

Towards a sustainable food system

a position paper on the framework law

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The EEAC Network

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Executive Summary

European society and its food system are facing a triple challenge: 1) guaranteeing a healthy diet for all, 2) mitigating and adapting to climate change, as well as 3) protecting and restoring habitats for their biodiversity and ecosystems services. Although the European food system is robust, it does not deliver sustainable diets, defined by FAO as those with low environmental impacts which contribute to food and nutrition security and to a healthy life for present and future generations.

To tackle the triple challenge in a complex network like the food system, a system approach is needed. At present, there is too much focus on the actors where the problems are observed, but as consumers and farmers are in a dependent position and not able to transform the food system, rethinking the roles of all the actors has to be addressed. Therefore, a Framework Law on Sustainable Food Systems, as proposed in the EU's Farm-to-Fork Strategy, is required. This could make the system more resilient.

A just transition towards sustainable diets is key. To the extent that healthy diets are not affordable for consumers or a sustainable food policy would result in higher prices for food, compensation should be given by changes in income taxes, minimum wages or social security. Similarly, environmental regulations in the food industry and agriculture should not be shunned for the income effects, which could be compensated by direct support for farms with low incomes and payments for public services. This calls for coherence between the EU's sustainable food system policy in the Common Market and (social and fiscal) policies in the Member States.

Such a mechanism for a just transition makes a policy on sustainable food systems possible that directs the strong innovation capacity of actors away from ever lower food prices towards more sustainable farming, food processing and food consumption. On average, the share of consumer income spent on food has seriously declined, which gives options to better target the innovation capacity to the reduction of environmental and health costs instead of a further decrease in consumer spending on food. The true costs of food should be reflected in markets.

To coordinate these changes and to overcome silos in policy making, this demands a food system policy with clear objectives that properly balances economic, ecological and social aspects. A food system policy that fosters human and planetary health in a coherent and balanced approach between an agricultural supply policy, environmental policy and food (consumption) policy is a big challenge, given the trade-offs and co-benefits between these policies and with other policies. The framework law is needed to support and guide Member States in steering towards a sustainable food system. A framework law must then be drafted in such a way that Member States remain able to respond to their own unique opportunities and challenges, while keeping the common end goal clear and duly anchored. To govern the food system with the purpose to "ensure sustainable diets", it could be formulated as follows:

to guarantee a resilient European food system that ensures sustainable diets with low environmental and ethical impacts that contribute to food and nutrition security and to a healthy life for present and future generations by facilitating that

- i. healthy, sustainable diets are available for all European consumers at prices that reflect their true cost in line with 'the polluter pays' principle.
- ii. food is produced in satisfactory quantities, with processes that result in environmental performance that is as best as reasonably achievable and regenerate climate-resilient, healthy agro-systems.
- iii. the food system works as inclusively as possible and relations between food chain actors are balanced, which results in livelihoods with fair incomes and working conditions for farmers and workers.

- iv. new technologies are developed and best available technologies in relation to climate change and ecosystem services are promoted, respecting the precautionary principle.

A sustainable food system policy should use different policy instruments to balance several objectives. For example, regulation can remove the most unsustainable products from the market. Pricing instruments, with taxes or instruments like the Emission Trading System for greenhouse gases, can lead to innovations. There is no reason why food system actors should be exempted from economy-wide measures like carbon pricing.

To redirect innovation, classification of food into more or less sustainable types of food within a food category is needed (based on a process of certification of all commercial farms) as an extension of methods in organic farming and private label certifications. A classification of farms in (dark and light) green, yellow and orange supports benchmarking, price differentiation and the allocation of advisory capacity, (CAP) subsidies and land. Digitalisation of food chain transactions can support certification and reduce costs.

Certification should be used by food processors and retailers to label consumer products for environmental and social sustainability, in addition to labelling for preventive health. Its usefulness depends on the context of the food environment. Demand for sustainable food can further be supported by rules for public procurement. Food processors and retailers could be instructed to report the sustainability aspects of their sourcing in their ESG reporting. Similarly, the input industry could take responsibility for the sustainability effects of its sales to farmers. Governments can help farmers with eco-schemes, long-term ecosystems contracts and in the land market as well as with knowledge and innovation to become and stay more sustainable.

