

Hallier, B., 2004: EuroShop: Inspiration – Motivation – Innovation. Cologne

Hallier, B., 2011a: Outlets and Consumers in Permanent Evolution: A Thesis for a Multi-Dimensional and Interactive View. In: Kaufmann, H.-R. (ed.): International Consumer Behavior: A Mosaic of Eclectic Perspectives. Handbook on International Consumer Behavior. London, pp. 230–242

Hallier, B., 2011b: Von der Krise zur Kompetenz. From Crisis to Competence. Bonn

Jamann, W., 2013: Welthungerhilfe. Lecture in Cologne, March 19, 2013

Malthus, T.R., 1798: An Essay on the Principle of Population. London

Prince, R., 2014: Rise of Lidl Classes. In: Daily Mail July 12, 2014, p. 36

Tian, S., 2014: Bernie Brookes: A True-blue World-class Retailer. In: Retail Asia (2014), p. 22

Contact

Prof. Dr. Bernd Hallier
European Retail Academy
Veilchenweg 8, 51503 Rösrath
Email: b.hallier@gmx.net

« »

Sustainable Food Systems and EU Policies

by Andre Deppermann, Harald Grethe, and Jonas Luckmann, University of Hohenheim

The objectives of this article are to analyze key EU policies in view of their performance to achieve a shift towards a more sustainable food system and to hint at options for more coherent policies. The term “food system” is thereby helpful as it fosters a holistic view on the sustainability debate. We conclude that a substantial reallocation of EU funds among different policy domains is needed: first of all, within the Common Agricultural Policy (CAP) from direct payments to agri-environmental and animal welfare policies in the second pillar of the CAP. And second, potentially also from the budget of the CAP, or at least the current measures of the CAP, towards policies aiming at more sustainable consumption patterns, such as education, awareness raising campaigns, consumer information and research. Finally, the current bioenergy policy needs to be revised and support for biofuels from crops be ended.¹

Zielsetzung dieses Beitrages ist es, wichtige EU-Politiken im Hinblick auf ihren Beitrag zu einem nachhaltigerem Ernährungssystem und einer kohärenteren Politikgestaltung zu untersuchen. Der Begriff „Ernährungssystem“ ist hierbei hilfreich, da er einen ganzheitlichen Blick auf die Nachhaltigkeitsdebatte unterstützt. Zusammenfassend halten wir fest, dass eine substanzielle Neuverteilung der EU-Gelder zwischen den verschiedenen Politikfeldern erforderlich ist: An erster Stelle sollte innerhalb der Gemeinsamen Agrarpolitik der EU (GAP) eine Verlagerung von den Direktzahlungen zu den Politikfeldern Agrarökologie und Tierschutz in der zweiten Säule der GAP vorgenommen werden. Zum zweiten sollte potenziell aus dem GAP-Budget, oder zumindest bei laufenden Maßnahmen der GAP, eine Verschiebung hin zu Politiken, die auf ein nachhaltigeres Konsumverhalten zielen, wie beispielsweise Ausbildung, Kampagnen zur Bewusstseinsbildung, Verbraucherinformation und Forschung, erfolgen. Zu guter Letzt muss die aktuelle Bioenergiepolitik revidiert werden und die Förderung für Biokraftstoffe aus Nutzpflanzen eingestellt werden.

1 Introduction

In general, a (biological) system is said to be sustainable if it remains diverse and productive in the long run. One widely recognized definition for sustainability in economic terms was published by the Brundtland Commission of the United Nations in 1987: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (UNWCED 1987, p. 41) Over the years, more complex concepts have been developed which include the spheres of ecology, economy, and society, the latter of which has been split into culture and policy in recent models (Scerri/James 2010).

The production and consumption of food is an important factor in this respect as it touches all these domains and accounts for about one third of the total environmental impact² of households in the EU. Thereby, the direct environmental effects of food consumption are outweighed by indirect effects from the production and processing of food. Thus, policies aiming at reducing the environmental impact of food consumption have to consider a life cycle assessment (LCA) that involves the whole food chain or food system (EEA 2005). This has been acknowledged by the Standing Committee on Agricultural Research of the European Commission (EC) in 2011 which pointed out that a drastic change in both the supply and demand of agricultural products is needed and coherent policies are required to achieve a more sustainable food system (Freibauer et al. 2011).

Environmental sustainability requires the overcoming of market failures such as the internalization of positive and negative external effects and the provision of public goods. Regulatory as well as incentive policies, such as environmental taxes and subsidies, can play an important role in this process. Other policy measures can help to overcome market failure resulting from incomplete information. Furthermore, policy enforces ethical standards society agrees on, e.g. with respect to animal welfare. Finally, policies play an important role in the distribution of the cost involved in achieving a more sustainable food system among stakeholders of the food chain.

Given this background, the objectives of this article are to analyze key EU policies in view of

their performance to achieve a shift towards a more sustainable food system and to hint at options for more coherent policies. The term “food system” is helpful as it fosters a holistic view on the sustainability debate, which is often one-dimensional, neglecting the interplay between different sectors as well as between production and consumption and different policy domains. We concentrate on the discussion of specific EU policy domains addressing agricultural production and food consumption, which we consider the most important elements of sustainable food systems. Policies addressing the production of intermediate inputs for agriculture as well as policies addressing the transport and food processing sectors are not dealt with.

