Global Assessment of Biomass and Bioproduct Impacts on Socio-economics and Sustainability

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Assessment of Public Perception on Biofuels in Germany

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Abbreviations

ADAC	General German Automobile Club
ADM	Archer Daniels Midland Company
AGQM	Working Group Quality Management Biodiesel e.V
BDBe	Federal Association of the German Bioethanol Sector
BDP	Federal Association of German Plant Breeders
BLE	Federal Agency of Agriculture and Alimentation
BMELV	Federal Ministry of Food, Agriculture and Consumer Protection
BMF	Federal Ministry of Finance
BMU	Federal Ministry of Environment, Nature, Conservation and Nuclear Safety
BtL	Biomass to Liquid
DBFZ	German Centre for Biomass Research
DBV	German Farmers Association
DNR	German League for Nature and Environment
EBB	European Biodiesel Board
EU	European Union
FAZ	Frankfurter Allgemeine Zeitung
FNR	Agency of Renewable Resources
ISCC	International Sustainability and Carbon Certification
NABU	Nature and Biodiversity Conversation Union
NGO	Non-Governmental Organisation
RED	Renewable Energy Directive
REDcert	Society for the Certification of Sustainably produced Biomass
SZ	Süddeutsche Zeitung
TV	Television
UBA	Federal Environmental Agency
UFOP	Union for the Promotion of Oil and Protein Plants
UFZ	Helmholtz Centre for Environmental Research
VDB	Association of the German Biofuel Industry#
WWF	World Wildlife Fund

1 Introduction

The following report shows the results of an analysis of public perception on biofuels in Germany. It is based on a combination of desk research and a small scale public survey. Due to the limited scale of this analysis the report will only give a broad overview about the current public perception on biofuels in Germany.

The report begins with a brief overview on the used methods. Next, key stakeholders involved in the biofuel sector in Germany are presented, followed by the media analysis and possible external and cultural influences on the public perception on biofuels. Finally, the results of the public survey are presented and analysed.

2 Methodology

2.1 Stakeholder mapping

The stakeholder mapping is based on a detailed internet research, analysing the websites of relevant organizations and companies. Their sector involvement and their position on biofuel are described. Additionally the contact details of the stakeholders are presented in Annex 4.

2.2 Media Analysis

For the newspaper analysis a period of 8 months was selected, from 01.01.2011 to 31.08.2011. For the media analysis internet archives or so-called e-papers of the five highest daily circulation newspapers were used to receive information about their articles on biofuels. For each newspaper the keyword “Biosprit” (biofuel) was used in their search engine. Due to the large number of identified articles (664) only the headlines or short abstracts were analysed according to following criteria:

- The thematic section in which the article was published
- The main focus of the article (national or international)
- The overall perception towards biofuel (positive or negative)

The articles were further classified and analysed according to their topics (see chapter “Detailed newspaper analysis on the topic of biofuels in 2011”).

2.3 Public Survey

For the public survey a slightly modified version of the standard questionnaire was used (see Annex 2).

The public survey was conducted in different public places in Munich: the English Garden, Marienplatz, Hohenzollernplatz and the University of Munich (LMU).

For the survey a sample of 32 respondents were chosen. The sample was stratified in gender and four different age groups (below 30; 31 to 45; 46 to 65 and over 65).

3 Stakeholder Mapping - Biofuel stakeholders in Germany

There are a large number of stakeholders in the biofuel sector in Germany. The stakeholders can be subdivided in four groups: 1.Governmental Institutions, 2. the *Private Sector*, 3. *Scientific Institutions* and 4. *NGOs*[1]. The biofuel sector increased considerably between 2000 and 2010 indicating the growing importance of this sector. Additionally, it is quite interesting that during this development of the biofuel sector some of the stakeholders changed their way of thinking and adapted their position in the field of biofuels.

3.1 Governmental Institutions

In 2003 the European Parliament adopted the so-called "Directive on the Promotion of the use of biofuels and other renewable fuels for transport" (2003/30/EG[2]). This Directive asked all Member States of the European Union to reach a minimum share of 2 per cent of renewable bioenergy fuel by December 2005. In the aftermath of the Directive the biofuel market in Europe increased because some of the states needed more capacities to reach the target of the Directive. Unfortunately not every state reached the European biofuel target. In the end of 2005 one per cent biofuel was used in the transport sector all over Europe. Therefore the European Commission and the European Council adopted the new "Renewable Energy Directive" (2009/28/EG) on 23. April 2009. This Directive mandates all Member States to reach a minimum share of 10 per cent biofuel in the mobility sector in 2020. The producers of biofuels are allowed to use biomass produced within or outside the European Union. However, the used biomass has to fulfil criteria of sustainability, otherwise the producers will lose their financial support.[3]

In Germany there are three ministries related to biofuel policies, named the *"Federal Ministry of Environment, Nature, Conservation and Nuclear Safety" (BMU)*, the *"Federal Ministry of Food, Agriculture and Consumer Protection" (BMELV)* and the *"Federal Ministry of Finance" (BMF)*.

[1] http://stockholm.sgir.eu/uploads/2010-08-16%20SGIR%20Paper%20Kaup%20-%20final.pdf; 24.08.2011; 11:01
[2] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:123:0042:0042:DE:PDF; 07.09.2011; 12:16
[3] http://europa.eu/legislation_summaries/energy/renewable_energy/en0009_de.htm; 07.09.2011; 12:47

The *BMU* accentuates the greenhouse gas and CO_2 reduction potential of biofuels as the highest benefit. The focus of *BMELV* is the creation and security of employment in agricultural and rural areas. Thereby, the *BMELV* especially supports the cultivation of energy crops in rural areas, which are not used for food cultivation.

At the beginning, the *BMF* supported the biofuel sector through tax exemption. However, in 2007 the *BMF* started to tax biofuels, as the biofuel industry was regarded to be self-sustaining in Germany.

Further information about *Governmental Institutions* is presented in Table 1.

Table 1: Governmental Institutions

Name	Position on biofuels	Activities in the field of biofuels
European Parliament	The European Parliament has reservations about the use of biofuel made from energy crops and would prefer the use of synthetic fuels.[4]	The European Parliament adopted the Directive 2003/30/EG and the Directive 2009/28/EG.
European Commission	The European Commission sees biofuels as an alternative to fossil fuel sources in the transport sector. It proposes to promote the production and use of biofuels.	The European Commission submits to the European Parliament an evaluation report on the use of biofuels and other renewable fuels in the Member States progress every two years.[5] The European Commission supports the certification of biofuel production in the European Union.
Federal Ministry of Environment, Nature, Conservation and Nuclear Safety (BMU)	The BMU supports the use of sustainable produced biofuels and the implementation of certification systems for the biofuel sector.[6]	The BMU informs about progress in the field of biofuels and its certification systems. Furthermore the BMU promotes research in the field of bioenergy. In 2012 and 2013 the BMU supports biofuel development with 6 million euro.[7]

[4] http://www.europarl.de/view/de/Presse/Pressemitteilungen/Pressearchiv/Pressearchiv-2009/Maerz-2009/Maerz-2009-15.html; 07.09.2011; 10:20
[5] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:123:0042:0042:DE:PDF; 25.08.2011; 10:27
[6] http://www.erneuerbare-energien.de/inhalt/46117/4593/; 07.09.2011; 10:30
[7] http://www.erneuerbare-energien.de/inhalt/47724/4593/; 07.09.2011; 12:14

Name	Position on biofuels	Activities in the field of biofuels
Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)	The BMLV supports the use of biofuels because it expects a huge potential in securing and creating employment in agriculture and rural areas.[8] Additionally it sees a chance in using organic waste for energy production.	The BMELV informs the public about biofuels. It regularly publishes graphs and charts about the topic biofuel.
Federal Ministry of Finance (BMF)	The BMF supports the use of sustainable produced biofuel which is not competing with food.	Tax exemption for biofuels until taxation of biodiesel and vegetable oils started in 2007.[9] Additionally it informs about economic developments in the biofuel sector.
Federal Agency of Agriculture and Alimentation (BLE)	The BLE supports the production and use of sustainable produced biofuels.	The BLE is responsible for the recognition of certification systems. Additionally it is responsible for the implementation of the Directive 2009/28/EG.[10]

3.2 The Private Sector

The stakeholders of the *Private Sector* were the first realising that an investment in the production of biodiesel and bioethanol would be the right choice, especially because of the increasing mineral oil tax rate for fossil fuels. In 2006 for example, the mineral tax for petrol and diesel were 65.45 €cent/litre and 47.04 €cent/litre. Biofuels were also seen as "zero- or low-emission" fuels, helping to reach the CO_2 reduction targets of the German government in the mobility sector (BioKraftQuG 2006).

Today *ADM (Archer Daniels Midland Company)*, *Biopetrol* and *VERBIO* are the three largest biofuel producers in Germany. In 2009 more than 100.000 people were employed or worked for the biofuel industry in Germany, making it an important sector of the German industry.

Early, the Private Sector began creating its own lobbying groups to participate in political processes and decisions. The first one was the *"Federal Association of the German Bioethanol Sector" (BDBe)* which was created in 1982.

In 1990 the *"Society of German Farmers" (DBV e.V.)* and the *"Federal Society of German Plant Breeders" (BDP e.V.)* established the *"Union for the Promotion of Oil and Protein*

[8] http://stockholm.sgir.eu/uploads/2010-08-16%20SGIR%20Paper%20Kaup%20-%20final.pdf; Page 13; 29.08.2011; 16:47
[9] http://stockholm.sgir.eu/uploads/2010-08-16%20SGIR%20Paper%20Kaup%20-%20final.pdf; Page 13; 29.08.2011; 16:53
[10] http://www.erneuerbare-energien.de/inhalt/45645/4593/; 25.08.2011; 10:48

Plants" (UFOP e.V.)[11]. It was just natural that parts of the farming sector started to cooperate with the bioenergy sector in order to establish a new source of income for farmers.

The first project of *UFOP* was the so called "rapeseed revolution", aiming to show rural areas the high benefits of the use of vegetable oil for energy supply.

In the context of private stakeholders the *"General German Automobile Club" (ADAC)*, which has got more than 16 million members[12], engaged in research on the use of biofuels in all kinds of transportation vehicles. They publish their results in different forms of media (for example: ADAC magazine; documentation on television), largely influencing public perception on biofuels in Germany.

Recently, the Private Sector stakeholders *REDcert* and *ISCC* are developing and implementing biomass certification systems. These certification systems can be used to proof compliance with the sustainability criteria of Renewable Energy Directive (RED).

Further information about stakeholders in the *Private Sector* is presented in Table 2.