Rewarding farmers for the costs of their sustainability improvements can be achieved with a blending obligation for food processors. The certification system for raising standards can be used to oblige food processors and traders to buy-in a certain percentage of the most sustainable products and pay farmers a price that offsets the extra cost. This would reward more sustainable producers and raise the average price of the product towards its true cost. Such a system should also include importers and exporters to guarantee a level playing field with third countries and to prevent adverse effects.

Monitoring the impact of sustainable food policies at farm level can be based on the proposed Farm Sustainability Data Network (FSDN) in an integrated way at sample farms, collected in an auditable accounting approach. Monitoring of all individual farms (except the smallest) could be done with an extension of the IACS system that includes the results of the certification process.

The European Union has responsibilities for global resilience, including food and nutrition security and an intact biosphere, and should therefore be active in international policy mechanisms and standard setting. Broad support for a sustainable food policy that redirects innovation in the food system to the current challenges with true costs as a basis for markets can be generated by citizen's assemblies.

To govern the European food system and align the relevant current EU policies, a coordination group composed of appropriate Commissioners should be established. In addition, a coordination mechanism between the European Commission and the national ministries should be set up that is cross-cutting through the traditional policy domains. Member States have to develop comprehensive national strategic plans for sustainable food systems, including actions in the social domain for a just transition.

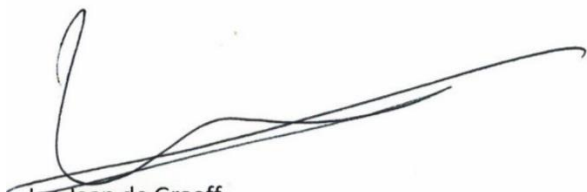
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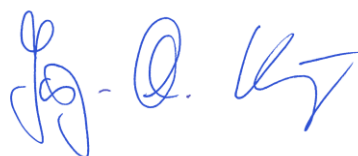
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Introduction

The current European food system is robust and has proved to be adaptive, as in the current COVID-19 pandemic and the war in Ukraine. It is a very diverse system, with important differences between regions in production methods and a cultural heritage of consumption patterns that is valuable. But the system does not deliver sustainable diets, defined by FAO¹ as those “*with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations*”. Given the environmental impacts on climate and biodiversity of the food production system and the food-related health problems, as well as the objectives of the Sustainable Development Goals², this suggests that there is a triple challenge: 1) guaranteeing a healthy diet for all, 2) mitigating and adapting to climate change, as well as 3) protecting and restoring habitats for their biodiversity and ecosystems services.

Although the industry sees market opportunities for introducing more sustainable and healthy products and governments try to correct market failures, there is still a clear lack of transformative capacity in the European food system. This has induced European institutions to include a Farm-to-Fork and a Biodiversity Strategy in the Green Deal. In these strategies, the European Commission proposes to introduce a *lex generalis* with a framework for a sustainable food system that will promote policy coherence at EU and at national level³. It will contain common definitions and general principles, address the responsibilities of all actors, strengthen certification and labelling and progressively raise sustainability standards.

In this policy brief, we take the opportunity to advise European institutions and our national governments on some aspects of the proposed framework law. This is based on the work carried out in our national and regional councils as well as scientific literature. We see our advice as a contribution to the further discussion on an important European initiative to create a healthy and sustainable Europe. We intend to stimulate debate on our suggestions and look forward to further work in Member States and at European level that extends or challenges our thinking to more specific issues and food chains.

In this policy brief, we advise on the different topics for the framework law as proposed by the European Commission, including: 1) General principles to govern the European food system of the future. Next, 2) Certification and labelling as an important implementation method comes next as this makes it possible to differentiate sustainable and healthy products and services from less sustainable or healthy ones and progressively raise standards. This is followed by 3), which is our advice on how better governance of the food system could address the responsibilities of the different actors in the food system and additional measures could support the focus on certification and labelling. We close with 4), some observations on monitoring and political governance. In part II, we provide background information and our analyses of the current challenges to reform the food system.