2 The Common Agricultural Policy

2.1 Background

The CAP is the main policy for the agricultural sector in the EU and has a long tradition. In the 1960s and 1970s, its main aims were an increase in production in order to provide food security for a growing population and income support to an agricultural sector that was shrinking in relative terms in the process of economic development. This aim was mainly pursued by a highly protectionist system of price support through high tariffs and domestic measures, such as intervention price systems.

During the 1980s, the EU turned into a net exporter for most agricultural products and increasingly relied on export subsidies which brought growing concerns from trading partners. In the context of increasing external pressure on the CAP during the multilateral trade negotiations in the General Agreement on Tariffs and Trade (GATT), the EU substantially reformed the CAP by reducing support prices for cereals and beef and introducing a system of compensatory direct payments (DPs) from 1993 onward. This principle was continued by the further reduction of support prices and the extension of DPs as part of the Agenda 2000 reforms agreed upon in 1999. DPs were increasingly decoupled from actual production under subsequent reforms and 94 % of DPs were decoupled by the end of 2013 (EC 2013). For the period 2014–2020 the share of coupled payments will depend on the decision of the Member

States which are allowed to use 10–15 % of their national DPs ceilings under specific conditions as coupled support. The main changes in the CAP are reflected in the composition of the CAP budget as shown in Figure 1.

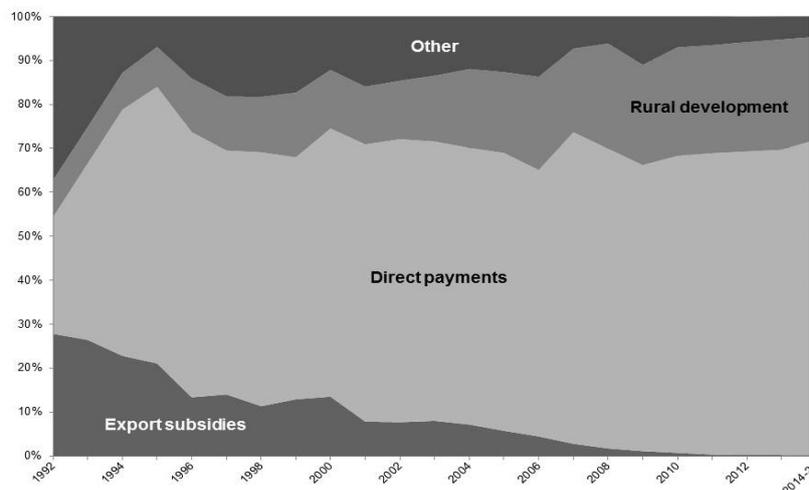
Conceptually, the CAP today consists of two pillars. Pillar 1 relates to DPs and market management measures such as minimum prices, private storage, and school schemes. In the past, also export subsidies were an important element. The decreasing relevance of market intervention is reflected in the declining budget shares for export subsidies and the category “other policies”, which mainly includes market interventions. Together, these policies accounted for more than 70 % of the CAP budget in 1992 and declined to almost 5 % in 2013. Over the same period, the share of expenditures for DPs increased from 26 % to 70 %.

Pillar 2 covers rural development measures which include heterogeneous policies (such as agri-environmental programs, support to organic farming and the management of Natura 2000 areas, and investment subsidies) and are co-financed by EU Member States. An increase of the budget for rural development measures came along with the increasing reliance on DPs since the early 1990s; however, under the current reform for the financial period 2014–2020, budgetary reductions for Pillar 2 are even stronger than for Pillar 1.

The CAP budget for the period 2014–2020 amounts to 408 billion €, which is equivalent to 38 % of the overall EU budget. Out of this, roughly three quarters are allocated to the first and the remaining quarter to the second pillar (Council of the European Union 2013).

Both pillars include environmental measures. DPs (Pillar 1) are linked to land and in order to be eligible to receive these payments, farmers have to comply with cross compliance rules – which, in the wider sense, are environmental and animal

Fig. 1: Composition of the EU CAP Budget, 1992 to 2013 and 2014/2020



Sources: Own compilation based on EC (various volumes), BMELV (2008), own calculations

welfare production standards. A large part of these standards, however, represent pre-existing EU legislation. These are the so-called Statutory Management Requirements (SMRs). On top of that, cross compliance rules also include “good agricultural and environmental conditions” (GAEC) of agricultural land which are additional standards including soil and water management rules.

In the latest reform of the CAP for the years 2014–2020, an additional “greening” element has been introduced in Pillar 1. In the future, 30 % of the DPs will be bound to the observation of specific farming practices which, according to the EC (2013, p. 7), “are beneficial for the environment and climate on most of the utilised agricultural area”. In particular, regulations refer to crop diversification, maintenance of permanent grassland, and the establishment of “Ecological Focus Areas” (EFA)³. Farmers failing to comply with the greening requirements only receive the basic component (70 %) of DPs. Some of the greening measures, though, have already been part of the GAEC before.