Table 2: Private Sector

Name	**Sector involvement and position on biofuels**
German Farmers Association (DBV)	The DBV represents the interests of German agriculture and forestry, and supports the use of sustainable produced biofuels.[13]
Federal Association of the German Bioethanol Sector (BDBe)	The BDBe represents the cross-sector of agricultural primary production to industrial production and processing of ethanol and the interests of the German bioethanol industry. The network has got more than 150 members today.[14] The BDBe is interested in supporting the German ethanol industry.
Union for the Promotion of Oil and Protein Plants (UFOP)	The work of UFOP is divided into four substantial areas of responsibility: 1. Political representation of interests in national and international committees. 2. Optimization of agricultural production by promoting research. 3. Development of new possible use. 4. Public relations to promote the sales of all final products of indigenous oil and protein crops. UFOP promotes biofuels with different research activities and promotional measures such as the first use in a car sports event.[15]

[11] http://www.ufop.de/ufop_aufgaben.php; 24.08.2011;10:25
[12] http://www.auto-reporter.net/1996/2_1996_104_38785_1.php; 06.09.2011; 10:26
[13] http://www.bauernverband.de/index.php?redid=152813&mid=432711; 22.08.2011; 10:01
[14] http://www.bdbe.de/; 22.08.2011; 15:21
[15] http://www.ufop.de/biodiesel_rennsport.php; 22.08.2011; 13:52

Name	Sector involvement and position on biofuels
European Biodiesel Board (EBB)	The EBB is a non-profit organization. They group the major EU biodiesel producers in one union. With its more than 70 members EBB promotes the use of biodiesel in the European Union.[16]
Working Group Quality Management Biodiesel e.V. (AGQM)	AGQM is a service provider that covers all relevant issues from the production to the application of biodiesel with special focus on quality assurance. They represent 24 biodiesel producers, responsible for more than 80% of Germany´s biodiesel production and strongly support the use of biodiesel in Germany and Europe.[17]
Association of the German Biofuel Industry (VDB)	The VDB supports the use of biofuels. 29 members representing 80% of German biofuel capacity. Areas of responsibility of VDB are: 1. Help shape a competitive environment. 2. Represent the sector. 3. Coordinates researches about biofuels.[18]
Archer Daniels Midland Company (ADM)	ADM is one of the largest biofuel producers in Germany and Europe. Operating a research and development centre in Hamburg.[19]
Biopetrol	Biopetrol is one of the largest biodiesel producers in Europe, with a production capacity of 1,000,000 tons of biodiesel per year. Additionally Biopetrol is the market leader of bio glycerin production in Europe with 100,000 tons per year.[20]
VERBIO	Verbio is the only industrial-scale producer of biodiesel, bioethanol and biogas at the same time. They can produce 450,000 tons of biodiesel, 300,000 tons of bioethanol and 500 gigawatt hours of biogas per year.[21]
General German Automobile Club (ADAC)	ADAC is the largest German automobile club with more than 16 million members in the year 2010. It informs about the possible use of biofuels in all kinds of vehicles and has strong influence on the public perception on biofuel in Germany.[22]
Society for the certification of sustainably produced biomass (REDcert)	REDcert develops an internationally oriented, practical and transparent certification system for biomass and bioenergy. REDcert sells certificates to biofuel producers.[23]
International Sustainability and Carbon Certification (ISCC)	ISCC develops an internationally oriented, practical and transparent certification system for biomass and bioenergy. ISCC sells certificates to biofuel producers.[24]

[16] http://www.ebb-eu.org/; 22.08.2011; 14:46
[17] http://www.agqm-biodiesel.de/index.php?menu_sel=25&menu_sel2=29; 22.08.2011; 15:45
[18] http://www.biokraftstoffverband.de/de/verband.html; 22.08.2011; 16:22
[19] http://www.adm.com/en-US/worldwide/germany/Pages/Hamburg-AG.aspx:; 29.08.2011; 11:34
[20] http://www.biopetrol-ind.com/unt_strategie_e.htm; 29.08.2011; 12:19
[21] http://verbio.de/en/desktopdefault.aspx/tabid-23/33_read-2542/; 29.08.2011; 14:24
[22] http://www.adac.de/infotestrat/tanken-kraftstoffe-und-antrieb/default.aspx; 05.09.2011; 11:45
[23] http://www.redcert.org/; 22.08.2011; 16:32
[24] http://www.iscc-system.org/ueber_iscc/iscc___ziele/index_ger.html; 22.08.2011; 16:39

3.3 Scientific Institution

An important number of *Scientific Institutions* were established during the increment of the biofuel sector in Germany. The first one was the *"Federal Environmental Agency" (UBA)* which was founded in 1974 by the *"Federal Ministry of Environment, Nature, Conservation and Nuclear Safety" (BMU).* From the outset its task was to inform the public about environmental development and protection. The UBA has always been keeping a sceptical position on conversion of biomass into biofuels. They prefer the conversion into biogas, electricity and heat.

The second research centre, which was founded by a Federal Institution, is the *"Agency of Renewable Resources" (FNR e.V.).* It was founded by the *"Federal Ministry of Food, Agriculture and Consumer Protection" (BMELV)* in 1993. The most well-known project implemented by *FNR* was the "100-tractor program"[25].

Finally, in 2008, the *"German Centre for Biomass Research" (DBFZ)*, which is affiliated to the *"Federal Ministry of Food, Agriculture and Consumer Protection" (BMELV)* was founded to support political processes.

The three most important private *Scientific Institutions* are the *"ifeu Institute"*, the *"Öko Institute"* and the *"Helmholtz Centre for Environmental Research"*. The main topic of their current research in the field of biofuels is to compare different conversion technologies and the CO_2 reduction potential of sustainable biofuels. The results of this research are used to create strategies for sustainable international, national and regional development of biofuels.

Two examples for technical research institutions are the "Vereinigte Werkstätten für Pflanzenöltechnologie" (VWP) and the "Technologie und Förderzentrum" (TFZ). Both of them coordinate laboratory work and other technical projects in the field of biofuels. The VWP develops new biofuel compatible engines in their own technical department. Additionally they cooperate with national and international universities and other institutions.

More details about *Scientific Institutions* are presented in Table 3.

[25] http://www.fnr-server.de/cms35/index.php?id=1140; 05.09.2011: 12:08

Table 3: Scientific Institutions

Name	Sector involvement and position on biofuels
Agency of Renewable Resources (FNR e.V.)	The FNR was founded by the *Federal Ministry of Food, Agriculture and Consumer Protection* in 1993. FNR coordinates research activities, development and demonstration projects in the field of renewable resources, especially in the biofuel sector. In 2000 the FNR started the "Market Launch Program – Biological Lubricants and Transportation Fuels". In 2001, FNR implemented the "100-tractors program". More than 100 tractors were prepared for the use of vegetable oil and biodiesel and were supervised by a team of scientists until autumn 2005.[26]
Federal Environmental Agency (UBA)	The UBA coordinates different research projects. The key issues focus on greenhouse gas balances including the effects of direct and indirect land use change (iLUC), protection of biodiversity and natural soil and water resources. The UBA takes a sceptical position on conversion of biomass into biofuels. They prefer the conversion into biogas, electricity and heat.[27]
German Centre for Biomass Research (DBFZ)	The mission of DBFZ is to support the effective integration of biomass as a valuable resource for a sustainable energy supply in the context of applied scientific research - including technical, environmental, economic, social and energy issues along the entire chain of exploitation. The research centre is affiliated with the *Federal Ministry of Food, Agriculture and Consumer Protection*. [28]
Institute for Energy and Environmental Research (ifeu Institute)	The ifeu Institute is engaged in different research activities on the sustainability of bioenergy use on a global, national and regional scale.[29]
Institute for Applied Ecology (Öko Institut e.V.)	The Öko Institute implements assessments of the targeted cultivation of crops for biofuel production in developing countries covering ecological, social and economic aspects. Öko Institute has contributed to the formulation of criteria to ensure sustainable crop production in developing countries as well as the identification of knowledge and research gaps.[30]
Helmholtz Centre for Environmental Research (UFZ)	The UFZ coordinates research about the interaction of bioenergy, environment and society for different areas and regions. [31]
Vereinigte Werkstätten für Pflanzenöltechnologie (VWP)	The VWP is involved in laboratory work and research about the cultivation, processing and use of vegetable oils as alternative energy source. In their own technical department they develop new biofuel-compatible engines. In this context VWP cooperates with international universities and other institutions.[32]

[26] http://www.nachwachsenderohstoffe.de/fileadmin/fnr/pdf/FS2011/6_Biokraftstoffe.pdf; 19.08.2011; 9:23
[27] http://www.umweltdaten.de/publikationen/fpdf-l/3960.pdf; 19.08.2011; 10:53
[28] http://www.dbfz.de/web/presse/pressemitteilungen-2010/biokraftstoffe-vom-suendenbock-zum-vorreiter-der-umsetzung-von-nachhaltigkeitskriterien.html; 19.08.2011; 11:32
[29] http://www.ifeu.de/index.php?bereich=lan&seite=bioenergie; 19.08.2011; 13:41
[30] http://www.oeko.de/oekodoc/234/2005-002-en.pdf;19.08.2011; 14:15
[31] http://www.ufz.de/index.php?de=19511; 19.08.2011; 15:01
[32] http://www.vwp-europe.com/index.php?option=com_content&task=view&id=13&Itemid=62; 19.08.2011; 15:21

Name	Sector involvement and position on biofuels
Federal Association of German Plant Breeders (BDP e.V.)	Development of optimal seed varieties for the production of bioenergy or for the use as renewable raw materials in the chemical industry.
Technologie- und Förderzentrum (TFZ)	The TFZ is mainly concerned with the use of vegetable oils as fuel in adapted diesel engines[33]and coordinates research around this topic.

3.4 NGOs

There are five main NGOs (Non-Governmental Organizations) active in the field of biofuels in Germany. Three of them operate on global scale, namely *"Greenpeace"*, *"WWF"* and the *"German League for Nature and Environment" (DNR).* The other two, "Nature and Biodiversity Conservation Union" (NABU) and "Coalition for Environment and Nature Conversation" (BUND) are focused on projects in Germany. In the beginning the main focus of NABU and BUND was on agriculture and its problems around genetically modified crops and the excessive use of pesticides and herbicides. However, when the bioenergy sector began to increase, the NGOs also started to watch this development in a critical way. First, the production of biodiesel from palm oil was criticized because of the destruction of rain forest. In addition, the trend to monocultures and the loss of biodiversity were criticized. When food prices started to increase worldwide, the NGOs linked this fact with the production of biofuels. The so-called "Food vs. Fuel" discussion still continues.

Further information about the NGOs and their specific positions on biofuels is presented in Table 4.

