Environment Agency (UBA) organizes an international expert conference on climate issues
1979	INT. REGIME	First World Climate Conference in Geneva; “World Climate Program” of the WMO
1979	INST. /POL.	The governmental committee "Climate Research" is established to coordinate climate research and advise the government.
1979	CIVIL SOCIETY	Foundation of the "Green Party" in West Germany
1980s		
1983	INST. /POL.	Helmut Kohl succeeded Helmut Schmidt as chancellor
1983	LAW	Emission regulations for vehicles – Germany becomes a leader in international air pollution control (Kohl government)
1983	INST. /POL.	As a consequence of the political success of the Green Party in national politics, environmental policy making becomes popular.
1986	REPORT	Report "Warning of a Climate Catastrophe" of the German Physics Society
1986	CIVIL SOCIETY	Chernobyl Nuclear Accident triggered a debate that constituted one of the origins of the debate on global warming
1986	REPORT/MEDIA	"Der Spiegel" with an issue on "The climate catastrophe"
1986, June	INST. /POL.	Foundation of the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety as a consequence of Chernobyl
1987	INST. /POL.	Enquete-Commission „Prevention for the Protection of the Earth Athmosphere – counts as the emancipation of Climate Policies in Germany
1987	INT. REGIME	Brundtland Report “World Commission for Environment and Development”

	INT. REGIME	Together with the “Single European Act”, Environmental Policies for the first time are judicially anchored within the EC
1987	INST. /POL.	Foundation of the "Enquete Comission" "Prevention for the protection of the Athmosphere" in the German Parliament
1988	INT. REGIME	Climate Conference in Toronto;
	INT. REGIME	Establishment of the IPCC
1990s		
1990	INT. REGIME	1st Assessment Report of IPCC
	INT. REGIME	Second World Climate Conference in Geneva
1990	INST. /POL.	Inter-ministerial Working Group “CO2-Reduction” ; Reduction of the CO2 Emissions by 25 % until 2005
1990	CIVIL SOCIETY	Citizenship Movement "!Alliance 90" joins the "Green Party" >> Alliance 90/The Greens merges as a new party
1990	LAW	Guarantee for the payment of electricity from renewable energies
1990	INST. /POL.	Parliamentary Committee "Protection of the Earth´s Atmosphere" (until 1994 - as a follow up to the Enquete Comission)
1992	INT. REGIME	Rio Earth Summit – UNFCCC signed
1992	INST. /POL.	Growing opposition to a co2 energy tax - Germany signs the Agenda 21 the UNFCCC and further closing communique´s of the Earth Conference in Rio.
1992	INST. /POL.	Opposition against the implementation of EC regulations
1992	CIVIL SOCIETY	Foundation of the Potsdam Institute for Climate Research (PIK) (1992)
1994	INT. REGIME	UNFCCC comes into effect; COP takes place every year.
1994	LAW	Recycling and waste disposal law (“Kreislaufwirtschafts- und Abfallgesetz”)
1994	LAW	Amendment of the Constitution (Grundgesetz) - "Environmental Protection" becomes National Objective
1994	INST. /POL.	Election of a New Government - Angela Merkel becomes Environmental Minister
1995	**COP-1 – Berlin**	**2nd Assessment Report of IPCC**
1995	INT. REGIME	Climate Conference in Berlin – Germany´s GHG emission aim: 25 % during the period from 1995 – 2005; Chancellor Kohl underlines the importance of climate policies in contrast to environmental policies.
1995	CIVIL SOCIETY	Foundation of the Max-Planck Institute (MPI) in Stuttgart
1995	ECON.	Voluntary obligations of the industry
1995; Amendment	ECON.	Declaration of the German Economy for Climate Prevention (Klimavorsorge)
1996	**COP-2 - Geneva**	
1996	REPORT	"Sustainable Germany" (study of the Wuppertal Institute)
1997	**COP-3 Kyoto - Kyoto Protocol** EU countries declare to reduce their GHG emissions by 8 % from 1990 - 2012	

1998	**COP-4 – Buenos Aires**	
1998 - 2002	INST. /POL.	For the first time, the Green Party becomes part of the coalition government
1998 - 2006	INT. REGIME	Klaus Töpfer is executive director of UNEP
1998	INST. /POL.	Germany committs itself in the framework of EU policies to reduce GHG emissions by 21 % until 2012

1998	LAW	“Ecological Modernization” - Introduction of a reform of the environmental tax system - Law on the priority of renewable energies (EEG)
since 1998	INST. /POL.	Several initiatives of the Red-Green government re blocked or weakened; mostly through initiatives of lobby groups and the industry
1999/2000	**COP-5 - Bonn - COP-6 Den Haag**	
1999/2000	LAW	Ecological Tax Reform
November	ECON.	"Climate prevention declaration of the German petroleum industry" and “Climate prevention agreement”. It is aimed at a reduction of GHG Emissions of 35 % until 2012 (based on 1990 figures)
January	INST. /POL.	National Climate Protection Program/Strategy for Sustainability adopted by the Parliament; reduction aim of 25 % until 2012 included
2000	LAW	Law on the Prioritization of Renewable Energies (Erneuerbare Energien Gesetz, (EEG)
2001	**COP-6 (continuation) – Bonn**	**COP-7 - Marrakesh 3rd Assessment Report IPCC**

