STOWARZYSZENIE EKONOMISTÓW ROLNICTWA I AGROBIZNESU
Roczniki Naukowe ● tom XVIII ● zeszyt 3

Agnieszka Maciąg

Warsaw University of Life Sciences – SGGW, Poland

GERMAN POLICY IN TERMS OF ACTIONS AIMING AT CLIMATE PROTECTION[*1]

POLITYKA GOSPODARCZA NIEMIEC W ZAKRESIE DZIAŁAŃ MAJĄCYCH NA CELU OCHRONĘ KLIMATU

Key words: sustainability, climate protection, carbon market, renewables

Słowa kluczowe: zrównoważony rozwój, ochrona klimatu, handel emisjami zanieczyszczeń, odnawialne źródła energii

JEL codes: Q20, Q40, Q50

Abstract. The aim of the study was to specify and analyse the actions taken by the German Government in order to enhance the environment protection by reducing the amount of greenhouse gases. The study used secondary data, which included research conducted by the German government facilities concerning the public perception of economic policy in the field of climate protection and the attitude of the society to environmental safety. According to analysis, the German public perceives the safe future for their children (75%) in efforts to protect the climate. The efficiency of the economic activities is also affected by the initiatives instigated by the Government in selected countries.

Introduction

Our climate is changing and we cannot deny it. Moreover, it is mainly due to anthropogenic factors, that is the human activity. Yet it is not too late but the current generation is the last one to still be able to restrict the impacts of the global warming to a manageable level, namely to keep it under 2 degrees Celsius. Many countries debate on how much they can spend on climate actions. What they do not see is that these actions are the key to stable and prosperous economy the world is going to achieve if the challenge of decarbonisation is faced by all. Globally, the efforts to combat global warming and protect resources will only function effectively when all countries including the biggest polluters decide on a shift in their energy supply system to the one based on renewable energies. Germany's Federal Government has acknowledged the importance of climate threats to sustainability and made it a constant focus of its international cooperation. Germany has set itself an ambitious climate target for 2020 of reducing GHG emissions by 40% compared to the year 1990, which is twice more than EU Kyoto target being 20% relative to 1990.

The Kyoto Protocol is an international agreement made under The United Nations Framework Convention on Climate Change as its extension which has committed State Parties to reduce greenhouse gases emissions by setting binding GHS reduction targets. It was adopted in 1997 following its entry into force in 2005. The treaty as any other ought to be signed and ratified, otherwise it is not considered valid. The Parties were divided into certain annexes according to the degree of their economic development. The targets were not compulsory to any state but voluntarily agreed upon by countries willing to reduce the pollutions within their borders. The European Union obligated its members to cut down the emissions by 8% by 2012 relative to 1990 levels. Additionally, some countries pledged to reduce even more. For instance, the Federal Republic of Germany had set its target as high as 21% of total reduction until 2012 and as stated by the *Süddeutsche Zeitung* it did manage to do that by 22.4%.

[1] Gathering data in German – Zuzanna Sąpór (e-mail: zuziasapor@gmail.com)

In 2011 German government implemented energy transition plan called "energiewende" which focuses on sustainable development where the key factors are low-cost technologies of wind and solar power- the future of innovative, eco-friendly world. Germany also pushed EU to reform its Emissions Trading System.

Material and methods

The aim of the study was to identify the measures taken by the German Government in the past ten years aiming at building economic efficiency and developing carbon trade. The objective was also to show the level of awareness of German society in terms of measures implemented by the government to protect the environment. The analysis of the classification of the activities was based among others on a review of literature and on publications and studies published by the German government.

Results

The purpose of the energy policy "is creating conditions for sustainable national development, ensuring energy security, economical and rational use of fuels and energy, development of competition, counteracting the negative effects of natural monopolies, taking into account the needs of the environment, obligations resulting from international agreements, protection of the customers' interests and minimizing costs [Ciechanowicz-McLean 2009]. With all of the measures implemented, it is estimated that CO_2, emissions will be reduced down to around 34% by 2020 [Bruns et al. 2011].

