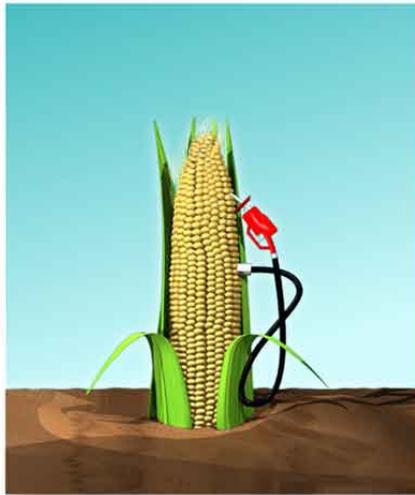


# FAIR-FUELS? A socio-ecological analysis of the transnational policy on biofuels production, use and trade

New Thematic Research Group on biofuels



Decarbonizing Europe and the World:  
European Climate Policy – Internal and  
External Dimensions  
2nd International Summer School on  
Sustainable Development  
EA Otzenhausen, August 24th, 2009  
Thomas Vogelpohl  
Institute for Ecological Economy Research  
IÖW – Institut für ökologische  
Wirtschaftsforschung, Berlin

| i | ö | w

## Overview



- **Brief introduction into biofuels**
- **Conflicts behind biofuels**
- **Biofuels policy: the EU's approach**
- **The FAIR-FUELS project**
- **The case study on the EU and Germany**
- **Conclusions**

# Brief introduction into the IÖW and the project FAIR-FUELS



- **Institute for Ecological Economy Research (non-profit)**
  - Founded in 1985
  - Responsible unit: sustainable energy & climate protection
  - Main fields of work: renewable energies, in particular biomass
- **Recently started large-scale, joint research project on biofuels: FAIR-FUELS?**
  - A socio-ecological multi-level analysis of transnational policy on biofuels and their potential to transform current energy systems
  - Projection duration: 2009–2013, funded by the German Federal Ministry of Education and Research (BMBF), partners: German Development Institute, Institute for Latin American Studies at the Free University Berlin

3

i | ö | w

## From “Zero to Maximum” use: highly emotional and polarised debate about biofuels



- **Many drivers behind biofuels policy debates: between hope and horror for the climate, environment, poor farmers, developing countries, energy security ...**
- **Biofuels are a complex product**
  - many different input and output products (from feedstock to fuels) = different supply chains (value chains) with international dimensions
  - therefore standardized assessment is generally difficult, data & information along the supply chains is missing, assessment often depends on different assumptions, system boundaries
- **Biofuels are a complex governance matter**
  - Various economic and civil society actors and stakeholders involved: from small scale companies on a local level to a global business of transnational actors of agro-, oil-, and automotive-industries, environmental, social, development NGOs etc.
  - Different political levels create decision-making problems and target conflicts: biofuels in between many political & regulative fields with many (different) interests