2002		
2002 - 2005	INST. /POL.	The Green Party is again part of the coalition government (Second Term)
	INT. REGIME	Ratification of Kyoto Protocol, reduction aim - 21% 2008 - 2012, phasing out of Nuclear Power
10./11. 2002	**COP-8 – New Delhi**	
	LAW	Regulation on Energy Consumption Reduction (EnEV)
2003	**COP-9 – Mailand**	
January	LAW	Amendment of Ecological Tax Reform
2004	**COP -10 Buenos Aires**	
September	LAW	Law on GHG Emissions Trade
2005	**COP-11 – Montreal**	
	INST. /POL.	National Climate Protection Programme 2005 (Nationales Klimaschutzprogramm) (update of Climate Protection Programme 2000) - Balancing, analysis and proposal of further solutions - Germany commits itself to reduce GHG emissions by 21 % during the period from 2008 – 2012
	LAW	Renewable Energies Act
	LAW	Combined Heat Power Act (CHP)
	LAW	Emission trading Allocation Plan (NAP)
2006	**COP-12 – Nairobi**	
	INST. /POL.	"Düsseldorf Declaration" outlined new national and international climate objectives Reduction Aim: - 40 % to 2020 (Merkel Reduction aim)
March	ECON.	“World Wide Climate Prevention” cooperation agreement by the BMU and the German Hotel Association
	CIVIL SOCIETY	Foundation of the Competence Center for Climate Change and Adaptation
2007		**4th Assessment Report IPCC**
January	LAW	Law on the Introduction of a Biofuel-Rate-Declaration of Government and Petroleum Industry

June-August	INT. REGIME	Germany hosts the G8-Summit in Heiligendamm and puts climate change as an important topic on top of the agenda of the summit
	REPORT	"Security Risk Climate Change" by the WBGU (German Scientific Advisory Council)
	INST. /POL.	Key elements of an Integrated Energy and Climate Programme
	INST. /POL.	Integrated Energy- and Climate-Programme - (IEKP) - Package I - is agreed on by the coalition under Angela Merkel; the government aims at reducing more than 30 % GHG emissions until 2020 („Energy Turn").
	REPORT	Costs and Benefits of the German government´s energy and climate package (October 2007) (Regulatory Impact Asessments)
2008	**COP-14 – Posen**	
May	REPORT	Preliminary Report: A climate friendly Germany (BMU)
May	REPORT	Progress Report 2008 of the National Sustainability (Federal Government)
	INST. /POL.	Integrated Energy and Climate Programme - Package II
	INST. /POL.	German National Adaptation Strategy (DAS)
	REPORT	SRU Environmental Survey 2008 - Environmental Protection and Climate Change
2009	**COP-15 – Kopenhagen**	
January	LAW	Law on the Preservation, Modernisation and Development of Combined Heat and Power (CHP)
January	LAW	Renewable Energies Heat Act (EEWärmeG)
June	LAW	Reform of the Road Tax
	INST. /POL.	To meet the objectives of the Integrated Energy- and Climate Program (IEKP), Biodiesel is added to the diesel mix.
	INST. /POL.	Foundation of the Institute for Advanced Sustainability Studies (IASS) in Potsdam
	INT. REGIME	WMO organizes the Third World Climate Conference in Geneva
2010	**COP-16 – Cancun**	
	INST. /POL.	"Energy Turn" – comprises objectives and regulations for the time period until 2050
2011	**COP-17 – Durban**	
March	INST. /POL.	Market-Incentive Program for the Heat Production with Renewable Energies
May	INST. /POL.	Based on a final report of the German Ethics Commission on "Safe Energy Supply", the coalition decides to phase-out all German nuclear power stations until 2022
June	INST. /POL.	Re-determination of the objectives for the Energy Transition: Reduction of GHG emission sby 40 % until 2020 and 80 - 95 % until 2050
	REPORT	Secure Energy Supply of the German Ethics Comission
	GER INT. REGIME	Second Petersberg Climate Dialogue
	INST. /POL.	After Fukushima accident >> Nuclear phase-out in Germany earlier than planned; security check of all 17 nuclear power stations >> Seven oldest power plants are phased-out
2012	**COP – 18 – Doha**	
	GER INT. REGIME	Bonn Climate Change Conference (Continuing since
	GER INT. REGIME	Germany applies for the seat of the Green Climate Fund

	GER INT. REGIME	Third Petersberg Climate Dialogue
	REPORT	PIK Report "Turn down the Heat" published by Worldbank
2013	**COP-19 Warsaw**	
April	GER INT. REGIME	Bonn Climate Change Conference
	GER INT. REGIME	Fourth Petersberg Climate Dialogue "Shaping the Future"