Contrarily to environmental measures positioned in the first Pillar, second Pillar measures are voluntary to farmers even if DPs are received and provide an extra compensation for cost incurred and income forgone due to public goods provided.

So far, CAP measures targeting environmental objectives were discussed. Yet, environmental policy also has a major impact on the environmental sustainability of the agricultural sector and, furthermore, is directly connected to cross compliance regulations of the CAP since environmental legislation provides the basis for SMRs. EU environmental policy is mainly based on regulation, but to a lesser extent also on budgetary outlays which amounted to 390 million € in 2013, and thus to about 0.3 % of the EU budget (EC 2014). EU regulation of high relevance to the agricultural sector comprises the protection and improvement of water quality (see Taube et al. 2013 for the German context) as well as the protection of nature and biodiversity.

2.2 Discussion

Historically, DPs have been introduced to compensate farmers for the reduction of market price support. Thus, DPs were thought of as dampening income shocks for farmers and outweighing disadvantages of unexpected policy changes. Compensatory payments, however, lose their justification in the course of time.

DPs in their current form are an inefficient instrument to foster the provision of public goods. As Tangermann (2011) argues, the elimination of DPs would have only small impacts on land use since farms in the EU are economically viable in large parts without DPs and thus it is neither necessary nor economically efficient to make generalized payments to all farmers. Instead, payments aiming at the provision of public goods which are positively linked to farming should be limited to those regions where farming provides such public goods, e.g. landscape management, but would not be profitable without public support. In other regions, however, farming is already intensive and covers most of the land, and payments with an environmental purpose would rather aim at the extensification of farming.

Regarding cross compliance rules, without DPs, only GAEC standards would have to be replaced to maintain current environmental standards of farming since SMRs are already covered by current legislation. GAEC standards could either be transformed into mandatory standards or

farmers could be compensated for consideration of the rules as part of Pillar 2 (Matthews 2013). In the latter case, however, payments should be in accordance with additional costs unlike the current DPs which lack this link.

The positive environmental impact of the “green” payment in Pillar 1 of the CAP is questioned by many analysts. It is criticized that “greening” elements have substantially been watered down during negotiations on the CAP 2014–2020. Both, the content of what is required and the proportion of farmers, eventually affected have diminished steadily during negotiations (IEEP 2013; Pe’er et al. 2014). Matthews (2013, p. 21) expects “that the additional environmental benefits likely to materialize [...] will be very minimal”. Moreover, he criticizes that regional or even farm-specific environmental and economic circumstances are not adequately taken into consideration which makes the policy highly inefficient.

Second Pillar measures are more targeted and are thus more in line with an efficient agricultural policy and sustainability aims. According to the OECD (2011), among rural development policies, agri-environmental measures have been the most significant ones regarding environmental objectives across the farmed landscape. Moreover, organic farming practices can be supported under the second Pillar. Compared to conventional production, organic production clearly has environmental benefits, but in tendency it also produces lower yields which leads to a larger area required for production and higher greenhouse gas (GHG) emissions. This also holds for meat production due to lower growth rates and, thus, higher feed requirements per kg of meat (Kool et al. 2010; Reisch et al. 2013). Therefore a simultaneous change in consumption patterns would be required for a large-scale switch from conventional to organic farming to result in a more sustainable food system.

Notwithstanding the fact that targeted payments under the second Pillar are the first-best solution, the shift of the CAP from market price support measures to DPs (Fig. 1) was an important step in terms of environmental benefits since it was relaxing the pressures for intensification in the agricultural sector (Matthews 2013). Thus, also the last remaining measures of market price support should be abolished. Moreover, it is the-

oretically clear that a decoupling of DPs leads to less intensive production; however, empirical evidence is hard to find (Matthews 2013).

Finally, it should be taken into account that all environmental measures which result in the extensification of agricultural production in the EU will lead to global spillover effects if consumption habits will not change. Pelikan et al. (2014) show this for the example of ecological focus areas within the EU which have unintended consequences in the rest of the world, such as rising GHG emissions.

2.3 Conclusions

Due to its historical background, the CAP is not in the first instance aimed at environmental sustainability. Nevertheless, coming from a policy aimed at fostering production in its early years, environmental objectives have become more prominent over time. Many measures regarding environmental effects, however, are criticized by analysts and it seems that their implementation rather aims at providing justification for first Pillar payments of the CAP (cross compliance, greening) than tackling problems in an effective and efficient manner. Uniform per hectare payments clearly are an inefficient tool to support the provision of public goods. Instead, any payments should be targeted directly to the provision of public goods (WBA 2010).

The second Pillar of the CAP is much more targeted than the first Pillar. In the future, the budget of the second Pillar should be expanded to the costs of the first Pillar and more focused on the provision of public goods. Other specific measures, such as school schemes, might also improve sustainability in the food system (see chapter 5).