Table 4: NGOs

Name	Scale	Focus	Main concerns and position on biofuels
Greenpeace	International, with a German operation	Environmental and social	**Main concerns:** Greenpeace is opposed to any destruction of existing natural ecosystems and the competition for land between food and energy crops. Greenpeace prefers the use of biofuels in stationary combustion engines because of possible combined heat and power production.[34]

[33] http://www.tfz.bayern.de/sonstiges/16359/; 19.08.2011; 15:56
[34] http://www.greenpeace.de/themen/energie/erneuerbare_energien/artikel/biomasse/; 22.08.2011; 9:15

Name	Scale	Focus	Main concerns and position on biofuels
WWF	Global and regional operation	Environmental and social	**Main concerns:** WWF supports the preservation of the biological diversity and a living planet for our children and us. • WWF supports biofuels that are produced environmentally and socially sustainable. • In their opinion biofuels are the only fuel supply alternative for the transport sector as long as fuel cells and sustainable hydrogen production is not developed. • WWF calls upon the Member States of the EU to use instruments which will help to promote the distribution and consumption of biofuels. • They also promote the adoption of a mandatory GHG certification scheme for all biofuels. • Additionally, the EU should support developing countries and ensure that biofuels bring social and environmental benefits.[35]
German League for Nature and Environment (DNR)	International and German organization	Environmental and social	**Main concerns:** Besides the protection of endangered animal and plant species the DNR also takes care of economic and energy policies. The DNR calls for fuel-saving instead of using biofuels.[36]
Nature and Biodiversity Conversation Union (NABU)	German organization	Environmental	**Main concerns:** NABU provides practical and scientific research. NABU supports the use of Biomass-to-Liquid (BtL) in the automobile sector. They also prefer the use of biofuel in stationary combustion engines.[37]
Naturschutzbund Deutschland (BUND)	German organization	Environmental and social	**Main concerns:** BUND coordinates research about the energy demand of Europe. In the opinion of BUND the development and operation of fuel-saving vehicles is priority. They also prefer the use of biofuel in stationary combustion engines.[38]

[35] WWF Position on Biofuels in the EU July 2007
[36] http://www.dnr.de/publikationen/umwelt-aktuell/122010-012011/vom-regen-in-die-traufe.html; 29.08.2011; 15:41
[37] http://www.nabu.de/themen/energie/erneuerbareenergien/; 25.08.2011; 10:35
[38] http://www.bund.net/fileadmin/bundnet/publikationen/energie/20101223_energie_position_biomasse.pdf; 29.08.2011; 14:38

4 Media Analysis

Different sources of media are involved in the information about biofuels in Germany. The main sources are television, newspapers, radio and internet.

The following Table 5 shows that different sources of media influence the distribution of information about biofuels. It is based on the results of the public survey (see chapter 6 “Results of the survey”).

Table 5: Influence of media revealed by the answers of the public survey

Source of media	Age groups								**All age groups**	
	Below 30		31 to 45		46 to 64		Over 65		**Total**	
	M %	F %	M %	F %	M %	F %	M %	F %	**M %**	**F %**
TV	75	75	100	100	100	100	100	100	**93,8**	**93,8**
Radio	25	50	25	25	75	50	50	50	**43,8**	**43,8**
Internet	75	0	25	0	25	0	25	0	**37,5**	**0**
Newspaper	75	100	50	75	100	75	75	100	**75**	**87,5**

Table 5 shows that:

- Female as well as male over all age groups get informed through TV (93%)
- Female as well as male over all age groups get informed through radio (43,8%)
- Female (87,5%) as well as male (75%) over all age groups get informed through newspapers
- Over all the age groups male get informed through internet (37,5%)
- No female gets informed through internet

4.1 Newspapers

In Germany more than 350 newspaper agencies exist which print more than 25 million newspapers per day.[39] Generally, a lot of information about biofuels is presented in German newspapers. The five highest daily circulation newspapers in Germany were chosen for the

[39]http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 02.09.2011; 12:08

Media Analysis. These newspapers have different political and socio-economical target groups.

- The “Süddeutsche Zeitung” (SZ) is a daily newspaper with about 430.000 readers. The SZ is politically leftish, however in their economy section she is employer-friendly.[40]
- The “Frankfurter Allgemeine Zeitung” (FAZ) is a daily newspaper with about 368.000 readers. The FAZ is politically conservative-liberal.[41]
- “Die Welt” is a daily newspaper with about 264.000 readers. “Die Welt” is politically conservative.[42]
- The “Frankfurter Rundschau” is a daily newspaper with about 150.000 readers. The “Frankfurter Rundschau” is left-wing liberal.[43]
- “Bild” is a daily newspaper with about 3.300.000 readers. “Bild” uses an unprofessional and populist style of writing.[44]

Newspaper articles on the topic of biofuels between 2002 and 2011

The following Figure 1[45] shows the number of articles on biofuel between 2002 and 2011, for the four highest daily circulation newspapers in Germany. The figure does not include “Bild” because the archive of “Bild” in the internet is not complete during this period of time.

[40] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[41] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[42] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[43] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[44] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[45] Base on: Kaup, F & Selbmann, K., 2011: The Seesaw of Germany’s Biofuel Policy – Tracing the Evolvement to its Current State. Governance. An International Journal of Policy, Administration, And Instititutions

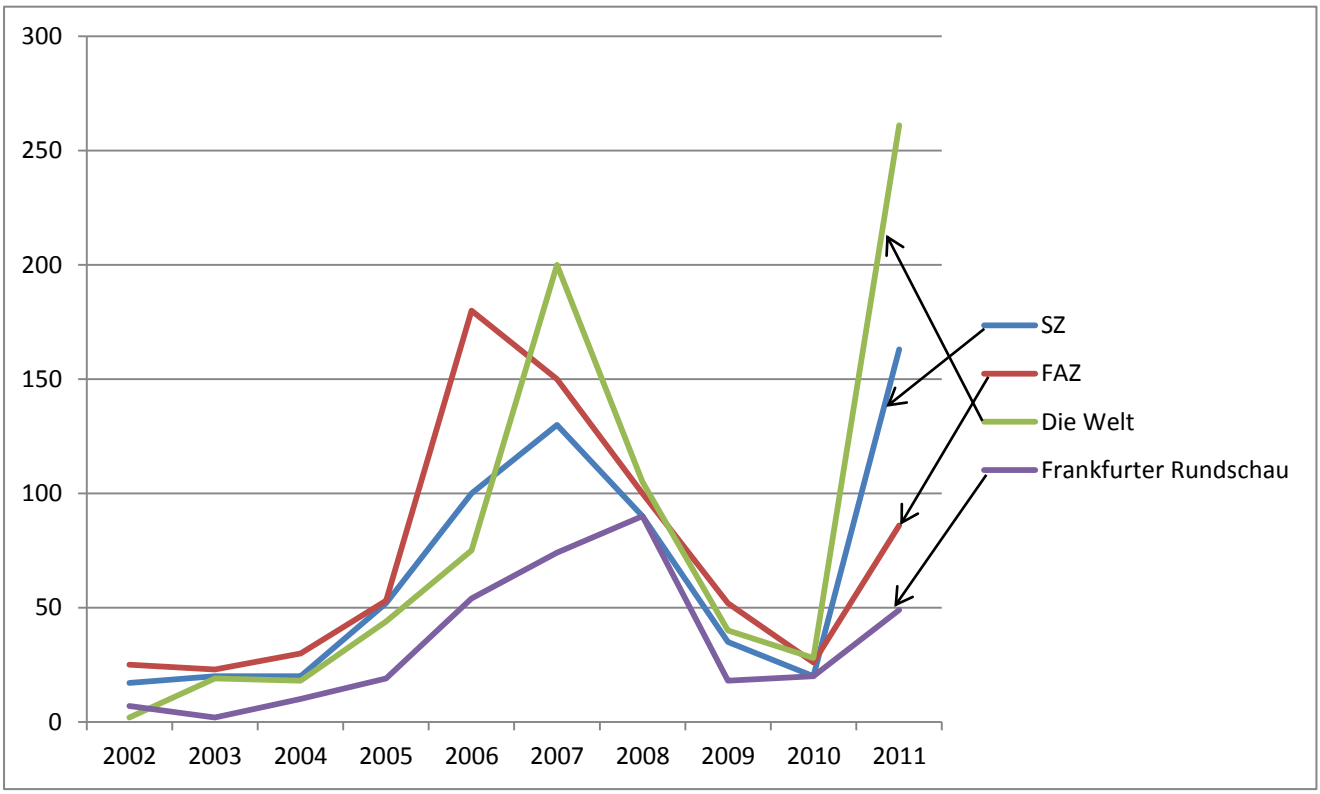

Figure 1: Number of articles from 2002 and 2011 on biofuel in the four highest daily circulation newspapers in Germany

Figure 1 shows the development in the biofuel sector between 2002 and 2011. At the beginning just a few articles about biofuels were published. In 2006 the number of articles increased in all newspapers. The peak in 2006/2007 can be explained by the introduction of the so-called energy tax on biodiesel and the still on-going "Food vs. Fuel-discussion". After that, in 2009/2010, the number decreased again. However, in 2011 the number of articles on biofuel accelerated again. The reasons for that can be explained by the introduction of the E10 fuel, which is shown in the following paragraphs.

Detailed newspaper analysis on the topic of biofuels in 2011

In the analysis a period of 8 months was selected, from 01.01.2011 to 31.08.2011. During this period more than 664 articles about biofuels were published in the chosen five newspapers. For the identification of the articles either online archives or so-called e-papers were used. During the internet research two different keywords were used: 1. "Biokraftstoff" and 2. "Biosprit", both are expressions for biofuels in German. For each one of them a different number of newspaper articles appeared in the search engine. The results are presented in Table 6.

Table 6: Different number of results by using the keyword "Biokraftstoff" or "Biosprit"

Newspaper	"Biokraftstoff"	"Biosprit"
SZ	28	163
FAZ	41	86
Die Welt	161	261
Frankfurter Rundschau	14	49
Bild	0	105
Total	244	664

By using the keyword "Biosprit" nearly three times more newspaper articles were found than by using the keyword "Biokraftstoff".The expression "Biosprit" is more informal and associated with a negative connotation. The expression "Biokraftstoff" is more neutral and formal and is often used in specialized literature. For the internet research only the keyword "Biosprit" was used, due to the larger number of articles.

Newspaper sections

Most of the articles about biofuels were published in the Financial and Business section (52%), followed by the Political section (19%).

Further details about the newspaper sections where articles about biofuel were published are presented in Figure 2.