4

i | ö | w

# General questions concerning the use of biofuels

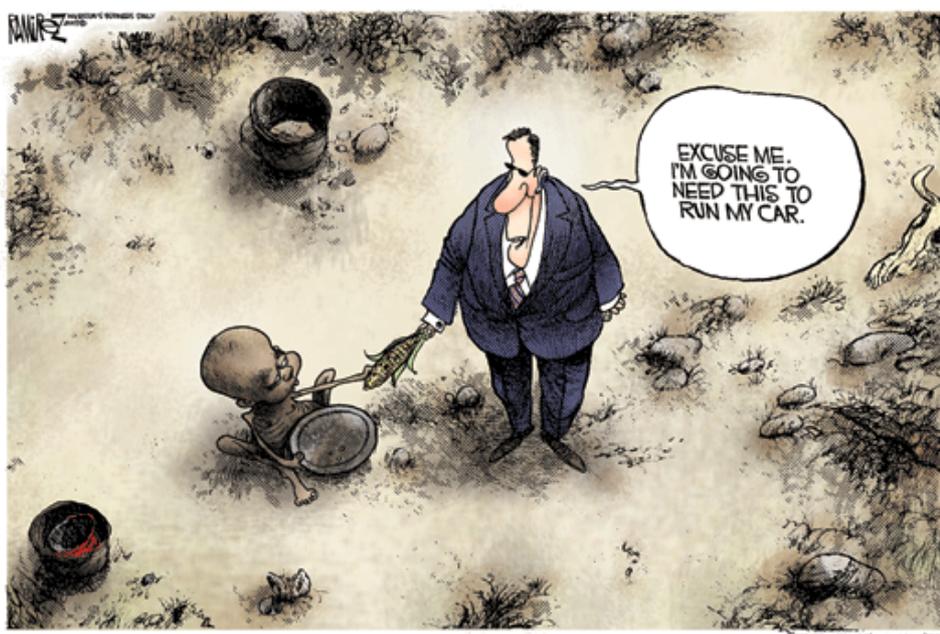


- **Central (ecologically based) argument against biofuels in general:**
  - Shouldn't we use the rare biomass only in the most efficient way?
  - “mainstream”-result of many studies: producing heat/electricity out of biomass is more efficient than producing biofuels
  - Counter Question: Do we have alternatives in the transport sector in the short to medium term to reduce climate change and to find a substitute for the oil-based infrastructure?
- **Biofuels seem to be necessary at least in short to medium term to achieve the climate reduction goals in the mobility sector *and* to reduce dependency on oil**

5

i | ö | w

# Conflicts behind biofuels: food vs. fuel I



6

i | ö | w

## Conflicts behind biofuels: food vs. fuel II



- **Consensus about a wide range of influencing factors on food prices (and also on the more general problem of hunger and poverty)**
  - **More recent studies from OECD paint a differentiated picture of the last price peaks but indicate a significant influence of biofuels**
  - **This interlinkage of biofuel feedstock markets and food markets has to be regarded – but it is important to emphasise the by far larger problem of meat consumption and the associated fodder production**
  - **Higher crop prices are problematic for food consumption in poor countries – but on the other hand it can lead to higher income and provide new opportunities for farmers with “marginal land”**
- **in this regard empirical knowledge about regional benefits is needed**

## Conflicts behind biofuels: greenhouse gas balance



- **Many studies conclude that some biofuels of the 1<sup>st</sup> generation have a negative GHG balance**
  - **The conflict between 1<sup>st</sup> and 2<sup>nd</sup> generation**
    - **Predominant result of many studies: 2<sup>nd</sup> generation is more efficient than 1<sup>st</sup> generation due to higher land efficiency and less GHG-emissions**
    - **Critique / argument pro 1<sup>st</sup> generation: they deliver by-products like fodder which do not need to be produced additionally – this is not considered (sufficiently) in most of the life-cycle analyses**
- **Many uncertainties remain concerning the GHG balance of biofuels**
- **Results very much depend on the biofuel considered and the assessment method and depth**

## Conflicts behind biofuels: land use competition



- **Biofuel associations: “There is no real land use competition between food and fuel production” – central arguments:**
  - Only 2% (30 Mio. ha) of 1,5 Mrd. ha arable land is used for worldwide feedstock production of biofuels (FAO)
  - Estimated amount of degraded land worldwide (usable for biofuels): 500 Mio. ha (FAO)
  - No food shortage: Production of food adds up to 130% of world demand
- **OECD: “there is significant land use competition – leading to rising food prices: if EU and USA targets will be fully implemented then “20% of global vegetable oil production and 14% of world coarse grain output could shift to biofuel production” (OECD 2008)**
- **There is a wide consensus that within the EU there is not enough land available for energy crop production, and that the 10%-target cannot be realized without imports**

9

| i | ö | w

## Conflicts behind biofuels: climate vs. environmental protection



- **Impacts on biodiversity, soil and water – very sensitive environmental criteria**
- **Depending on the degree of land use change, use of fertilizers and chemicals, water intensity of the crop system etc.**
- **Hardly considered due to methodological problems:**
  - difficult to measure and to compare, data and appropriate models are missing
  - Highly problematic: indirect effects: relocation of food/feed crops by energy crop lands that causes the conversion of ecologically valuable land – like rainforests
- **Many uncertainties remain concerning the environmental impacts of biofuels**