¹ *Burlingame et al. (2010); see also our background section 1.*

² *For more information see: German Advisory Council for Sustainable Development (2020)*

³ *For more information on this initiative, the impact assessment by the Commission and the public consultation, see: https://ec.europa.eu/info/law/better-regulation/have-your-say/initiatives/13174-Sustainable-EU-food-system-new-initiative_en*

The advice

1. General principles for the governance of the EU food system

The framework law for a sustainable European food system policy should take up the challenges that follow from the unsustainable performance of the current food system and align different policies within the European Union and with those of Member States. Before we formulate our advice on general principles for the governance of the system, we set out the current challenges (see Part 2 for more background) and the need to redirect innovation processes, comment on the debate on food security effects of the Farm-to-Fork proposals, the relationship with third countries and stress that all actors should be governed by a food system policy.

Paradigm shifts

The challenges for the food system have been described⁴ in five paradigm shifts that must occur in parallel: 1) ensuring access to land, water and healthy soils, 2) rebuilding climate-resilient, healthy agro-ecosystems⁵, 3) promoting sufficient, healthy and sustainable diets for all, 4) building fairer, shorter and cleaner supply chains and 5) putting trade in the service of sustainable development. The general principles for the governance of the EU Food System should reflect these challenges, to provide guidance to specific policy instruments in, for instance, agriculture, fisheries, the environment, climate, health or research.

Food security

The Farm-to-Fork strategy has clear and quantified targets on the sustainability of farming⁶ but uses softer language, without clear targets, in relation to food demand (with the exception of food waste). This has led to a debate on the food security effects of the proposed strategy and the role of feeding the world with exports – without critically examining the role of Europe as an importer. In this debate, more attention could be paid to the options to increase supply with new technologies⁷ as well as to changes in demand⁸. This is also in the light of the current geo-political situation⁹. As the world produces enough food, production capacity for food security in times of peace and trade is not a major concern, problems arise from affordability or logistical problems in times of pandemics and war¹⁰.

Redirect (social) innovation

The challenges in climate change, biodiversity and healthy diets should direct the strong innovation capacity of the food system away from ever lower food prices towards more sustainable farming, food processing and food consumption. On average, the share of the consumer income spent on food has become so small that the gains from the innovation capacity could be better spent on reducing

⁴ Copied from IPES Food (2019)

⁵ EASAC (2022)

⁶ In terms of reduced use of chemicals in general and by increasing the area of organic farming

⁷ Including for instance precision farming, application of ecological practices, new protein sources like algae and insects, climate-resilient varieties with new genetic techniques as well as vertical farming. For an inventory of bundles of innovation practices see C.B. Barrett et al. (2020).

⁸ Including reducing food waste, replacing animal protein by plant protein, which implies a reduction in feed production that also frees up areas for more extensive production or nature in Europe and abroad

⁹ The long-term implications of the war in Ukraine are not yet fully clear. But higher energy, fertilizer, feed and food prices are also possible in the long term. The European Union food security is not at risk, but that is different in countries in North Africa and the Middle East. Their demand for sourcing in Europe might increase. These developments make the Farm-to-Fork and biodiversity strategies of policy coherence even more relevant. Higher feed prices make a partial substitution of plant protein for animal protein even more attractive and is in general positive for the environment. Higher energy and fertilizer prices make ecological principles and knowledge more important. Reducing income inequality could help poorer consumers to pay their food bill.

¹⁰ Berners-Lee et al. (2018).

environmental and health costs than on a further decrease in consumer spending on food. Supporting poorer consumers (who would also benefit from lower costs of climate change, biodiversity damage and health costs as a result of the redirected innovation capacity) can be done directly with other policy instruments instead of through lower prices¹¹.