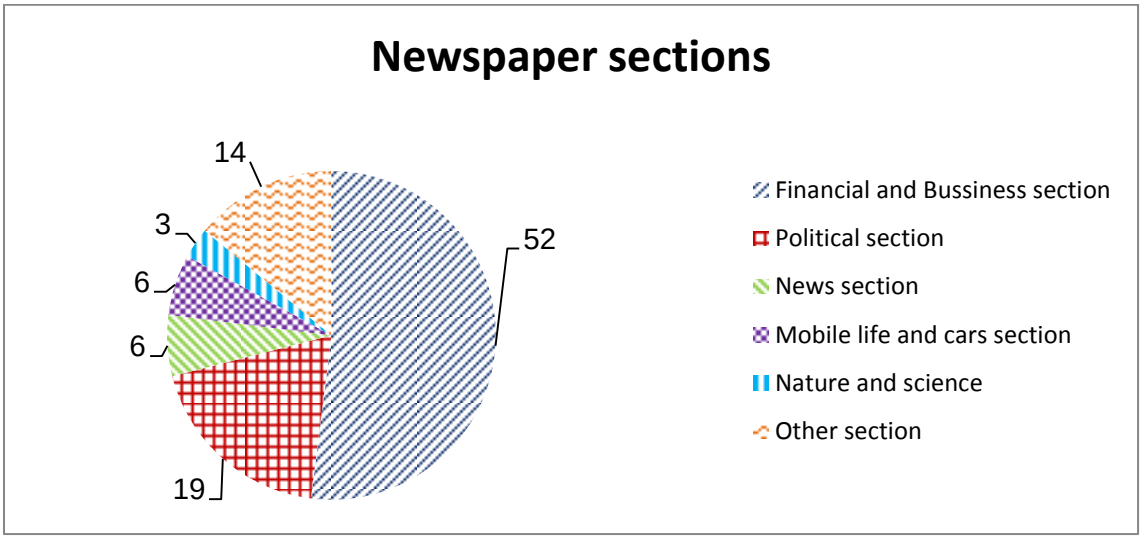

Figure 2: Newspaper sections - Analysed biofuel articles between 01.01.2011 and 31.08.2011

Percentage of biofuel topics in articles of German newspapers:

For the newspaper analysis, topics were grouped in the following three main topics: 1. Policy; 2. Sustainability and Environment and 3. Research and Development.

Table 7: Percentage of biofuel topics in articles of German newspapers between 01.01.2011 and 31.08.2011

Topic	Percentage [%]; total	Positive focus [%]; subtotal	Negative focus [%]; subtotal
1. Policy			
1.1 E10	64,7	4,7	60,0
1.2 Biofuel policy in Germany	7,0	0,9	6,1
1.3 Biofuel policy in other countries	0,8	0,0	0,8
1.4 European policy	1,2	0,6	0,6
1.5 Turn of energy policies	1,9	1,4	0,5
1.6 Oil price	1,0	0,0	1,0
Total 1:	76,6	7,6	69,0
2. Sustainability and Environment			
2.1 Food security and food price	11,5	0,6	10,9
2.2 Deforestation	0,5	0,0	0,5
Total 2:	12,0	0,6	11,4
3. Research and Development			
3.1 Biofuel projects in Germany	3,9	1,7	2,2
3.2 Biofuel projects in other countries	3,6	2,6	1,0
3.3 Biofuel use in air traffic	3,7	3,5	0,4
Total 3:	11,2	7,8	3,6
Total (1+2+3):	100	16,0	84,0

With 64,7% “E10” was the prevalent topic during the period of the research. The background to E10 is that the German government has to fulfil the Renewable Energy Directive (RED) 2009/28/EG of the European Union. The RED mandates all Member States to reach a minimum of 10% of renewable energy use (including bioenergy) in the transport sector in 2020.

Following requirements on European level, the German government increased the allowable percentage of biofuel in gasoline from 5% to 10%. In 2011 the so-called E10 was introduced in the German market. However, with the introduction of E10 several problems appeared. First of all the government did not have a good information policy about E10. So consumers were quite surprised and disorientated, when the new gasoline appeared at the petrol stations. Soon some sources of information reported on engine problems, which could be caused by using E10. As a consequence a low number of consumers bought the new fuel E10 for fear that their car could be damaged. As a result oil companies announced that they would have to pay a high fine, if they could not sell the required biofuel share (compare: BioKraftQuG; BT-Drs 16/2709[46]) and would add this fine to the normal price of petrol. Additionally, E10 was made responsible for rising food prices.

As shown in Table 7, the second most important topic mentioned in 11,5% of the articles of German newspapers was “Food Security and Food Price”.

Focus of the articles

Especially because the mainly national topic of E10 introduction in German fuel market 74% of the newspaper articles had a national focus, while 26% discussed international issues.

Positive connotations were only attached to the following three biofuel related topics: “Biofuel use in air traffic” (5%), “Biofuel projects in other countries” (2,6%) and “Turn of energy policies” (1,4%). Further information is presented in Annex 1.

Table 8: Focus of the newspaper articles about biofuels between 01.01.2011 and 31.08.2011

Focus	National	International	Total
Positive	6%	11%	17%
Negative	68%	25%	83%

As shown in Table 8, altogether 83% of the published articles had a negative focus. The high negative national publicity can again mostly be explained by the problems with the introduction of E10. More information about this topic is presented in Annex 1.

[46] http://www.bdbe.de/biokraftstoffquotengesetz.html; 09.09.2011; 15:34

4.2 Television

In Germany, television is also an important source of information. On average every German watches 193 minutes television per day.[47] The TV channels ARD, ZDF, RTL, Das Dritte and SAT1 have the highest number of viewers.

Unfortunately, it was not possible to analyse the television sector like the newspaper sector, as no complete online archives have been available.

However, the results of the public questionnaire showed that 93,8% of Female as well as Male over all age groups get informed about biofuels through television (also see Table 5), most often through the television channels ARD (28%) and ZDF (22%).

4.3 Radio

The Radio analysis is also based on the Newspaper analysis, due to the same reasons like the Television analysis.

As presented in Table 5: Different sources of media influence on the public perception on biofuels show that both Female and Male over all age groups get informed through radio about biofuels (43,8%).

[47] http://www.ard.de/intern/basisdaten/mediennutzung/zeitbudget_20f_26_23252_3Br_20audiovisuelle_20medien//id=54984/sfyd65/index.html; 13.09.2011; 16:27

5 External influences and crises

Two opposite developments took place on the German biofuel market in the last ten years. On the one hand the industry saw the chances in the new biofuel market and already in 1997 pushed its development by the introduction of DIN 51606 fuel standard for biodiesel. As shown in Figure 3, the biofuel production reached a capacity of nearly 5.000.000 tons per year in 2008.

On the other hand the legislation had strong and less positive influence on the biofuel market in Germany. The Mineral Oil Tax Law (MinöStG), which was implemented in 1992, only included mineral oil based fuels. Therefore pure biofuel was not taxed at the beginning. However, with the addition of the MinöStG in 2004 biofuels have been included in §2a[48]. Although a tax exemption for biofuels was still guaranteed until the end of 2009, the German biofuel market reacted sensitive after the new legislation. Additionally the introduction of the Energy Tax Law (EnergieStG) in 2006 and the Biofuel Quota Law (BioKraftQuG) in 2007 had a negative influence on the further development of the biofuel market. After 2007 the demand for vegetable oil and biodiesel, which was usually used unblended in large machineries such as tractors or other agricultural transportation vehicles and trucks, rapidly decreased. In 2009 the actual biodiesel production in Germany corresponded to only 50% of the production capacity. The use of pure biodiesel has a declining importance in the German biofuel market.

After the introduction of the *Biomass Electricity Sustainability Ordinance* (BioSt-NachV), the *Biofuel Sustainability Ordinance* (Biokraft-NachV) and the *BioKraftÄndG* in 2009 Germany is facing stagnation on the biofuel market.

Further information is presented in the following Figure 3 “Development of Biodiesel capacity and demand between 2000 and 2009”:

[48] http://www.bdbe.de/downloads/PDF/recht/mineraloelsteuergesetz_2004.pdf; 22.09.2011; 16:18

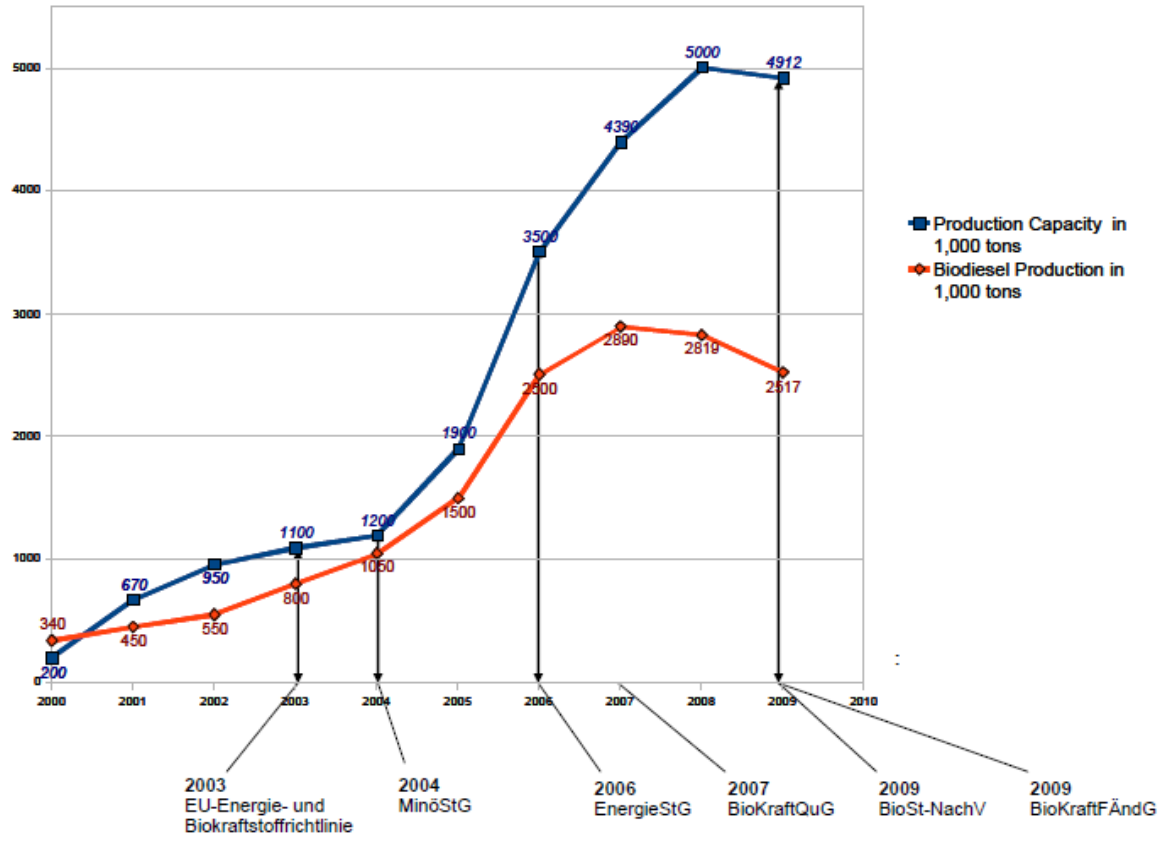

Figure 3: Development of Biodiesel capacity and production in Germany between 2000 and 2009 (Kaup & Selbmann 2011) [1]

In addition the global economic crisis in 2008 also influenced the biofuel market in Germany, as key investors were affected by the effects of the crisis.