10

| i | ö | w

## Conflicts behind biofuels: Who profits?



- **Who profits (along the supply chain)?**
  - Small or big farmers? The local small scale biofuels industry or transnational oil- and agro-companies?
- **Benefits for developing countries?**
  - New income opportunities for developing countries and poor farmers?
  - Or do biofuel policies “deepen poverty and accelerate climate change”? (Oxfam 2008 in “Another inconvenient truth”, also Greenpeace, etc.)
- **Difficult economic assessment of biofuel imports**
  - Developing countries perspective:  
Biofuel exports could lead to economic benefits for the “green oil” countries – but: do the benefits reach the farmers and farm workers?
  - Industrialised countries perspective:  
Imports may be the cheaper option – but the loss of regional value creation should be considered

11

| i | ö | w

## Biofuels governance: policymaking on a high level of uncertainty



- **Under the described circumstances, it is anything but easy to ...**



- **... but despite these uncertainties, policies have already been made on national and international levels**

12

| i | ö | w

# EU policy approach to biofuels: the biofuel directive of 2003 and its impacts



- **Directive 2003/30/EC on the promotion of the use of biofuels**
  - Non-legally binding targets of a 2% share of biofuels in 2005 and a 5.75% share in 2010
  - The target for 2005 has not been reached → only 1% biofuels share according to the Commission's Biofuels Progress Report from January 2007
  - Only three countries have reached their national targets in 2005 (Austria, Sweden, Germany)
  - The Commission's conclusion is therefore that the biofuels directive's target for 2010 is not likely to be achieved
- **The Commission concluded that the biofuel directive needed to be revised in order to “send a signal of its determination to reduce its dependence on oil use in transport and move to a low carbon economy and to set minimum standards for the share of biofuels in 2020 (10%)”.**

13

| i | ö | w

# EU policy approach to biofuels: rising concerns about the sustainability of biofuels



- **As of ca. 2005 several studies question the environmental and social sustainability of biofuels**
  - Negative GHG balance?
  - Environmental damage rather than protection?
  - Diverting food crops into fuels and thus exacerbating the world hunger problem?
  - Deepening poverty and exacerbating working conditions for farm workers?
- **These studies are well received and turned into substantial public criticism on the current support policies for biofuels by environmental and development NGOs**

14

| i | ö | w

## EU policy approach to biofuels: the renewable energies directive of 2009



- **Directive 2009/28/EC on the promotion of renewable energies**
  - Despite the massive criticism, the EU is willing to keep up support for increased production and use of biofuels in Europe
  - The directive sets up a binding target of a share of 10% for the use of biofuels to be reached by 2020
  - This target, however, is bound to sustainability criteria
  - Biofuels that are supposed to be allowed for in this context now have to fulfill the following criteria: GHG reduction of min. 35%; the biofuel shall not be made from raw material obtained from land with high biodiversity value, high carbon stock, or that was peatland before 2008
- **The EU has incorporated the public concerns about the environmental sustainability of biofuels into the new directive on biofuels, whereas the concerns about their social sustainability have mainly been left out**

15

| i | ö | w

## EU policy approach to biofuels: certification systems for biofuels



- **The EU suggests the compliance of biofuels with the aforementioned sustainability criteria to be monitored by multinational certification systems**
- **Initiatives for the development of certification systems started already in several countries / regions**
  - For example in NL, GB, DE or in Brazil and Indonesia
  - Most promising effort is: Roundtable on Sustainable Biofuels (RSB)
- **Problems of multinational certification schemes:**
  - International consensus will probably lead to a weak and reduced set of criteria
  - Costs and effort induced by the instrument are difficult to balance
  - Credibility of controls, of voluntary specifications and even of governmental agreements
- **Recent critique:**
  - **incompleteness of schemes → focus on GHG, other environmental effects as well as social effects are disregarded**