3 Animal Welfare

3.1 Background

Minimum standards for animal welfare are an essential part of sustainable food systems as such standards are based on ethics, being a component of the social dimension of sustainability. Several reports of the European Food Safety Authority (EFSA) analyzing the animal welfare situation in Europe (e.g. EFSA 2005a; EFSA 2005b) indicate serious animal welfare deficiencies in EU agri-

culture and, thus, the need for stricter regulation and the enforcement of existing legislation.

And indeed, the EU has an extensive body of animal welfare legislation. General rules concerning the welfare of farm animals are laid down in EC Directive 98/58/EC. Furthermore, specific legislation exists for some farm animals. For cattle and sheep, no animal-specific welfare legislation is in force at the EU level, except for calves. In addition, some Member States apply rules stricter than EU legislation for certain farm animals.

3.2 Discussion

EU animal welfare legislation provides an important framework for national regulation. This is especially relevant as animal welfare regulation has the potential to substantially increase production costs. This may distort competitiveness and with different animal welfare standards in the common market of the EU, animal production may be relocated to Member States with low standards. As a result, the political aim underlying animal welfare standards may at least partially be undermined. Indeed, the loss of international competitiveness is often put forward as one of the main arguments against the implementation of stricter animal welfare legislation. Common animal welfare standards are an adequate instrument to address this concern in a common market. Resulting from economical and cultural heterogeneity in the EU, however, common standards tend to lack far behind the societal demands in Member States attaching a high value to animal welfare, reflecting large differences in societal demands for animal welfare among the Member States. In Denmark, for example, 41 % of the population consider the provision of farm animal welfare as one of the two main responsibilities of farmers, whereas this is only the case for 4 % of Cypriot citizens (EC 2010).

3.3 Conclusions

The further development of EU animal welfare legislation is of high relevance. In addition, however, it is essential to develop mechanisms allowing Member States to apply higher than average mandatory EU animal welfare standards without losing too much competitiveness. This could for example include the option of national animal

welfare payments compensating for the additional cost caused by national legislation being above EU level (Grethe 2007). Such payments could be financed from the DP envelope if animal welfare would be included as one of the objectives justifying the voluntary coupling of up to 10–15 % of DPs to agricultural production in individual Member States. Furthermore, the EU should argue for options to compensate farmers for high domestic animal welfare standards in the process of negotiations in the World Trade Organization as well as in any other trade agreements. This is because trade liberalization may be discredited if consumers get the impression that it inhibits, among other things, the development of stricter domestic rules on animal welfare (Swinbank 2006). Finally, political regulation of the labeling of products complying with higher than mandatory animal welfare standards, such as for organic farming, should be considered (WBA 2011).

4 Bioenergy Policy

4.1 Background

Another important policy with substantial impacts on the agricultural sector and, thus, the entire food system is the European renewable energy policy. According to the “Renewable Energy Directive” (EC 2009), 20 % of EU total energy consumption and at least 10 % of transport energy have to be produced from renewable sources such as wind, solar, and biomass in the year 2020. These targets aim at the reduction of GHG emissions. Besides, they are often politically justified by the contribution they would make to energy supply security and job creation.

In the following, we focus on policies regarding so-called first generation biofuels – i.e. biodiesel from plant oils and bioethanol from sugar crops or cereals – since impacts are highly relevant for the agricultural sector and have been exhaustively analyzed (Grethe et al. 2013). Furthermore, biofuels produced from wastes, residues, lignocellulosic, or other non-food cellulosic material only account for a small share of all biofuels consumed (1.4 % in 2010). The share of biofuels in total transportation energy evolved steadily and reached 4.27 % by 2010 (Fig. 2), resulting, in combination with renewable electrici-

ty (0.43 %), in a 4.7 % total share of renewables in transportation (ECOFYS 2012).

In October 2012, the EC published a proposal for a Directive to amend the Renewable Energy Directive and the Fuel Quality Directive (EC 2012), limiting biofuels from food crops to 5 % of total transport fuels. In addition, the proposal effectively reduces the current mandatory 10 % target by 2020 through a system of double or fourfold counting of biofuels from feedstock such as waste or lignocellulosic materials.

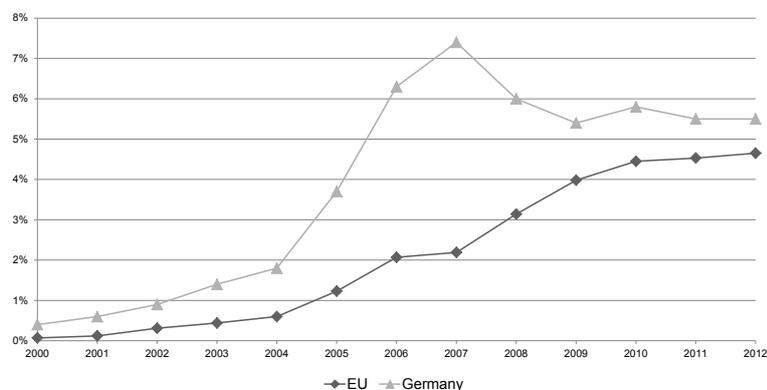
4.2 Discussion

Political support for first generation biofuels has been criticized by various scientific expert committees (e.g. WBA 2007; Leopoldina 2012) for two reasons: i) the significant contribution of this political support to increasing global agricultural prices, ii) the questionable contribution of first generation biofuels to mitigating climate change due to the indirect effects on global land use.