Just transition

To the extent that healthy, sustainable diets are currently not affordable for consumers or the redirection of the innovation processes in the food system would result in higher prices for food that better reflect its actual cost, this true cost of food should not be shunned, but compensated with measures in income taxes, minimum wages or social security. Similarly, environmental regulations in the food industry and agriculture should not be shunned for the income effects, which (if needed) could be compensated by direct support for farms with low incomes and payments for public services¹². This calls for coherence between the EU's sustainable food system policy in the Common Market and (social and fiscal) policies in Member States.

Third countries and food sovereignty

Concerning relations with third countries, higher environmental standards in the European Union should not lead to more environmental degradation elsewhere due to a shift in production (and more imports). However, it should be realised that many environmental effects of farming are regional, so that re-allocation could be a solution. Europe has an important role in helping the world to feed itself, but that role should focus on strengthening food chains in developing countries instead of disturbing their markets with products made at the expense of the European environment and biodiversity. Neither should European consumption be at the expense of a non-European environment by importing large amounts of biomass from countries with high, but poorly protected biodiversity. An important notion in this respect of international trade is the concept of food sovereignty. It is defined as the right of peoples and sovereign states to democratically determine their own agricultural and food policies¹³. Food sovereignty is a useful concept to evaluate the role of international trade from a food systems angle. See part two of this policy brief for more details.

Multi-actor

A food system policy should reconsider the role of all the actors in the food system. At present, there is too much focus on the actors where the problems are observed, but as consumers and farmers are in a dependent position and not able to transform the food system, rethinking the roles of all the actors has to be addressed. Justice issues from the point of consumers and producers need to be taken into account and this calls for increased transparency in the food chain, including on the real costs and environmental and social impacts. A food system policy is a fundamental change in the governance of the food system, not a revision of current policies. It supports a new type of food culture and new relationships in the food system.

In a food system policy that fosters human and planetary health, there should be coherence and a balance between an agricultural supply policy, environmental policy and food consumption policy and thus between supply and demand. Trade-offs and co-benefits between these policies and with other policies should be taken into account¹⁴.

¹¹ *A comparable shift in policy was the change in the Common Agricultural Policy with the MacSharry Reform: it became more attractive to support farmers (with low incomes or in need of transitional support) with direct payments than with price support.*

¹² *Positive externalities like conservation measures, biodiversity, water or landscape management.*

¹³ *IAASTD (2009) p. 10.*

¹⁴ *See Bazzan et al, (2022).*

Guiding principle for the framework law

Framework laws benefit from stating principles that provide guidance in a risk-based policy, which, in turn, would lead to more specialized legal acts. For instance, the Water Framework Directive aims for 'good status' for all ground and surface waters. Similarly, a purpose should be defined for a law (directive) that instructs Member States to govern the food system actors. The EU Taxonomy Regulation states “no measure should lead to significant harm to any of the six environmental objectives” as a core principle.

Although it could be attractive to align with the Taxonomy Regulation, this would be a rather defensive wording in the context of the food system, which does not underline the need to actively improve the resilience of the food system by making it more sustainable. It seems better to instruct Member States to govern the food system in such a way that sustainable diets (defined as those with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations) are ensured. In short: “ensure sustainable diets”. That would include that no significant harm must be done to the environmental objectives and the precautionary principle for safety. Although the legal competences for the food environment and social policies are embedded more with national governments than with the EU, the sustainability aspects are very much related to food production in a common market with multinational actors like retailers, food processors and input suppliers.

Our advice on general principles for the governance of the EU food system

This implies that in the proposed framework law, the purpose of a food system policy should be to ensure sustainable diets. It could be formulated as follows:

to guarantee a resilient European food system that ensures sustainable diets with low environmental and ethical impacts that contribute to food and nutrition security and to a healthy life for present and future generations by facilitating that

- v. healthy, sustainable diets are available for all European consumers at prices that reflect their true cost in line with ‘the polluter pays’ principle.
- vi. food is produced in satisfactory quantities, with processes that result in environmental and ethical performance that is as best as reasonably achievable and regenerate climate-resilient, healthy agro-systems.
- vii. the food system works as inclusively as possible and relations between food chain actors are balanced which results in livelihoods with fair incomes and working conditions for farmers and workers.
- viii. new technologies are developed and best available technologies in relation to climate change and ecosystem services are promoted, respecting the precautionary principle.