16

| i | ö | w

## Conclusion and starting point for the FAIR-FUELS project

---



- On a global scale, the promotion of biofuels - concerning planning and policy objectives – is still only beginning
- Already now crisis phenomena are becoming apparent, which raise reasonable fears about the sustainability of the current development
- A heated debate emerged, which provides space for a superficial and overly simplistic conviction, appraisals, and (further) irritations
- Already first moratoriums and policy changes (e.g. on EU level) - but also adherence to principles
- Strong international controversy over approaches such as certification systems
- The starting point of the project/deficit analysis: An integrated analysis and policy consultancy, taking into account the socio-ecological effects and potential value added of the promotion of biofuels, is currently missing on a national as well as on an international level.

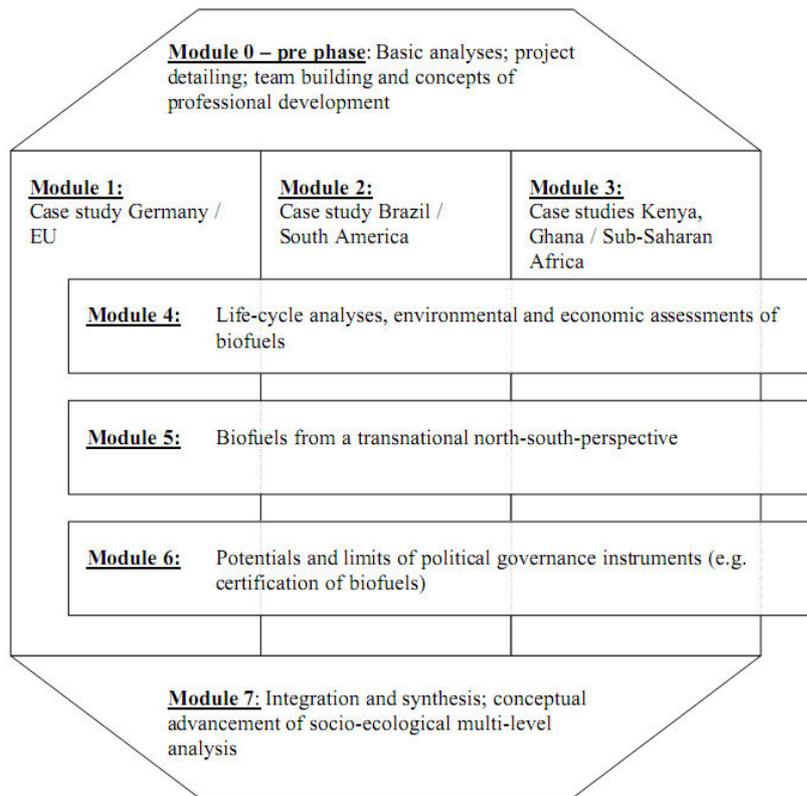
## The FAIR-FUELS project: main research goals

---



- Identification and analysis of the key socio-ecological and political-economic conflicts and problems of biofuels, taking into account the multi-level and cross-sectoral interdependencies  
(Case studies in Europe, South America, Africa)
- Identification of policy approaches to integrate socio-ecological concerns and economic requirements in the field of agricultural fuel production (including process consultancy of stakeholder and policy-making processes)
- Establishment and advancement of an inter- and transdisciplinary as well as multi-level scientific research approach for the analysis of socio-ecological conflict situations (multi-level approach)

# The FAIR-FUELS project: research modules



- **Important: close connection between modules and professional development**
- **Interlocking modules produce synergies**
- **M 1-3 deal with interdisciplinary issues in an integrated way – reduced workload for M 4-6**
- **Module 7 is a collective project module (integration)**