Compared to fossil fuels, biofuels reduce GHG emissions if one takes only into account the direct emissions of biofuel production based on an LCA; however, the use of biomass in the production of biofuels additionally has indirect effects. Higher agricultural prices may cause land use change elsewhere, i.e. not at the location where biofuel inputs are produced. Such effects are called indirect land use change (iLUC). In addition, global agricultural land use would intensify due to higher global prices.

The intensification as well as the expansion of the agricultural area is associated with an increase in GHG emissions and other potentially negative environmental effects, such as nutrient emissions to water bodies or reductions in biodiversity. This may substantially diminish the GHG reduction effect of biofuels and even result in a positive net contribution of biofuels towards GHG emissions compared to fossil fuels. Other means of reducing GHG emissions allow for much greater reductions at the same economic costs (WBA 2007). In spite of this evidence, the direction followed by the EU biofuel policy was unaffected until recently. The proposed revision of the EU biofuel policy of October 2012 has the potential to become a landmark of biofuel policy change. However, massive oppo-

Fig. 2: EU and German Biofuel Demand (2000–2012, in % of total transport energy)



Sources: Grethe et al. 2013

sition against this proposal has been formulated by the agricultural as well as the biofuel lobby.

4.3 Conclusions

In conclusion, EU biofuel support has a negative impact on the global availability of biomass and lacks a convincing motivation: it is not an efficient, if at all effective climate change mitigation policy. Political support for liquid biofuels gained from crops should be phased out over the next few years. The current proposal for a new biofuel directive by the EC is a move in the right direction, though much too hesitant. Furthermore, it is in danger of being watered down by Member States under the pressure of interest groups.

5 Sustainable Food Consumption Policies

5.1 Background

As stated before, it is difficult to fully internalize the externalities of production in an open-market economy as agricultural commodities are tradable and higher environmental or animal welfare standards within the EU can cause a certain degree of “leakage”, i.e. an increase of imports from countries with lower standards and, thus, a relocation of externalities. A shift towards a more sustainable consumption would be one option to counteract such leakage.

Tukker et al. (2006) found that the consumption of meat and meat products alone accounts for between 4 % and 12 % of total global warming

potential in the EU-25, followed by dairy products (4 %) being the second most relevant food item in this respect. Due to the relatively high effects on global warming per consumed kg, a reduction in consumption of especially these food items would be beneficial in terms of more sustainable consumption (Cordts et al. 2013).

Furthermore, due to increasing out-of-home and ready-made food consumption as well as the rising of other priorities in formal school curricula, consumers’

knowledge about growing, processing, cooking, and storing food is declining. The resulting undervaluation of food causes overconsumption and wastage (Reisch et al. 2013). In fact, up to 50 % of food which is still edible and healthy gets wasted along the food supply chain within the EU (EP 2012). According to a study by the EC (EC DG ENV 2010) most of the avoidable losses in all sectors can be traced back to the consumers.

The need for a change in consumption patterns of private households as well as public organizations to achieve a more sustainable food system has been recognized by the EU, which in 2011 started a flagship initiative under the Europe 2020 Strategy called “A resource-efficient Europe” (EC 2011a). The “Roadmap to a Resource Efficient Europe” (EC 2011b) defines the aims which shall be achieved by 2020 and lists nutrition besides housing and mobility as a key sector in terms of reducing the environmental impact. With respect to food, the roadmap states that “by 2020, incentives to healthier and more sustainable food production and consumption will be widespread and will have driven a 20 % reduction in the food chain’s resource inputs. Disposal of edible food waste should have been halved in the EU” (EC 2011b, p. 18). As a first step, an assessment of how to lower the environmental impact of food production and consumption and how to limit waste throughout the food chain was announced (EC 2011b). All interested stakeholders were invited to take part in a consultation in 2013. The results are to be published as a “Communication on Sustainable Food” by the end of 2014 and shall be used as a base for

the development of a methodology for sustainability criteria for key food items, serving as a base for the design of policy measures. In addition, the Roadmap invites Member States to address food wastage in their national waste prevention programs (EC 2011b). To achieve the aims specified in the Roadmap, several projects were started and measures were put in place. These include research as well as awareness raising and educational projects aiming at a shift in consumption patterns.

5.2 Discussion

A major problem in the debate on sustainable food consumption is the difficulty to find general rules on which consumption patterns are sustainable. Often it is claimed that organic and a more local consumption would improve the sustainability of the food system. However, this cannot be taken as a general rule. For example, dairy products and apples imported from New Zealand were found to have a lower carbon footprint based on an LCA compared to domestic production in the UK. The main reasons for this are the less intense production system in New Zealand and the need for cold storage in the UK to guarantee supply all year round. Therefore, simple concepts like counting “food miles” are insufficient to estimate the sustainability of a product and can be misleading (Saunders/Barber 2008).