Climate protection turnover far exceeded that in other categories, driven by a boom related to renewables. Manufacturing industries were the dominant producers of environmental goods for climate protection, including photovoltaic systems, wind turbines, control systems for vehicles and insulation products [OECD 2012].

The graph 1 shows the relation between country's economic development and energy efficiency. As stated before Germany's energy sector is based on renewable resources, which are considered by many not efficient compared to fossil fuels and expensive thus unaffordable. It is of course a matter of a renewable technology: "Claims that renewable re prohibitively expensive for many applicants or that renewable can act as base load plants are true only for specific types of renewable (photovoltaics and geothermal, respectively, in this example). Unfortunately, such generic claims are both popular and unhelpful". Nowadays the wind power is the cheapest renewable source of energy covering 9% of the country's energy power supply. In addition wind turbines

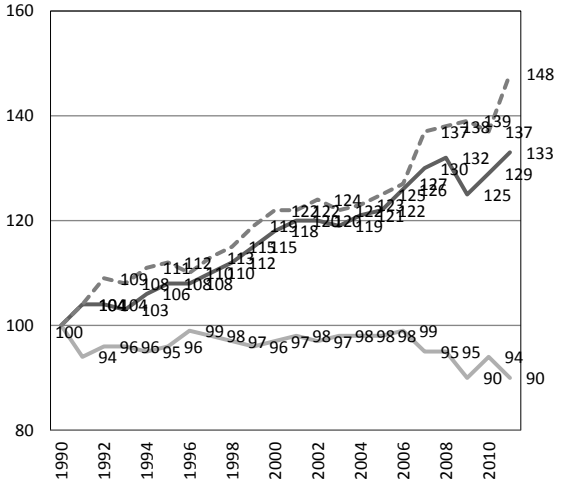

Figure 1. Energy efficiency and economic growth of Germany
Rysunek 1. Efektywność energetyczna a wzrost gospodarczy Niemiec
Source/*Źródło*: [AGEB 2011, Statistisches Bundesamt 2012]

Table 1. The overview of German initiatives in terms of promotion and implementation of activities aiming at carbon reduction
Tabela 1. Przegląd inicjatyw niemieckich w zakresie promowania i wdrażania działań mających na celu redukcję dwutlenku węgla

Contracted/executing organization/*Zakontrakotowane/organizacja wykonująca*	Project duration/ *Czas trwania projektu*	Funding sources/*Źródła finansowania*	Countries involved/ *Kraje aangażowane*	Aim of the project/*Cel projektu*
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	2008-2015	project supported by BMUB as part of its CDM/JI Initiative/*projekt wspierany przez BMUB jako część CDM/IJ Initiative*	India, Brazil, Uganda, MENA region	to boost carbon market development in developing countries by hosting Carbon Market Units in these regions/*stymulowanie rozwoju rynku węglem poprzez zakładanie jednostek rynkowych w tych rejonach*
Wuppertal Institute for Climate, Environment and Energy	2012-2015	project supported by BMUB as part of its CDM/JI Initiative/*projekt wspierany przez BMUB jako część CDM/IJ Initiative*	–	to provide scientific expertise and media outreach for interested public vis-à-vis the JIKO Project/ *zapewnianie ekspertyzy naukowej i dostęp medialny dla osób zainteresowanych*
Perspectives Climate Change GmbH, UNEP Risø Centre	2012-2015	project supported by the German Federal Environment Agency (Umweltbundesamt) as part of the German Environmental Research Plan/*projekt wspierany przez German Federal Agency (Umweltbundesaamt) jako część German Environmental Research Plan*	African LDCs	to eliminate barriers for the development of CDM projects in LDCs by implementing standardized baselines in these regions/*likwidacja barier rozwoju projektów CDM w krajach najsłabiej rozwiniętych poprzez wprowadzanie uproszczonych procedur w tych rejonach*
The Gold Standard Foundation	2011-2014	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projekt wspierany przez BMUB jako część International Climate Initiative (IKI)*	LDCs Landlocked Developing Countries, Small Island Development States	to develop new micro-scale methodologies for the voluntary carbon markets/*rozwój nowych metodologii na małą skale dla dobrowolnych rynków węglem*
CDM Watch	2009-2011	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projekt wspierany przez BMUB jako część International Climate Initiative (IKI)*	Host countries for CDM	to give civil society voice in the international debate concerning CDM and ability to influence the implemented projects/*przekazanie społeczeństwu głosu* w międzynarodowej deb*acie dotyczącej CDM i zdolności wpływania na wprowadzane projekty*