19

i | ö | w

# The FAIR-FUELS project: consortium



- **Project co-ordinator: Institute for Ecological Economy Research (Dr. Bernd Hirschl)**
  - M6 (political instruments; certification schemes): Dr. Bernd Hirschl
  - M1 (case study EU/Germany; multi-level policy analysis): Thomas Vogelphohl
  - M4 (systems analysis; environmental and economic assessment): Elisa Dunkelberg
  - Project assistance: Anna Neumann
- **Free University Berlin – Institute for Latin American Studies (Prof. Dr. Sergio Costa)**
  - M5 (transnational north-south perspectives): Dr. Kristina Dietz
  - M2 (case study South America/Brazil): Maria Backhouse
- **German Development Institute (Dr. Michael Brüntrup)**
  - M3 (case study Sub-Saharan Africa/Kenya, Ghana): Raoul Herrmann

20

i | ö | w

## The EU/Germany case study: background and starting point for research



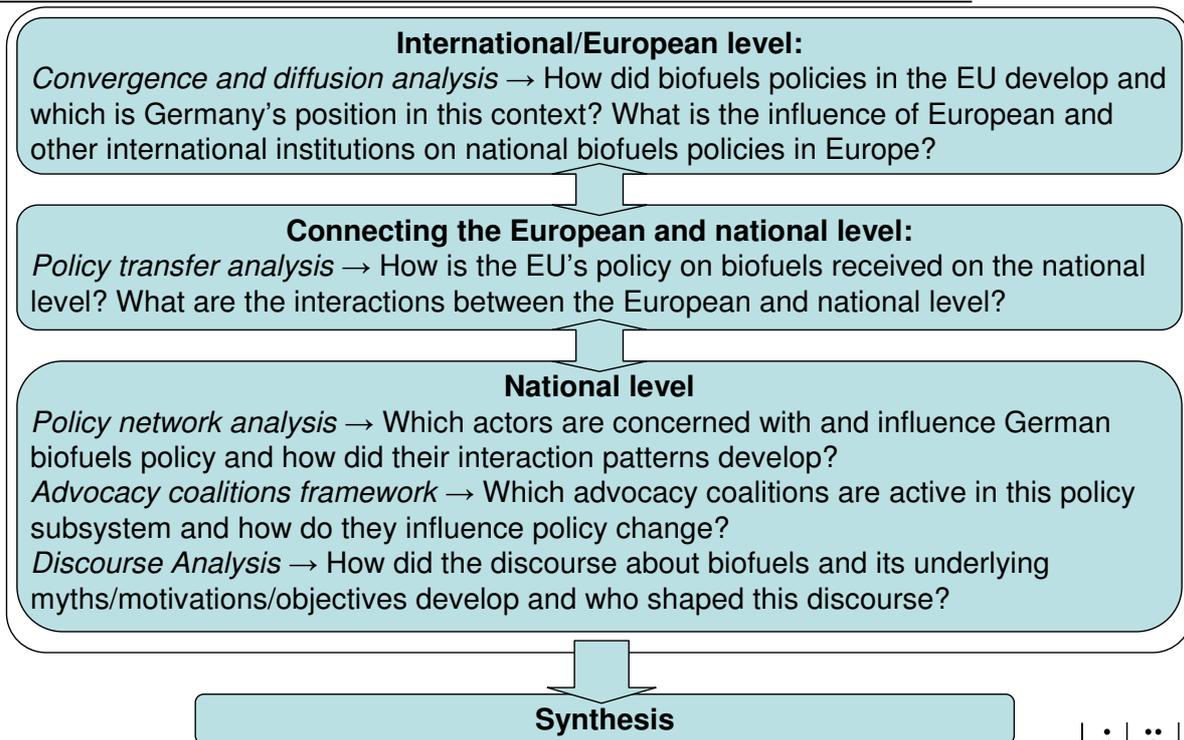
- At a first glance, the German biofuels policy seems to be a European success story → 7.3% share of biofuels in 2007 → the EU target for 2010 has already been met
- Prevailing explanation: long-term political promotion via tax exemptions since the 1980s
- In 2006, a policy change occurred: gradual reduction of tax exemptions and replacement by obligatory biofuel quotas
- In July 2009, the German parliament passed a sustainability ordinance for biofuels, according to which biofuels are bound to certain sustainability criteria (in compliance with EU directive)
- At the same time, the biofuel quota has been lowered to 5.25% and will be frozen at 6.25% from 2010 until 2014