The absence of simple approaches to measure sustainability might be one reason for the limited existence of EU policies aiming at sustainable consumption in general and food consumption in particular (Reisch et al. 2013). Other reasons include the high requirements of such policies in terms of coordination between different political spheres and the difficult enforceability of regulatory instruments such as taxes which are often recommended as means of influencing consumption (e.g. Stehfest et al. 2009). Additionally, taxes on food harm poorer consumers disproportionately as they spend a higher share of their income on foodstuff. This may require compensating changes in distributional policies such as the income tax and the social security system. Finally, considering the inelastic demand for foodstuff in industrialized countries, a tax would

have to be rather high to achieve a considerable reduction of consumption (Mytton et al. 2012).

As such regulatory policies are difficult to implement, a report on policies to encourage sustainable consumption issued by the EC suggests green public procurement practices for catering in public institutions along with campaigns to raise consumer awareness as the most effective measures to promote sustainable diets (BIO Intelligence Service 2012). Sustainable procurement of public food has already been applied in several Member States. The government here acts as a role model and due to its market power can create a (larger) market for more sustainable food (Wahlen et al. 2012). Such so-called “nudging” policies (as they nudge the consumer to make the “right” choice) could be combined with restrictions on advertising (e.g. for soft drinks during children’s TV program) (Reisch et al. 2013). The implementation of sustainable public procurement policies, however, may not be straight forward (Dalmeny/Jackson 2010). Furthermore, achieving behavioral change is a long-term process involving several stages and requiring the efforts of all actors involved (Reisch et al. 2013). In this process, social innovations could become more important. Their role in fostering a more sustainable consumption is often underestimated (Brown et al. 2013). An example for such a social innovation is the expanding transition town movement.

5.3 Conclusions

The main aspect which needs to be politically tackled on the consumer side is to raise awareness for the negative externalities resulting from food production which are difficult to fully internalize by EU policy measures and could be mitigated through more conscious purchase decisions. This has become more important over the last decade since biomass is an increasingly limited resource. As pointed out above, especially the avoidance of wastage and a reduced consumption of meat and other animal products have a great potential to make consumption more sustainable. Yet, such a shift in consumer behavior, which is not easy to achieve, partially contradicts with interests of large parts of the producers of animal products. Finally, not in all cases it is efficient and sustain-

able to reduce avoidable losses, for example, if due to a lower stocking rate in retail markets more frequent transports are required. Therefore, a further development of the concept of avoidable food waste is required towards a concept of efficiently avoidable food waste, as well as the quantification of how much of total waste falls into this category.

Imposing strict policies which condemn wastage or meat consumption for moral reasons, however, should be avoided, as such measures can lead to backlash and are difficult to justify given the complexity of the different dimensions of sustainability as well as heterogeneous preferences of consumers.

6 General Conclusions

In conclusion, the concept of “sustainable food systems” is helpful in assessing EU policies, being more comprehensive in coverage than, e.g., “sustainable agriculture” or “sustainable consumption”. It suggests that in order for a policy system to effectively and efficiently contribute to the development of sustainable food systems, it must integrate different policy domains (such as agricultural policy, environmental policy, and consumer policy) in a coherent way. The need for an integrative policy approach has been recognized (Freibauer et al. 2011), but is a challenge also administratively, as different policy domains are typically managed and implemented in different Directorates-General in the EU and different national ministries in the Member States.

Especially the integration of policies addressing food production and food consumption is a challenge. In an ideal world, externalities in food production would be fully internalized by policies addressing food producers such as regulation, the taxation of negative externalities such as nutrient balance surpluses, or the subsidization of positive externalities such as the maintenance of biodiverse cultural landscapes. Furthermore, animal welfare standards should be in accordance with ethical positions agreed upon in the political process. And this is what EU agricultural policies should aim at within the EU. Due to the increasing international integration of the EU agricultural sector, however, and the increasing biomass scarcity at a global level, this approach hits its limits. A pure internal-

ization of negative effects in production in the EU which has the potential to reduce EU agricultural production would result in more agricultural production abroad: via the price mechanism, increasing EU imports would cause intensification as well as indirect land use effects elsewhere. These effects have been highlighted as a consequence of increasing EU demand for bioenergy (e.g. Grethe et al. 2013), but also hold in case of the EU lowering its agricultural production. Therefore, the recent discussion on more sustainable consumption patterns, those using less resources and generating less negative and more positive externalities, is highly relevant. If a more environmentally friendly and less intensive EU agricultural production would go together with more sustainable diets, the pressure on the global biomass balance would be reduced. But substantial research is required on the definition of what would constitute sustainable consumption and on how policy measures could support the transformation towards more sustainable consumption patterns without being overly paternalistic. As various examples above have shown, simple conclusions like “local and seasonal consumption is always the best option” may be too simple and misleading. Some conclusions, however, are clear-cut, even at this early stage of the discussion: i) in light of the currently high levels, a reduction of the average meat consumption in industrialized countries would make diets more sustainable; ii) raising awareness regarding the implications of food waste with the aim to reduce food waste has the potential to substantially reduce the use of resources for food production; iii) EU bioenergy policies should be revised and to a large part phased out.