Likewise the nuclear disaster in Fukushima (Japan) in March 2011 supported the “Green Movement” in Germany in a dramatic way (also see chapter 7 “Cultural Parameters”). The existing anti-nuclear power movement increased rapidly all over the German society. Therefore the German Government implemented a so-called “Moratorium” in March 2011 on the extension of nuclear power use in Germany. Additionally the “Moratorium” included a safety check for all existing 17 nuclear power plants in Germany. The oldest eight nuclear power plants have been shut down, until this safety check was done.[49] Three months later, in Juli 2011, the German Government decided full denuclearization until 2022, starting with a shut down of the eight nuclear power plants.

This development mandates the German Government to strengthen the support of all kinds of renewable energies to meet the future energy demand, especially after the year 2022.

[49] http://www.welt.de/politik/deutschland/article12833106/Merkel-laesst-die-aeltesten-AKW-abschalten.html; 27.09.2011; 12.04

Finally, in Germany the media is emphasising the connection between the production of biofuels and the increasing food prices (also see chapter 4 “Media Analysis”). During the famine at the Horn of Africa in 2011, this may have led to increased negative public perception on biofuels.

6 Results of the public survey

The results of the public survey show that the present public perception on biofuels in Germany is altogether positive. 75% of respondents were in favour of biofuels. However, 31,5% of them imposed conditions, such as that the production of the biofuel must not be competing with the food production. 37,5% of the respondents in favour of biofuels said that these could be an alternative to fossil fuels.

25% of all interviewed persons were against biofuels based on their perception that the production of biofuels competes with food production.

All respondents had some knowledge about biofuels. When they were asked, how much they know about biofuels all considered they know “a little” about biofuels. These statements were verified because 31 of the 32 interviewed persons could name at least one specific kind of biofuel. 34,4% of all respondents knew two examples and 25% knew 3 and more examples. Most often “Bioethanol” was named (68,8%), following the extensive media coverage on E10 in the past months. Second most they knew “Vegetable oil” (56,2%) and only 34,4% of the respondents knew “Biodiesel”. With “Biodiesel” dominating the biofuel market since many years and Germany being the main biodiesel producer worldwide, this is quite an interesting result. 21,9% of them also named “Biomethan”.

9 of 32 respondents were even able to make a connection between the first time they heard about biofuels and a specific event. In that context four of them named “The Second Gulf War” and the “Oil crisis 1991”. However, even after a detailed internet research, no significant connection between these two topics could be discerned.

Only three respondents knew specific examples for a biofuel production or research facility. Two of them named the TFZ-Straubing, located in the vicinity of Munich, where the interview took place (further information are presented in chapter 3.2 “The Private Sector – Stakeholder”). Indeed the lack of knowledge about biofuel production or research facilities was surprising, because 11,2% of analysed newspaper articles focus on this topic.

All respondents could give at least one unprompted statement on the question, which issues should be addressed first by German policy. 46,8% named the stability of the European currency and other financial policy as the most important issues. Furthermore, 34,4% named environment and energy supply policies.

When given a choice of issues to rank, some interesting results appeared, as seen in Figure 4.

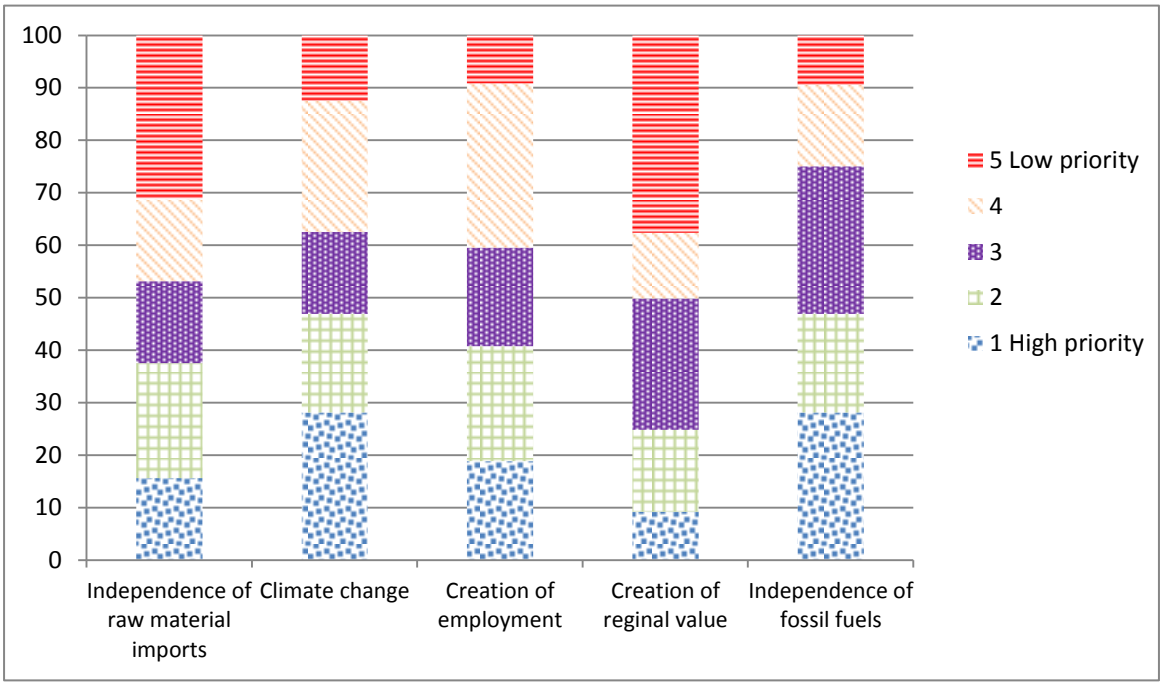

Figure 4: Ranked issues of importance for the respondents in terms of an alternative drive system

Around 30% of respondents ranked “Independence of fossil fuels” and “Climate change” as their highest priority. Surprisingly, 30% of the respondents named “Creation of employment” at the fourth place and consequently it is a low priority for them.

The complete evaluation of the survey and the rank are presented in Annex 3.

According to the 75% of respondents who are in favour of biofuels, 40,6% would support an increased use of biofuels. As reason most of them (48%) named the possibility that biofuels could be a sustainable substitute of fossil fuels. However, 56,3% of the respondents were against an increased use of biofuels, mostly because they feared biofuels could compete with food production (31,3%). Besides, some of them prefer other renewable energy sources than biofuels (12,5%).

78% of the respondents were able to spontaneously name an alternative drive system instead of the use of biofuels (“Electric drive” (50%), “Hybrid” (25%)). Additionally, every second respondent complained that too many people drive their car alone and thus support a nationwide car sharing system.

Nearly all respondents (94%) could spontaneously name at least one critical issue associated with the use of biofuels. Most often “Competition with food” was named (81,2%), followed by “Monoculture” and “Deforestation”.

When given the choice to rank different critical aspects of biofuels, some very interesting results emerged (see Figure 5).

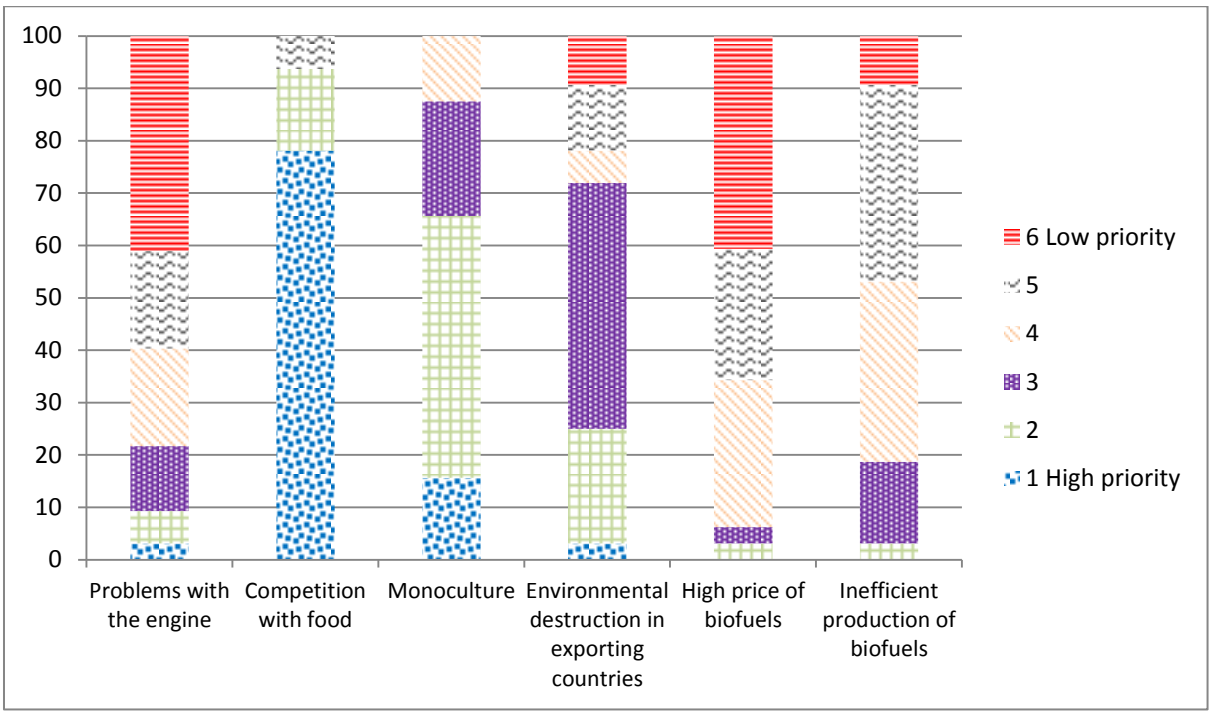

Figure 5: Ranked critical aspects on biofuels by the respondents

78,2% named “Competition with food” as their highest priority and thus as most critical. Altogether 94% of the respondents named this aspect at first or second place. Furthermore “Monoculture” is seen as a problem by 65% of all interviewed persons.

For a large number of respondents the higher price of biofuels than fossil fuels is not very important. 65% of them placed the “High price” at fifth or sixth place. Only three persons named “Problems with the engine” at the first or second place, while 19 respondents placed this topic on the fifth or sixth place. This is interesting to see because of the high number of articles about the “E10” topic in the newspapers, which often connect E10 with engine problems (more details are presented in “Percentage of biofuel topics in articles of German newspapers”).

The final open question enabled all respondents to add anything they wanted to about biofuels or the survey in general. While a high number of people repeated their way of thinking about biofuels, 16% added that the public knowledge about biofuels is currently low and therefore wished for more information about biofuels.

7 Cultural parameters

During the research different cultural parameters were found which directly or indirectly influence public perception. Most important is the present strong environmental movement in

Germany. The “Green Party” (Bündnis 90/Die Grünen) is currently as successful as ever[50]. Additionally, this spring the German government decided the complete denuclearization until the end of 2022. Thus the future energy demand must be supplied by alternative energy sources. Currently, renewable energies are broadly supported by the public society and the German government. However alongside the “Green-movement” there is a strong “No food for energy movement” in Germany, which associates the use of biofuels directly with increasing food prices and starvation all around the world (further information in chapter 3.4 “NGOs - biofuel stakeholders in Germany”). Producing biofuels is associated with wasting food in this context.