Table 1. Cont./*Tabela 1. Cd.*

Contracted/executing organization/*Zakontrakotowane/organizacja wykonująca*	Project duration/ *Czas trwania projektu*	Funding sources/*Źródła finansowania*	Countries involved/ *Kraje aangażowane*	Aim of the project/*Cel projektu*
UNEP	2009-2014	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projekt wspierany przez BMUB jako część International Climate Initiative (IKI)*	Africa	to support African financial sector to invest in Climate Change Mitigation by designing ACAD/*wspieranie sektora finansowego do inwestowania w Climate Change Mitigation poprzez stworzenie ACAD*
KfW Development Bank	2008-2015	project supported by BMUB as part of its CDM/JI Initiative/ *projekt wspierany przez BMUB jako część CDM/IJ Initiative*	LDCs	to foster the development measures within local authorities and programme developers by introducing PoA Support Centre/*rozwijanie czynników rozwoju wśród loalnych władz i inwestorów przez wprowadzanie PoA Support Centre*
Perspectives Climate Change GmbH	2011 till present/ od *2011 do teraz*	project supported by BMUB as part of its CDM/JI Initiative/ *projekt wspierany przez BMUB jako część CDM/IJ Initiative*	-	to provide exchange of experience and support for PoAs by establishing PoA Working Group/ *dzielenie sie doswiadczeniem i wsparcie dla PoAs przez założenie PoA Working Group*
The World Bank	2011-2021	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projet wspierany przez BMUB jako część International Climate Initiative (IKI)*	Brazil, Chile, China, Colombia, Costa Rica, India, Indonesia, Jordan, Mexico, Morocco, Peru, South Africa, Thailand, Tunisia, Turkey, Ukraine, Vietnam	to provide possibility to share experience between industrialized countries already having market-based mechanisms and developing countries currently implementing such instruments by launching The Partnership for Market Readiness/ *możliwość dzielenia sie dowiadczeniem między krajami przemyslowymi mającymi juz zagwarantowane mechanizmy oraz krajami obecnie wdrażającymi mechanizmy przez rozpoczęcie The Partnerhip for Market Readiness*
Adelphi and Wuppertal Institute for Climate, Environment and Energy	2011-2013	project supported by the German Federal Environment Agency (Umweltbundesamt) as part of the German Environmental Research Plan/*projekt wspierany przez German Federal Agency (Umweltbundesaamt) jako część German Environmental Research Plan*	Australia, California, Japan, South Korea	to analyse and evaluate the offset systems in order to improve CDM effectiveness by designing Linking Carbon Markets through the CDM and Other Offsetting Mechanisms/*analiza i ewaluacja systemów offsetowych w celu poprawy efektywnosci CDM poprzez wprowadzenie Linking carbon Markets through the CDM and Other Offsetting Mechanisms*