Finally, looking at the overall allocation of EU funds to the different policy domains, it is a scandal that by far the largest part of funds, about 44 billion € annually, are allocated to DPs to farmers, an untargeted income policy almost not aimed at specific objectives regarding sustainability. A substantial reallocation of money would be needed: First of all, within the CAP from DPs to agri-environmental and animal welfare policies in the second pillar of the CAP. And second, potentially also from the budget of the CAP, or at least the current measures of the CAP, towards policies aiming at more sustainable consumption

patterns, such as education, awareness-raising campaigns, and research for, e.g., the potential to reduce food losses and enable consumers to sustainably consume through improved information on the production process of food products.

Notes

- 1) A long version of the article Deppermann et al.: “Sustainable Food Systems and EU policies” is available on the Internet (http://www.tatup-journal.de/tatup143_deua14b.php).
- 2) Based on a life cycle assessment including the direct effects of consumption (e.g. travelling to supermarkets, waste) as well as the indirect effects of production (e.g. emissions from livestock, agriculture, processing industry, and transport).
- 3) EFA criteria cover area types under low-input agricultural management such as short-rotation coppice, catch crops, nitrogen-fixing crops, or fallows.

References

BIO Intelligence Service, 2012: Policies to Encourage Sustainable Consumption. Final Report Prepared for European Commission (DG ENV)

BMELV – Bundesministerium für Ernährung, Landwirtschaft und Verbraucherschutz, 2008: Statistisches Jahrbuch über Ernährung, Landwirtschaft und Forsten 2008. Bremerhaven

Brown, H.S.; Vergragt, P.J.; Cohen, M.J., 2013: Societal Innovation in a Constrained World: Theoretical and Empirical Perspectives. In: *Innovations in Sustainable Consumption, Advances in Ecological Economics Series*. Cheltenham, pp. 1–27

Cordts, A.; Duman, N.; Grethe, H. et al., 2013: The Potential for Lower Meat Consumption in Germany and Effects of Lower Consumption in OECD Countries on Global Market Balances and Food Prices. Contributed paper at the GEWISOLA conference, September 25–27, 2013

Council of the European Union, 2013: Common Agricultural Policy: The Reform is Approved by the Council. Press release 582, 17854/13, Brussels

Dalmeny, K.; Jackson, A., 2010: Yet More Hospital Food Failure. Second Report. London

EC – European Commission, 2009: Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC. Brussels

EC – European Commission, 2010: Europeans, Agriculture and the Common Agricultural Policy Special Eurobarometer 336. Brussels

EC – European Commission, 2011a: A Resource-efficient Europe – Flagship Initiative Under the Europe 2020 Strategy. COM(2011) 21. Brussels

EC – European Commission, 2011b: Roadmap to a Resource Efficient Europe. COM(2011) 571 final. Brussels

EC – European Commission, 2012: Proposal for a Directive of the European Parliament and of the Council Amending Directive 98/70/EC Relating to the Quality of Petrol and Diesel Fuels and Amending Directive 2009/28/EC on the Promotion of the Use of Energy from Renewable Sources. COM(2012) 595. Brussels

EC – European Commission, 2013: Overview of CAP Reform 2014–2020. In: *Agricultural Policy Perspectives Brief 5/12* (2013). Brussels

EC – European Commission, 2014: Adopted Budget 2013. Brussels

EC – European Commission, various volumes: The Agricultural Situation in the European Union. Brussels

EC DG ENV – European Commission Environment Directorate-General, 2010: Preparatory Study in Food Waste Across EU 27. Final Report 054 (2010). Paris

ECOFYS, 2012: Renewable Energy Progress and Bio-fuels Sustainability. Report for the European Commission

EEA – European Environment Agency, 2005: Household Consumption and the Environment. EEA Report 11 (2005). Copenhagen

EFSA – European Food Safety Authority, 2005a: Scientific Opinion of the Panel on Animal Health and Welfare on a Request from the Commission Related to the Welfare Aspects of Various Systems of Keeping Laying Hens. In: *EFSA Journal* 197 (2005), pp. 1–23

EFSA – European Food Safety Authority, 2005b: Opinion of the Scientific Panel on Animal Health and Welfare on a Request from the Commission Related to Welfare of Weaners and Rearing pigs: Effects of Different Space Allowances and Floor Types. In: *EFSA Journal* 268 (2005), pp. 1–19

EP – European Parliament, 2012: Parliament Calls for Urgent Measures to Halve Food Wastage in the EU. Press release Reference No: 20120118IPR35648

Freibauer A.; Mathijs, E.; Brunori, G. et al., 2011: Sustainable Food Consumption and Production in a Resource-constrained World. 3rd SCAR Foresight Exercise European Commission Standing Committee on Agricultural Research (SCAR)