Furthermore there is the fact that Germans are “in love with their cars”. This fact is based on a long history. After the Second World War and with the beginning of the economic boom in Germany, having an own car became the centre of interest for many German citizens, symbolizing freedom and wealth. This way of thinking still exists at present. After the introduction of E10 and reported numbers of possible engine damages, the public boycotted the new kind of fuel to protect their cars. Thus the public perception on biofuel in general became more negative.

8 Synthesis

During the assessment of public perception on biofuels in Germany some interesting results were found.

Despite the disastrous introduction of E10 in early 2011 the public perception on biofuels is less negative than expected. 75% of the respondents of the public survey have been in favour of biofuels. Although there were 664 newspaper articles focusing on the topic of biofuels published during the analysis period, a large number of respondents wished more information about biofuels in general, because only a small number of these articles addressed information about the production and use of biofuels in Germany. Almost two-thirds of the articles were based on the prevalent E10 topic and possible engine damages. Nevertheless, for almost 90% of respondents this is a quite unimportant issue and the majority believes that if there is a problem with the engines caused by using E10, it should be easily solved technically.

Biofuels are also seen as a potential substitute for fossil fuels. This way the German Government has the chance to influence the public perception on biofuels through laws and regulations. The public perception on biofuels will be affected in a positive way for example if

[50] http://www.migazin.de/2011/03/28/wahlergebnisse-2011-baden-wurttemberg-rheinland-pfalz-landtagswahlen/; 21.09.2011; 11:33

the petrol and diesel prices at the petrol stations are going to keep on a low level through different subsidies for biofuels, as long as these subsidies are economically sustainable. Consequently a lower dependence on fossil fuels and other raw material imports which is an important topic for the German society could be guaranteed. An increased use of biofuels in the transport sector is also supported by the European Union. If the targets of the RED are fulfilled, 10% biofuels could be used all over Europe in the transport sector in 2020 (also see chapter 3.1 “Governmental Institutions”).

Most important for the respondents was a sustainable production of biofuels. Almost 80% of the respondents of the public survey named the potential “Competition with food” as the most important critical aspect of biofuels. However, these concerns are not based on food problems in Germany and mainly address food security in developing countries such as African states. This attitude is supported by the present strong “Green Movement” in Germany which is strongly involved in the on-going “Food vs. Energy” discussion.

In addition to the “Food vs. Energy” discussion different environmental institutions and NGOs have large influence on this development. For them especially deforestation, which is also often associated with biofuel production, is very important. However, again this concern is not directed at environmental problems in Germany. NGOs and the German society especially mainly worry about rainforest destruction in countries which produce palm oil for biofuel production (also see chapter 3.4 “NGOs”). In addition, caused monocultures by the biofuel production is also a serious topic for the NGOs. This topic is also important for Germany because until today mainly first generation biofuels made from rapeseed and other food crops are used. Different projects such as the “rapeseeds-revolution” implemented by UFOP (also see chapter 3.2 “Private sector stakeholder”) promoted the increased use of rapeseed for biofuel production especially in rural areas. Consequently NGOs and the German society were afraid about an excessive use of rapeseed and other energy crops such as maize, which could result in loss of diversification and monocultures.

Also interesting during the public survey was although “Biodiesel” is dominating the biofuel market since many years and Germany being the main biodiesel producer worldwide, biodiesel was only named on third place as a known form of biofuels.

Different sources of media largely influenced public perception on biofuels in Germany. As seen in Figure 1, 2011 was not the first year with an enormous number of biofuel based articles in German newspapers, affected by the trouble of E10 introduction. Already between 2006 and 2008 the public focus was concentrated on biofuels. At this time the introduction of the Energy Tax Law (EnergieStG) combined with an increasing association of biofuels with existing and future food problems all around the world, caused this development. This was

the first time biofuels were addressed in a quite negative way and causing high public awareness. However, despite the large number of reports with a negative focus on biofuels in the last years, the public perception on biofuels is altogether still more positive than negative. This is also shown by the results of the public survey, in which 75% of all respondents were in favour of biofuels and believed in their environmental benefits.

Nonetheless it is quite difficult to predict how the biofuel industry will develop in Germany in the next years because this development depends on a large number of factors.

Presently, the German biofuel industry is best described as stagnant or even decreasing. Especially after the disastrous introduction of E10 the biofuel sector in Germany reacted in a sensitive way and it will need quite a long time to regain the trust of the consumers. Therefore a much better information policy of all stakeholders involved (Government, car industry, fuel industry) and continued legal and regulatory support for biofuels is needed to stimulate the biofuel market. Furthermore, sustainable production and use of biofuels need to be ensured through the implementation of credible sustainability certification systems.

If above mentioned pre-requisites are fulfilled, biofuels may play an important role in the future transport fuel sector in Germany. Thereby, biofuels may help to increase independence from fossil fuels, create new regional jobs, as well as protect the environment.

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[13] Archer Daniels Midland Company; http://www.adm.com/en-US/Pages/default.aspx

[14] Biopetrol; http://www.biopetrol-ind.com/

[15] VERBIO; http://www.verbio.de/desktopdefault.aspx

[16] General German Automobile Club; http://www.adac.de/

[17] Society for the certification of sustainably produced biomass; http://www.redcert.org/

[18] International Sustainability and Carbon Certification; http://www.iscc-system.org/

[19] Agency of Renewable Resources; http://www.fnr.de/

[20] Federal Environmental Agency; http://www.umweltbundesamt.de/index-e.htm

[21] German Centre for Biomass Research; http://www.dbfz.de/web/

[22] Institute for Energy and Environmental Research; http://www.ifeu.de/

[23] Institute for Applied Ecology; http://www.oeko.de/aktuelles/dok/544.php

[24] Helmholtz Centre for Environmental Research; http://www.ufz.de/

[25] Vereinigte Werkstätten für Pflanzenöltechnologie; http://www.vwp-europe.com/

[26] Federal Association of German Plant Breeders; http://www.bdp-online.de/de/Homepage/

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[28] Greenpeace; http://www.greenpeace.de/

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[41] European Parliament; http://www.europarl.europa.eu/

Annex 1: Detailed newspaper analysis between 01.01.2011 and 31.08.2011

SZ: 163 articles about biofuels

Focus	National	International	Total
Positive	8,5%	10,6%	19,1%
Negative	58,4%	21,2%	79,6%

The “Süddeutsche Zeitung” (SZ) is a daily newspaper with about 430.000 readers. The SZ is politically leftish, however in their economy section she is employer-friendly.[51]

FAZ: 86 articles about biofuels

Focus	National	International	Total
Positive	8,4%	13,6%	22,0%
Negative	47,5%	30,5%	78,0%

The “Frankfurter Allgemeine Zeitung” (FAZ) is a daily newspaper with about 368.000 readers. The FAZ is politically conservative-liberal.[52]

Die Welt: 261 articles about biofuels

Focus	National	International	Total
Positive	7,5%	4,5%	12,0%
Negative	77,5%	10,6%	88,0%

“Die Welt” is a daily newspaper with about 264.000 readers a day. “Die Welt” is politically conservative.[53]

[51] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[52] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

Frankfurter Rundschau: 49 articles about biofuels

Focus	National	International	Total
Positive	6,3%	18,7%	25,0%
Negative	62,5%	15,5%	75,0%

The "Frankfurter Rundschau" is a daily newspaper with about 150.000 readers. The "Frankfurter Rundschau" is left-wing liberal.[54]

Bild: 105 articles about biofuels

Focus	National	International	Total
Positive	0,0%	2,8%	2,8%
Negative	94,5%	2,8%	97,3%

"Bild" is a daily newspaper with about 3.300.000 readers. "Bild" uses an unprofessional and populist style of writing.[55]

94,5% of the articles in "Bild" had a negative and national focus. Altogether just 2,8% of the articles about biofuels focused on positive aspects of biofuels.

[53] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[54] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

[55] http://www.magazin-deutschland.de/de/artikel/artikelansicht/article/die-zeitungen-im-medienland-deutschland.html; 12.09.2011

Annex 2: Public Questionnaire

Questionnaire
Public perception of biofuels in Germany

Gender: M ☐ F ☐

Age: a) below 30 b) 31 to 45 c) 46 to 64 d) over 65

Occupation: _____

Do you have car? Yes ☐ No ☐

Knowledge about biofuels

1. **How much do you know about biofuels?**

   a) Nothing ☐ b) A little ☐ c) Much ☐

2. **Which Biofuel do you know? (1.-, 2.-, 3. Generation)**

☐ Vegetable oil ☐ Biomass-to-Liquid ☐ Biodiesel made out of seaweeds

☐ Biodiesel ☐ Biobutanol ☐ Biodiesel made out of Jatropha

☐ Bioethanol ☐ Bioethanol made out of Lignocellulose

☐ Biomethane

_____

_____

Media and other source of information

3. **Where did you hear about biofuels? Please name, if possible.**

TV: ☐ _____ Radio: ☐ _____

Internet: ☐ _____ Newspaper: ☐ _____

Exhibition: ☐ _____ Work: ☐ _____

Others: ☐ _____ None: ☐ _____

4. Do you remember whether you heard about biofuels in a specific context the first time? (for example a certain event)

_____

_____

Biofuel initiatives

5. Do you know any production or research facility of biofuels?

Locally:	Yes: ☐	No: ☐
In Germany:	Yes: ☐	No: ☐
In other countries:	Yes: ☐	No: ☐

_____

_____

_____

Role of the public policies

6. Which issues should first be addressed by German policies?

_____

_____

Please rank the following issues of importance to Germany in terms of an alternative drive system:

	Rank (1 – 5)
Independence of raw material imports	☐
Climate change	☐
Employment creation	☐
Regional value	☐
Independence of fossil fuels	☐

Your opinion about biofuels

7. Are you in favour or against biofuels? Why?

_____

_____

8. Are you in favour or against the greater use of biofuels? Why?

_____

_____

_____

9. Which alternative drive would you recommend instead of biofuels?

_____

_____

Further aspects

10. What do you think are critical points in the use of biofuels?

_____

_____

_____

11. Please rank the following negative aspects:

	Rank (1 – 6)
Problems with the engine	☐
Compete with food	☐
Monoculture	☐
Environmental destructions in exporting countries	☐
High price	☐
Ineffizient production	☐