Table 1. Cont. 2/*Tabela 1. Cd. 2*

Contracted/executing organization/*Zakontrakotowane/organizacja wykonująca*	Project duration/ *Czas trwania projektu*	Funding sources/*Źródła finansowania*	Countries involved/ *Kraje aangażowane*	Aim of the project/*Cel projektu*
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	2012-2015	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projet wspierany przez BMUB jako część International Climate Initiative (IKI)*	Indonesia South Africa	to develop a practical approach for integrating multiple levels of government in the process of NAMA implementation & design / *rozwój praktycznego podejscia do* łączenia/*współpracy międzyrządowej w procesie wprowadzania i projektowania NAMA*
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	2012-2016	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projet wspierany przez BMUB jako część International Climate Initiative (IKI)*	Tunisia	to enhance GHS management in Tunisia by developing robust inventories for reporting under the UNFCCC and MRV of NAMAs/ *ulepszanie zarządzania gazami cieplarnianymi w Tunezji prez rozwój wydanych inwentarzy dla raportowania pod UNFCCC and MRV of NAMAs*
Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH	2010-2013	project supported by BMUB as part of the International Climate Initiative (IKI)/ *projet wspierany przez BMUB jako część International Climate Initiative (IKI)*	China	to develop a heat energy baseline for China's residential buildings sector by initiating Climate Protection through Energy Efficiency in Buildings/ *rozwój procedur dla energii cieplnej dla sektora budownictwa w Chinach przez zainicjowanie Climate Protection through Energy Efficiency in Buildings*
Adelphi, DIWecon, FutureCamp Climate GmbH, Oko-Institut e.V., TUV Sud (until 2013)	2011-2013 2013-2015	project funded as part of the budget for "measures to support international carbon markets"provided by BMUB/ *projekt fundowany jak część budżetu na „kroki mające na celu wspieranie międzynarodowych rynków węgla"*	Chile, China	to foster the development of ETS in interested countries by working toward building capacity and sharing experience with EU ETS/ *rozwijanie rozwoju ETS w zainteresowanych krajach poprez pracowanie w kierunku budowania zdolnosci i dzielenia sie doswiadczeniem z ETS Uni Europejskiej*

Source: own study based on [Hermwille et al. 2014]
Źródło: opracowanie własne na podstawie [Hermwille et al. 2014]

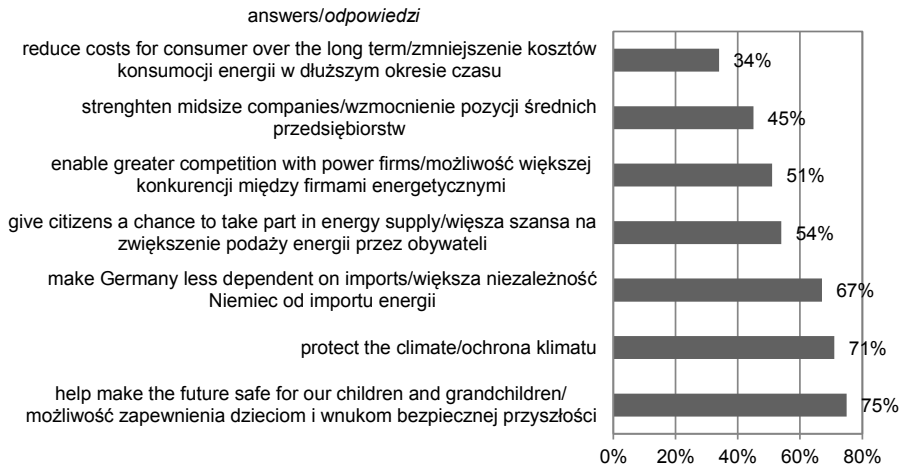

Figure 2. The benefits of renewable energy: future technologies for climate protection
Rysunek 2. Deklarowane korzyści ze stosowania odnawialnych źródeł energii w ocenie społeczeństwa niemieckiego
Source/*Źródło*: [TNS Emnid 2014]

are more powerful than they were 20 years ago when the renewables were only being introduced. German turbines are almost 3 times bigger in size and produce over 50 times the amount the 1990 turbines could. Furthermore Germany is a leader in solar power as well. PW capacity is nearly 40 GW and the prices are going low.

In the survey above, it is visible that German society approves their country's climate friendly policy. Citizens acknowledge the importance of protecting the environment and the threat of overuse of resources as it is the key to the stable, safe future. Over 70% of the respondents believe that climate change impacts can be restricted if renewable resources are used. The use of renewables can significantly reduce energy imports which are two thirds of German total energy supply. Dependence on others poses a threat to the security, especially considering recent conflicts in Russia and Ukraine. In 2014, a study conducted by the Fraunhofer IWES found that the growth of renewables could offset the equivalent of Germany's current gas consumption from Russia by 2030 [Komor 2004]. Over the half of the respondents agree that renewables give the citizens a chance to take part in energy supply. Due to the analysis conducted by BMUB [Morris, Pehnt 2015], employment in renewables is bigger than in conventional energy sectors. A lot of power companies in the recent years have abandoned their plans to build new coal plants, among others because of the competition the rising share of renevables in German economy is creating. The growing demand for energy efficiency enables mid size firms to develop and benefit from sale of eco-friendly goods.