- Grethe, H., 2007: High Animal Welfare Standards in the EU and International Trade – How to Deal with Potential “Low Animal Welfare Havens”? In: Food Policy 3/32 (2007), pp. 315–333
- Grethe, H.; Deppermann, A.; Marquard, S., 2013: Biofuels: Effects on Global Agricultural Prices and Climate Change. Study for OXFAM Deutschland and Heinrich-Böll-Stiftung
- IEEP – Institute for European Environmental Policy, 2013: Political Agreement on the CAP – Is This Really a Paradigm Shift for the Environment?
- Kool, A.; Blonk, H.; Ponsioen, T. et al., 2010: Carbon Footprints of Conventional and Organic Pork: Assessment of Typical Production Systems in the Netherlands, Denmark, England and Germany. Gouda
- Leopoldina – Deutsche Akademie der Naturforscher Leopoldina (Nationale Akademie der Wissenschaften), 2012: Bioenergie – Möglichkeiten und Grenzen Stellungnahme. Halle (Saale)
- Matthews, A., 2013: Greening Agricultural Payments in the EU’s Common Agricultural Policy. In: Bio-based and Applied Economics 2 (2013), pp. 1–27
- Mytton, O.T.; Clarke, D.; Rayner, M., 2012: Taxing Unhealthy Food and Drinks to Improve Health. In: BMJ 344 (2012), e2931
- OECD – Organisation for Economic Co-operation and Development, 2011: Evaluation of Agricultural Policy Reforms in the European Union. Paris
- Pe’er, G.; Dicks, L.V.; Visconti, P. et al., 2014: EU Agricultural Reform Fails on Biodiversity. In: Science 344/6188 (2014), pp. 1090–1092
- Pelikan, J.; Britz, W.; Hertel, T.W., 2014: Green Light for Green Agricultural Policies? An Analysis at Regional and Global Scales. In: Journal of Agricultural Economics; doi: 10.1111/1477-9552.12065
- Reisch, L.; Eberle, U.; Lorek, S., 2013: Sustainable Food Consumption: An Overview of Contemporary Issues and Policies. In: Sustainability: Science, Practice & Policy 9/2 (2013), pp. 7–25
- Saunders, C.; Barber, A., 2008: Carbon Footprints, Life Cycle Analysis, Food Miles: Global Trade Trends and Market Issues. In: Political Science 60 (2008), pp. 73–88
- Scerri, A.; James, P., 2010: Accounting for Sustainability: Combining Qualitative and Quantitative Research in Developing “Indicators” of Sustainability. In: International Journal of Social Research Methodology 13 (2010), pp. 41–53
- Stehfest, E.; Bouwman, L.; van Vuuren, D.P. et al., 2009: Climate Benefits of Changing Diet. In: Climatic change 95/1 (2009), pp. 83–102
- Swinbank, A., 2006: Like Products, Animal Welfare and the World Trade Organization. In: Journal of World Trade 4/40 (2006), pp. 687–711
- Tangermann S., 2011: Direct Payments in the CAP Post-2013. Brussels
- Taube, F.; Balmann, A.; Bauhus, J., 2013: Amendment of the Fertiliser Application Ordinance (DÜV): Limiting Nutrient Surpluses Effectively. In: Berichte über Landwirtschaft Sonderheft 219 (2013), p. 1–12; <http://buel.bmel.de/index.php/buel/article/view/30/wiss-beiraete-en-html> (download 14.10.14)
- Tukker, A.; Huppes, G.; Guinée, J. et al., 2006: Environmental Impact of Products (EIPRO) – Analysis of the Life Cycle Environmental Impacts Related to the Final Consumption of the EU-25. In: European Commission Joint Research Centre, Technical Report Series, EUR 22284 EN, pp. 1–136
- UNWCED – United Nations World Commission on Environment and Development, 1987: Our Common Future (Brundtland Report); http://conspect.nl/pdf/Our_Common_Future-Brundtland_Report_1987.pdf (download 7.10.14)
- Wahlen, S.; Heiskanen, E.; Aalto, K., 2012: Endorsing Sustainable Food Consumption: Prospects from Public Catering. In: Journal of Consumer Policy 35 (2012), pp. 7–21
- WBA – Wissenschaftlicher Beirat Agrarpolitik, 2007: Nutzung von Biomasse zur Energiegewinnung – Empfehlungen an die Politik; http://www.bmelv.de/SharedDocs/Downloads/Ministerium/Beiraete/Agrarpolitik/GutachtenWBA.pdf?__blob=publicationFile (download 7.10.14)
- WBA – Wissenschaftlicher Beirat Agrarpolitik, 2010: EU-Agrarpolitik nach 2013 – Plädoyer für eine neue Politik für Ernährung, Landwirtschaft und ländliche Räume; <http://www.bmelv.de/cae/servlet/contentblob/1005908/publicationFile/64480/GutachtenGAP.pdf> (download 7.10.14)
- WBA – Wissenschaftlicher Beirat Agrarpolitik, 2011: Kurzstellungnahme zur Einführung eines Tierschutzlabels in Deutschland; http://www.bmel.de/SharedDocs/Downloads/Ministerium/Beiraete/Agrarpolitik/StellungnahmeTierschutzlabel.pdf?__blob=publicationFile (download 7.10.14)

Contact

Prof. Dr. Harald Grethe
 Agricultural and Food Policy Group
 University of Hohenheim, 70593 Stuttgart
 Phone: +49 711 459-22631
 Email: grethe@uni-hohenheim.de
 Internet: <https://apo.uni-hohenheim.de>