Final open questions

12. Would you like to add anything about biofuels?

_____

_____

_____

Annex 3: Results of the public survey

	General information				Knowing about biofuels		Media and other sources of information		Biofuel initiatives				Role of the public policies						Your opinion about biofuels							Further aspects							
									Do you know any production or research facilities of biofuels?					Issues of importance to Germany in terms of an alternative drive system:					Are you in favour or against biofuels?			Are you in favour or against a greater use of biofuels made out of energy crops?				Please rank the following negative aspects:						
No.:	Gender	Age	Occupation	Do you have a car?	How much do you know about biofuels?	Which biofuels do you know?	Where did you hear about biofuels?	Do you remember whether you heard about biofuels the first time in a specific context?	Locally:	In Germany:	In other countries:	Examples:	Which issues should be adressed first by German politics?	Independence of raw material imports	Climate change	Creation of employment	Regional value	Independence of fossil fuel	In favour/ against	Conditions	Why?	In favour/ against	Why?	Which alternative drive would you recommend instead of biofuels?	What do you think are critical points in the use of biofuels?	Problems with the engine	Compete with food	Monoculture	Environmental destructions in exporting countries	High price	Inefficient production	Would you like to add anything about biofuels?
1	M	a	Engineer Landscape Architecture	Yes	b	Vegetable oil; biodiesel; bioethanol	Newspaper; Others: course of study	No	Yes	Yes	No		Stability of the European currency; reduction of subsidies in agriculture; health policy;	4	1	2	5	3	In favour	Not to much; no subventions	biofuel is environmental friendly	No response		None	land use; subventions	6	2	1	3	5	4	No
2	M	a	Student	No	b	Vegetable oil; biodiesel; bioethanol; Biomass-to-Liquid; biomethane; Biodiesel made out of seaweeds	TV: N24, NTV; Radio: BR5, BR2; Newspaper: TZ, BD; Internet; Work: BMW	Oil crisis 1991 (Second gulf war)	Yes	No	No	FIZ – BMW Munich	Support of the European Union; improve their exemplary function	1	2	5	3	4	In favour	None	Biofuels have a great future; fossil fuels are [illegible]	Against	Prefers the straight use of seaweeds because they grow fast and do not need agricultural fields.	Combination of a combustion and an electrical engine (combustion engine just for electricity)	Compete with food; add mixture to fossil fuel	4	1	2	3	6	5	No
3	M	a	Brewer	Yes	b	Vegetable oil; biodiesel; bioethanol; biomethane	TV; Internet; Newspaper	First business lecture at the Technical University of Munich	No	No	No		Military withdrawal of German soldiers from foreign countries; stability of the European currency	3	4	1	2	5	In favour	None	Reduction of the dependence of raw material imports	In favour	Energy crops are regrowing	Electric drive	Enormous land use; susceptibility to pests	6	1	3	5	4	2	No
4	M	a	Trainee	Yes	b	Vegetable oil; bioethanol	TV: ARD (Tagesthemen); Internet: Spiegel online	Famine in Africa (2011)	No	No	No		Finance policy	2	4	3	5	1	In favour	None	Interested in biofuels	In favour		Hybrid; electric drive; use of hydrogen	Compete with food	6	1	4	3	2	5	Biofuel is the right choice for the future.
5	F	a	Student	No	b	Vegetable oil; biodiesel; bioethanol; biobutanol; biomethane	Radio: Advertisement; Newspaper: BZ; Others: university	First chemical lesson at school	No	No	No		Loss of milk quota 2013; subventions for the agriculture	5	1	4	3	2	In favour	None	Reduction of CO2 emissions	In favour	Uses renewable resources	Use of hydrogen	Compete with food	5	2	1	3	6	4	No
6	F	a	Nurse	No	b	Vegetable oil; biodiesel; Biomass-to-Liquid	TV; Newspaper: Bunte; Wirtschaftswoche; Die Zeit; Others: Course of study	No	No	Yes	No	TFZ-Straubing	Decentralized energy supply; reform of the education system	1	5	4	3	2	In favour	Produced in own country; transport distance short.	Independence of fossil fuel	In favour	Very useful and environmentally friendly in the transport sector.	more car pool; more efficient cars	Monoculture; difficulties with the politics	4	5	1	2	6	3	Especially to support it in a decentralized solution.
7	F	a	Student	No	b	Vegetable oil; biodiesel; bioethanol	TV: ARD, ZDF; Radio: BWR3, Bayern 3; Newspaper: BZ, Express	No	No	No	No		Renewable energies; policy of peace	5	2	4	3	1	In favour	Has to be produced sustainable.	Alternative of fossil fuels	In favour	Part of the renewable energies	Electric drive	Sustainability; compete with food	6	1	4	2	5	3	Better information policy about biofuels.
8	F	a	Trainee	Yes	b	Vegetable oil; bioethanol	TV; Radio; Newspaper	No	No	No	No		Stability of the European currency	5	1	4	3	2	Against	None	Compete with food	Against	Compete with food	Electric drive; public transport	Compete with food	5	1	2	3	6	4	No
9	M	b	Research Assistant	No	b	Bioethanol	TV: ZDF (Heute Journal), documentations	No	No	No	No		Support of the European Union	2	3	4	5	1	In favour	None	Independence of raw material imports and fossil fuels	In favour	Independence of raw material imports and fossil fuels	Hydrogen; electric drive; gas	Compete with food; deforestation	4	1	2	3	6	5	No
10	M	b	Engineer – Paper technology	Yes	b	Vegetable oil; bioethanol	TV: ZDF; advertisements	No	No	No	No		Faster and more consistent implementation of renewable	4	5	2	1	3	Against	None	Compete with food	Against	Prefers an other alternative drive than biofuels.	Electric drive; hydrogen	Compete with food	2	1	3	4	6	5	No
11	M	b	Economist	Yes	b	Vegetable oil	TV: ARD (Tagesthemen), ZDF; Newspaper: Spiegel	No	No	No	No		Stability of the European currency; integration policy	1	4	2	5	3	In favour	None	Keep innovativeness of Germany thus keep competitive.	Against	Other engines	None	Compete with food; climate damaging	4	2	3	1	6	5	No
12	M	b	Student	Yes	b	Biodiesel; bioethanol; biomethane	TV; Radio; Internet; Newspaper: Spiegel	No	No	No	No		Stability of the European currency	2	4	3	5	1	In favour	None	Fossil fuels should not be wasted.	Against	Prefers the support of other renewable energy sources.	Electric drive	Compete with food	6	1	2	5	4	3	No
13	F	b	Risk management	Yes	b	Vegetable oil; biomethane	TV: News; Work: brochures	Automobile exhibition in Genf 2008	No	No	No		Environmental protection; preservation of the nature	5	2	4	3	1	In favour	None	Political independence and environmental protection	In favour	High potential of biofuel	Bus	Sustainability	6	1	4	2	3	5	More information about biofuels
14	F	b	Bookseller	No	b	Biodiesel; bioethanol	TV: ARD (Tagesthemen); Newspaper: BZ; Others: Course of study	Oil crisis 1991 (Second gulf war)	No	No	No		European policy; debt crisis; labour market	3	2	1	5	4	Against	None	Compete with food	Against	Compete with food	Electric drive; hydrogen	Compete with food; mixture	5	1	3	2	6	4	No
15	F	b	Doctor	Yes	b	Vegetable oil; bioethanol	TV: ARD, ZDF; Radio: Antenne Bayern; Newspaper: BZ	No	No	No	No		Stability of the European currency	5	4	3	2	1	Against	None	Compete with food	Against	Compete with food	Electric drive; hybrid	Compete with food	4	1	2	3	6	5	More information about biofuels
16	F	b	Painter	No	b	Vegetable oil	TV: ARD (Tagesthemen); Newspaper	No	No	No	No		Decrease of the costs of living; increase the wages	3	4	5	2	1	In favour	If no compete with food	Environmental friendly	In favour	Substitute for fossil fuels	Public transport	Compete with food	6	1	2	5	4	3	Biofuels are only a part of a solution.
17	M	c	Environmentally assistant	No	b	Bioethanol; biomethane	TV: Phoenix, N24; Internet; Newspaper	When the political party "Die Grünen" was elected in the "Bundestag".	No	No	No		Environment and finance policy	2	3	4	1	5	Against	None	Against pure combustion engines. Prefers the use of electric drive.	Against	Against pure combustion engines. Prefers the use of electric drive.	Electric drive; hybrid	Compete with food	6	1	2	3	4	5	No
18	M	c	Hairdresser	Yes	b	Biodiesel; bioethanol	TV: ZDF (Heute Journal); Radio: Bayern 3; Newspaper: BZ	No	No	No	No		Stability of the European currency; reduction of subsidies	2	4	1	5	3	In favour		Independence of the fossil fuels	In favour	Independence of the fossil fuels	Electric drive; gas	Compete with food	5	1	2	3	6	4	Wishes more information about biofuels
19	M	c	Printer	No	b	Vegetable oil	TV; Radio; Newspaper: BZ	Oil crisis 1991 (Second gulf war)	No	No	No		Environmental policy; stability of the European currency	5	1	2	3	4	Against	None	Compete with food	Against	Environmental destruction	Electric drive	None	6	2	1	3	4	5	Intensification of research plus more research money
20	M	c	Mechanical Master	Yes	b	Bioethanol	TV: ARD, ZDF, Dritte; Radio; Newspaper	No	No	No	No		Stability of the European currency; no more debts; energy policy	5	3	4	2	1	In favour	More energy should be saved	Practical	In favour	More environmental friendly than the use of fossil fuels.	Electric drive; gas	Compete with food; agricultural raw material will get more expensive	5	1	3	2	6	4	No more money for nuclear research; more money for research in the bioenergy sector. More informations about biofuels.
21	F	c	Non-medical practitioner	Yes	b	Vegetable oil; bioethanol	TV; Radio: BWR1; Others: Petrol station	No	No	No	No		Not interested in politics.	2	5	3	1	4	In favour	None	Free of charge.	Against	Monoculture	Free energy; water power	Monoculture	6	1	2	3	5	4	Development of the way of thinking
22	F	c	Housewife	Yes	b	Biodiesel; BtL-Fuel	TV: ARD, ZDF; Radio: Bayern 1/3; Newspaper: TZ, Die Zeit	No	No	No	No		Stability of the European currency; no more debts	4	2	1	5	3	In favour	If they do not compete with foods.	Can be produced in Germany	Against	Not enough space for food left	Electric drive	Compete with food	2	1	3	5	4	6	No
23	F	c	Stewardess	Yes	b	Vegetable oil; biodiesel; bioethanol	TV; Newspaper: BZ	No	No	No	No		Accelerate the decentralization	5	1	3	4	2	In favour	If produced of waste	Regional produced	Against	Compete with food	Bicycle; public transport	Compete with food	6	2	1	3	5	4	No
24	F	c	Teacher	Yes	b	Vegetable oil; bioethanol	TV: ARD; Newspaper: BZ	No	No	No	No		Accelerate the decentralization	1	2	4	5	3	In favour	None	No more need of fossil fuels	In favour	No more need of fossil fuels	Electric drive	Compete with food; over-fertilization	4	1	2	3	5	6	More informations about biofuels
25	M	d	Pensioner	Yes	b	Bioethanol	TV: TF1; Others: Petrol station	No	No	No	No		Country policies	4	5	1	3	2	In favour	Especially in South America. They have got a lot of land to use.	Solution for the energy question.	Neutral	Not in Europe but in South America.	Hydrogen; electric drive	Compete with food	3	1	2	6	5	4	Biofuel has no future. It is just a temporary solution.
26	M	d	Pensioner	Yes	b	Biomethane	TV: BR; Radio; Newspaper: BZ, Merkur, Abendzeitung	No	No	No	No		Renewable energies; end of nuclear power	5	1	2	4	3	In favour	If they do not compete with food		Against	Compete with food	Hydrogen	Compete with food; needs too much floor space	3	1	2	4	6	5	To control the greed for profit; contain the exploitation of developing countries; global change of thinking
27	M	d	Pensioner	Yes	b	Bioethanol	Internet; Newspaper: BZ	No	No	No	No		Stability of the European currency; economic policy	3	1	3	5	4	In favour	If the prices for agricultural raw materials keep stable.	Practical use of the land	In favour	Part of a solution for the future energy demand	Electric drive; hydrogen; car sharing	Compete with food; moral decay (use of food for energy)	5	1	2	6	4	3	No
28	M	d	Pensioner	No	b	Vegetable oil	TV; Radio; Newspaper; Work	No	No	No	No		Accelerate the decentralization	2	3	5	4	1	In favour	None	Independence of fossil fuels	Against	Destruction of the nature	No	None	1	5	3	2	6	4	No
29	F	d	Pensioner	Yes	b	Vegetable oil; bioethanol	TV; Radio: Bayern 1; Others: books	No	No	No	No		Finance and environment policies	1	3	4	5	2	In favour	None	Independence of raw material imports.	In favour	If more biofuel would be produced, it would become cheaper.	No	Compete with food	3	1	2	6	4	5	No
30	F	d	Pensioner	No	b	Bioethanol	TV: ARD; Newspaper: BZ	No	No	No	No		Stability of the European currency; Less economical losses, more population losses	3	1	2	4	5	Against	None	Lost space for food.	Against	Lost space for food.	No	Compete with food	6	1	2	3	5	4	No
31	F	d	Pensioner	No	b	Vegetable oil; bioethanol	TV: BR; Radio: Bayern 1; Newspaper: TZ	Oil crisis 1991 (Second gulf war)	Yes	No	No	TFZ-Straubing	Guarantee of the pension	4	1	2	5	3	In favour	None	Well for the environment.	Against	Lost space for food.	No	Compete with food	3	1	4	2	5	6	Wishes more information about biofuels
32	F	d	Pensioner	No	b	None	TV: BR; Newspaper: BZ, Merkur	No	No	No	No		Food for all humans economically; save money	5	4	1	2	3	Against	None	Wasting of food.	Against	Wasting of food.	No	Compete with food	6	1	2	3	4	5	Using biofuels is the wrong way.