Carbon trade came in response to the Kyoto Protocol aiming at trade of national Kyoto obligations to occur between the parties to the protocol, so that the countries that have spare allowances, can sell this surplus to the countries that are over their targets. The other form of carbon market is project-based transactions, by which the states can also reach their goals by implementing incentives for GHG reduction in other countries.

The upper chart shows the overview of German initiatives in the recent years as part of its climate protection actions. Germany has decided to extend the environmental acts outside its own borders by fostering carbon units in other countries as well as promoting carbon reduction activities worldwide and carrying out studies aiming at improving CDM. Federal Republic of Germany has set itself a goal to encourage applying carbon market instruments in fulfilling nationally adapted targets in GHG emission reductions and for that purpose also help build capacity in developing and least developed countries where implementation of CDM based projects is not possible due to the lack of financial or administrative capacity.

Conclusions

Federal Government of Germany has been working towards the climate protection for a long time now. Germany can be certainly called 'the leader' in this sector as it is on the top of many charts and statistics concerning the aspects of eco-friendly economy, for instance wind or solar power as stated before in the article and also it has driven many countries to shift their economies to the ones based on renewable resources. Furthermore, the German policy has proved that "if state regulations allow profitability in private investments for climate protection techniques, a fast-growing market is stimulated, which enables many new investments in climate protection." That is most visible in German environmental actions in developing countries.

Bibliography

AGEB. 2011. *Arbeitsgemeinschaft Energiebilanzen, Arbeitsgruppe Erneuerbare Energien. Statistik*. Bundesministerium fur Wirtchschaft und Energie: AGEE-Stat.

Bruns Elke, Dörte Ohlhorst, Bernd Wenzel, Johann Koppel. 2011: *Renewable Energies in Germany's Electricity Market. A Biography of the Innovation Process*. Springer Business.

Ciechanowicz-McLean Janina. 2009: *Prawo i polityka ochrony środowiska.* Warszawa: Wolters Kluwer Business.

Hermwille Lucas, Nicolas Kreibich, Patrick Fortyr. 2014. *Advancing Carbon Markets*. *An overview of Germany initiatives.* Germany: Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

Komor Paul. 2004: *Renewable Energy Policy*. New York: Universe Inc.

Morris Craig, Martin Pehnt. 2015. *Energy Transition. The German Energiewende.* Germany: Heinrich Böll Stiftung.

OECD. 2012. *OECD Environmental Performance Review*. *Germany 2012.* OECD.

Statistisches Bundesamt. 2012. *Statistisches Jahrbuch Deutschland und Internationales*. Wiesbaden.

TNS Emnid. 2014. Survey conducted for the AEE. 1015 participants October 2014.

Streszczenie

Celem badania było wyszczególnienie i analiza działań podejmowanych przez rząd niemiecki, w celu zwiększenia ochrony środowiska przez zmniejszenie zużycia gazów cieplarnianych. Wykorzystano dane wtórne, w skład których wchodziły badania przeprowadzone przez niemieckie instytucje rządowe dotyczące postrzegania przez społeczeństwo polityki gospodarczej w zakresie ochrony klimatu i stosunek ludności do bezpieczeństwa środowiskowego. Jak wynika z analiz, społeczeństwo niemieckie widzi w działaniach zmierzających do ochrony klimatu bezpieczną przyszłość dla swoich dzieci (75%). Na efektywność działań gospodarczych wpływ mają również inicjatywy podejmowane przez rząd w wybranych krajach.

Correspondence address
Ph.D. Agnieszka Maciąg
Warsaw University of Life Sciences – SGGW
Faculty of Human Nutrition and Consumer Sciences
Department of Organization and Consumption Economics
Nowoursynowska Str. 159c, 02-776 Warsaw
e-mail: agnieszka_maciag@sggw.pl