Overview of the most important actors		
Name	Actor info	Actor Classification
Federal Ministry of Environment, Nature Conservation and Nuclear Safety	Founded in 1986, the Federal Ministry for Environment, Nature Conservation and Nuclear Safety, BMU, is the central state organization for climate action. Other state organizations are subordinated.	Government-Ministry
Umweltbundesamt (UBA)	Founded in 1974 it, the UBA was the first state institution responsible for environmental matters and is today one of three important state organizations on climate change and the environment. Tasks include the funding and support of environmental research, monitoring and documentation.	Government-subordinated to Ministry
Bundesamt für Naturschutz (BfN)	Founded in 1993 as a scientific state organization, tasks include the provision of scientifically verified background data and produce policy proposals on diverse topics, including climate change and biodiversity .	Government-subordinated to Ministry
The Green Party	As a political party, the German Green Party gained an impressive popularity especially after German reunification and successfully conducted and implemented policies for climate and environmental protection when it was elected to a coalition government.	Government-Politica Party

Deutsche Gesellschaft für Internationale Zusammenarbeit-German Society for international Cooperation (GIZ)	German state financed development organization founded in 1975, succeeding former German development Organizations. Addresses climate change among other topics of development aid. The Federal Republic is the only proprietor. The legal status as a private business organization enables the GIZ to act also for international organizations such as the World Bank, EU or UN.	Development organization (state-financed private company)
Potsdam Institute for Climate Impact Research PIK	Was founded in 1992 and published more than 126 reports and 16 books and other publications on climate change. It has not only a national but international impact and reputation among scientists and policy maker and frequently appears in national and international media. The PIK belongs to the network of the Leibniz Society, a German scientific research networking organization.	Research Organization (semi state-financed)
Greenpeace	International NGO that was founded in 1971 in Canada. Climate Change and Global Warming are one of its focuses. Greenpeace Germany has more than 580.000 supporting members and several publications on climate change and global warming.	NGO-non profit-Civil Society
BUND - Friends of the Earth Germany	BUND was founded in is 1975 as a non-profit, non-partisan, and non-confessional federal grassroots NGO with more than 480,000 members and supporters. Donations and membership fees make up eighty percent of BUNDs revenue and ensure its political independence. BUND tackles ecological questions of the future and develops integrative policies.	NGO-Civil Society
German Advisory Council on Global Change (WBGU)	The WBGU is an independent, scientific advisory body. Its principal tasks are to analyze global environment and development problems and report on these, identify gaps in research and initiate new research, elaborate recommendations for action and research and raise public awareness of global change issues.	Government initiated independent science actor
Adelphi	One of the leading institutions for political analysis and strategy consulting with a focus on sustainability and global environmental- and development challenges. Adelphi realized about 500 projects for 100 clients in during the past 10 years.	Think Tank

Germanwatch	Germanwatch is an independent civil society organization that engages in actions for sustainable global development. Germanwatch focuses on the observation of Germany, Europe and other international actors that are key actors with regard to its goals.	NGO-Civil Society
Climate Analytics	Climate analytics is a highly specialized civil society, non-profit organization, founded in 2008 in Berlin out of a deep concern about climate change. Climate analytics provides scientific, policy and analytical support to relevant actors and the public. It published the Climate Action Tracker, a tool to assess national climate policies.	NGO-Civil Society
Deutsches Institut für Entwicklungspolitik (DIE)	The German Development Institute / Deutsches Institut für Entwicklungspolitik (DIE) is one of the leading research institutions and think tanks for global development and international development policy worldwide. Among other topics it conducts environmental research and consulting.	NGO-Civil Society
DGAP - German Council of Foreign Relations	The German Council on Foreign Relations (DGAP) is Germany's network for foreign policy. As an independent, non-partisan, and nonprofit membership organization, think tank, and publisher the DGAP has been promoting public debate on foreign policy in Germany for over 50 years. Security and Energy Policy are among its key research areas.	Think Tank (state-financed)
CliSAP Climate Campus, University of Hamburg	The KlimaCampus is a network of climate research experts in the Hamburg area. It includes scientists from 18 different institutes of the University of Hamburg as well as non-university partners such as the Max Planck Institute for Meteorology, the Helmholtz-Zentrum Geesthacht and the German Climate Computing Centre. The KlimaCampus conducts interdisciplinary research on climate change and has produced numerous publications.	University-Research (state-financed)
Institut für Friedensforschung und Sicherheitspolitik	The Institute for Peace Research and Security Policy is an independent Research Institution of Hamburg University. It conducts Projects supported by various Institutions such as the EU, DFG and Ministries.	University-Research

Deutsche Bundesstiftung Umwelt (DBU)	The German Federal Foundation on the Environment was founded in 1990 and is one of the largest foundations in Europe, conducting project for environmental protection with a budget of over 1.3 billion Euro.	Foundation
Stiftung Wissenschaft und Politik SWP	For more than 50 years, the Stiftung Wissenschaft und Politik (German Institute for International and Security Affairs - SWP) has provided analysis on foreign policy issues not only to the Bundestag and the German Federal Government, but also to economic actors and the general public. The German Institute for International and Security Affairs of the Stiftung Wissenschaft und Politik (SWP) is an independent scientific establishment that conducts practically oriented research on the basis of which it then advises the Bundestag (the German parliament) and the federal government on foreign and security policy issues.	NGO-Think Tank