Annex 4: Biofuel stakeholder in Germany and contact details

Governmental Institutions - Biofuel stakeholders in Germany:

Name	Contact details
European Parliament	Email: via contact form
European Commission	European Commission in Germany Unter den Linden 78 D-10117 Berlin Tel: +49 (0) / 30-2280 2000 Fax: +49 (0) / 30-2280 2222 Email: via contact form
Federal Ministry of Environment, Nature, Conservation and Nuclear Safety (BMU)	BMU Stresemannstraße 128 - 130 D - 10117 Berlin Tel: 030 18 305-0 Fax: 030 18 305-2044 Email: service@bmu.bund.de
Federal Ministry of Food, Agriculture and Consumer Protection (BMELV)	BMELV Wilhelmstraße 54 D-10117 Berlin Postanschrift: 11055 Berlin Tel.: +49 (0) 3 0 / 1 85 29 - 0 Fax: +49 (0) 3 0 / 1 85 29 - 31 79 Email: poststelle@bmelv.bund.de
Federal Ministry of Finance (BMF)	BMF Wilhelmstraße 97 10117 Berlin Postanschrift: 11016 Berlin Tel.: +49 (0) 3018 / 682 - 0 Fax: +49 (0) 3018 / 682 - 32 60
Federal Agency of Agriculture and Alimentation (BLE)	BLE Deichmanns Aue 29 53179 Bonn Tel: +49 (0) / 228 6845-0 Email: via contact form

Private Sector - Biofuel stakeholder in Germany:

Name	Contact Details
German Farmers Association (DBV)	Deutscher Bauernverband Geschäftsstelle Berlin Claire-Waldoff-Straße 7 10117 Berlin Tel.: +49 (0) 30 / 31 904 0 Fax: +49 (0) 30 / 31 904 431 Email: m.lohse@bauernverband.net (press officer)
Federal Association of the German Bioethanol Sector (BDBe)	BDBe Reinhardtstraße 18 D-10117 Berlin Tel.: +49 (0) 30 / 301 29 530 Email: mail@bdbe.de
Union for the Promotion of Oil and Protein Plants (UFOP)	UFOP Claire-Waldoffstr. 7 10117 Berlin Tel.: +49 (0) 30 / 31 90 42 02 Fax: +49 (0) 30 / 31 90 44 85 Email: info@ufop.de
European Biodiesel Board (EBB)	EBB Boulevard Saint Michel 34 1040 Brussels, Belgium Tel.: +32 (0) 2 763 2477 Fax: +32 (0) 2 763 0457 Email: info@ebb-eu.org
Working Group Quality Management Biodiesel e.V. (AGQM)	AGQM Claire-Waldoff-Straße 7 D-10117 Berlin Tel.: +49 (0) 30 / 31904433 Fax: +49 (0) 30 / 31904435 Email: info@agqm-biodiesel.de
Association of the German Biofuel Industry (VDB)	VDB Am Weidendamm 1A D-10117 Berlin Tel.: + 49 (0)30 – 72 62 59 11 Fax: + 49 (0)30 – 72 62 59 19 Email: info@biokraftstoffverband.de
Archer Daniels Midland Company (ADM)	ADM Beteiligungsgesellschaft mbH Glockengiesserwall 22 D-20095 Hamburg Tel.: +49 (40) 533 026 -0 Fax: + 49 (40) 533 026 -933

Name	Contact Details
Biopetrol	BIOPETROL INDUSTRIES AG Baarermattstrasse 3 CH-6340 Baar Maarten Roelfs Tel.+41 (0) 41.727 81 10 Fax +41 (0) 41.720 17 18 Email: info@biopetrol-ind.com
VERBIO	VERBIO Vereinigte BioEnergie AG Augustusplatz 9 D-04109 Leipzig 1. Frank Strümpfel (Public Relations) 2. Anna-Maria Schneider (Investor Relations) Tel.: +49 (0) 341 30853090 Fax: +49 (0) 341 30853099 Email1.: pr@verbio.de Email2.: ir@verbio.de
General German Automobile Club (ADAC)	Via contact form on their website
Society for the certification of sustainably produced biomass (REDcert)	REDcert GmbH Südstrasse 133 D-53175 Bonn Tel.: +49 (0) 228 3506 - 100 Fax: +49 (0) 228 3506 – 109 Email: info@redcert.de
International sustainability and Carbon Certification (ISCC)	ISCC System GmbH Weissenburgstr. 53 D-50670 Köln Tel.: +49 (0) 221-17932966 Fax: +49 (0) 221-9415863 Email: via contact form

Scientific Institutions - Biofuel stakeholder in Germany:

Name	Contact details
Agency of Renewable Resources (FNR e.V.)	OT Gülzow Hofplatz 1 D-18276 Gülzow-Prüzen Tel.: +49 (0) 38 43/69 30-199 Fax: +49 (0) 38 43/69 30-102 Email: info@fnr.de
Federal Environment Agency (UBA)	Umweltbundesamt Bismarckplatz 1 D-14193 Berlin Tel.: +49 (0) 340 / 2103 2130 Fax: +49 (0) 340 / 2104 2130 Email: info@umweltbundesamt.de

Name	Contact details
German Center for Biomass Research (DBFZ)	DBFZ Torgauer Str. 116 D-04347 Leipzig Tel.: +49 (0)341 / 2434 0 Fax: +49 (0)341 / 2434133 Email: frank.scholwin@dbfz.de
Institute for Energy and Environmental Research (ifeu Institute)	Ifeu – Institut Wilckensstraße 3 D-69120 Heidelberg Tel.: +49 (0) 6221 / 47 67 -0 Fax: +49 (0) 6221 / 47 67 -1 Email: ifeu@ifeu.de
Institute for Applied Ecology (Öko Institut e.V.)	Öko Institut e.V. Merzhauser Straße 173 D-79100 Freiburg Tel. +49 (0) 761/45295-0 Fax +49 (0) 761/45295-88 Email: info@oeko.de
Helmholtz Centre for Environmental Research (Helmholz-Zentrum für Umweltforschung)	Dr. Daniela Thrän Tel.: +49 (0) 341 / 235-1267 Fax: +49 (0) 341 / 243-4133 Email: daniela.thraen@ufz.de
United Facilities for Plant Oil Technology (VWP)	VWP Deutschland Am Steigbühl 2 D-90584 Allersberg Tel.: +49 (0) 9174 / 2862 Fax: +49 (0) 9174 / 2621 Email: via contact form
Federal Association of German Plant Breeders (BDP e.V.)	Ulrike Amoruso-Eickhorn Tel.: +49 (0) 228 / 98581-17 Email: uamoruso@bdp-online.de
Technology and Support Centre Straubing (TFZ)	TFZ Schulgasse 18 D-94315 Straubing Tel.: +49 (0) 9421 / 300-210 Fax: +49 (0) 9421 / 300-211 Email: via contact form → www.tfz.bayern.de

NGOs - Biofuel stakeholders in Germany:

Name	Contact Details
Greenpeace	Marienstraße 19 - 20 D-10117 Berlin Tel.: +49 (0) 30 / 308899-0 Fax: +49 (0) 30 / 308899-30 Email: mail@greenpeace.de
WWF	WWF Deutschland-Zentrale Reinhardtstraße 14 10117 Berlin Tel.: +49 (0) 30 311777-700 Fax: +49 (0) 30 311777-888 Email: via contact form
German League for Nature and Environment (DNR)	DNR Berlin Marienstraße 19 D-10117 Berlin Tel.: +49 (0) / 6781775 -70 Fax:+49 (0) / 6781775 – 80 Email: via contact form
Nature and Biodiversity Conversation Union (NABU)	NABU Charitéstraße 3 10117 Berlin Tel.: +49 (0) 30-28 49 84-0 Fax: +49 (0) 30 / 28 49 84- 20 00 Email: NABU@NABU.de
Coalition for Environment and Nature Conversation (BUND)	BUND Am Köllnischen Park 1 D-10179 Berlin Carsten Fritsch Tel.: +49 (0) 30 / 2 75 86 - 469 Fax: +49 (0) 30 / 2 75 86 - 440 Email: info@bund.net