## The EU/Germany case study: main research questions



- **How did the German biofuels policy come about, how can the policy change be explained in this context, and which actors were significantly responsible for this? What was the particular influence of non-state actors?**
- **How did the relevant discourses and arguments develop or change? Which are the main conflicts?**
- **What is the role of particular ecological and economic arguments? Which of those arguments are given and what is hidden?**
- **Which were the key drivers for the current biofuels development, and which are expected to be future drivers?**
- **Which role did international actors play on the national level and, vice versa, how did national actors (try to) influence EU level politics to shape the EU biofuels policy?**

# The EU/Germany case study: (preliminary) conceptual approach: multi-level policy analysis



23

i | ö | w

# The EU/Germany case study: hypotheses/preliminary conclusions



- The EU is massively influencing the spread and design of national biofuels policies in Europe.
- Germany clearly is a frontrunner in promoting biofuels in Europe and has strongly tried and achieved to influence the EU's policy approach – more than vice versa.
- German biofuels policy is shaped by an agriculture-oriented and an efficiency-oriented advocacy coalition, which are both tightly knit, as well as an environment-oriented advocacy coalition, which is more loosely organized.
- The agriculture-oriented advocacy coalition was most powerful and influential to the German biofuels policy until the mid-2000s; ever since a mixture of efficiency and environmental concerns and actors, although pursuing different agendas, did collectively grow more influential.
- The public discourse about biofuels changed from positive views to more critical perspectives, especially regarding the environmental social impacts of promoting biofuels; this did, however, NOT lead to the policy change in the first place.

24

i | ö | w

## General conclusions and outlook I



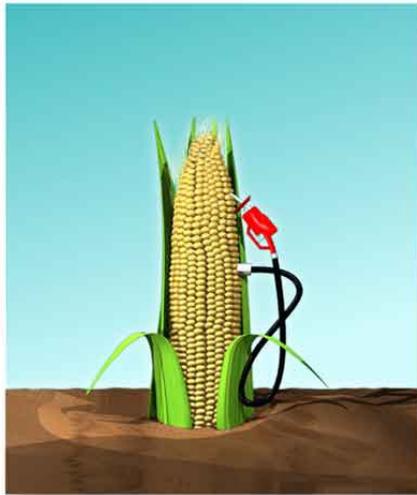
- The number and intensity of conflicts about biofuels is still rising – more dialogue and deeper knowledge is needed to find the right political answers.
- Biofuel demand will have increasing influence on food markets – even if it is less significant on a global scale, regional effects and impacts have to be considered.
- Biofuel demand will cause land use competition and conflicts between climate and environmental protection, therefore agricultural residues have to be preferred.
- The integration of social criteria (and also of indirect environmental effects) in certification schemes is necessary and has to be further explored.
- There is a need for more research on the economic effects of imports and of the value added at local and regional levels – in industrialized countries as well as in developing countries from the global south.

## General conclusions and outlook II



- Biofuels policy has become a very controversial issue in Europe since its inception in 2003.
- As a result, biofuels policy has undergone some significant changes.
- Even though climate protection became a prominent issue, it is still not the only main driver behind European biofuels policy and agricultural development and efficiency remain critical factors → many compromises have to be made
- Up to now, biofuels policy is less of a climate protection policy than it is sold by European governments (especially in Germany).
- Biofuels can contribute to climate protection; the reason for their proactive political support, however, are so far mainly other ones.
- From a climate protection policy perspective, biofuels so far remain a promise that is still far from becoming reality.

Thank you for your attention.



Thomas Vogelpohl  
Research Field  
Sustainable Energy Systems  
and Climate Protection

Institute for Ecological Economy Research  
IÖW – Institut für ökologische  
Wirtschaftsforschung, Berlin

[thomas.vogelpohl@ioew.de](mailto:thomas.vogelpohl@ioew.de)

[www.ioew.de](http://www.ioew.de)

[www.fair-fuels.de](http://www.fair-fuels.de)

| i | ö | w