In working out the common food system policy and the policy instruments for its application, account should be taken of:

- a. *Relations with third countries inside and outside Europe* in the sense that higher environmental standards in the European Union should not lead to more imports that cause more environmental damage elsewhere (off-shoring) than might be the case with the production in the European Union; exports should not be based on much environmental damage in the Union¹⁵.
- b. *Relations with other sectors using biomass (e.g. for energy or building materials) and policies affecting land management*, in the sense that environmental standards for domestic and imported biomass should be harmonized and ratcheted up across sectors. overall biomass use should be limited, and that pressures on land across food, energy and construction sectors are balanced by policies to safeguard the biosphere. In

¹⁵ See Mathews (2022) on mirror clauses in the relations with developing countries.

particular, the use as bioenergy is narrowly limited in its potential, but can be an important addition locally if based on food waste and by-products¹⁶.

- c. *The need to move to a circular economy*, which among other things raises concerns on the loss of exhaustible stocks of phosphate and other minerals by human consumption and on the importance to upcycle food waste into feed or food.
- d. *Income effects of food system policies that effect the standard of living of consumers*, where compensation will be sought by national measures in social security, income taxes or minimum wages.
- e. *Income effects of food system policies that effect the standard of living of farmers or workers in the food chain*, where mitigation will be sought by transitional payments for an optimal utilisation of the labour factor in the economy, or compensated for farmers by direct support and national measures in social security or income taxes.
- f. *The possibility to reward farmers with a fair income for public ecosystem services in relation to land and water management*, e.g. in the Common Agricultural Policy.
- g. *The rapidly increasing possibilities based on digitalisation for effective policy instruments* to measure or estimate environmental effects of production, calculate their cost, certify the production units, label the products and inform buyers.
- h. *The major differences in environmental conditions for agriculture* between European regions in terms of natural conditions (soil characteristics, water system) as well as proximity to cities and use of farming technologies. This means that the sustainability of a production process and measures to improve it have to be judged in the local context – but on the other hand there is also a need to prevent actors in the food chain from creating an unfair competitive advantage in the single market at the expense of public values in sustainability. Besides environmental performance, sustainability also includes ethical aspects such as animal welfare and migrant and other labour conditions.
- i. *The role of the food environment in nudging the consumer into sustainable consumption*. That means that an effective food system policy should not only address food and the way it is manufactured, but also the context in which it is marketed and sold¹⁷.

2. Certification and labelling

In this chapter, we address labelling and certification as important methods to redirect the innovation in the food system from ever lower prices towards today's challenges of climate, biodiversity and healthy diets. Certification and labelling differentiate sustainable and healthy products and services from less sustainable or healthy ones. As the Farm-to-Fork strategy suggests, they are important policy instruments for coordination in the food system. To direct the innovation capacity of the food system from ever lower food prices towards the challenges of climate, biodiversity and healthy food (in short: sustainable diets), production practices and products have to be categorised to the level of sustainability: management asks for measurement. Certification can be used to verify sustainable practices and progressively raise sustainability standards. Differentiation in prices can move farm production to categories of higher sustainability. These price differences can be based on labelling to communicate them to consumers who are willing to pay for them, or can be based on forced blending in food processing, which passes on the cost to the consumer via an average price.

A mix of policy instruments

A sustainable food system policy can and should use different policy instruments to balance several objectives. External costs of food production can be reduced with different policy instruments that raise

¹⁶ See the recommendation from RNE and Leopoldina (2021).

¹⁷ EU Food Policy Coalition (2021).

production standards. For example, regulation removes the most unsustainable products from the market as it forbids certain production processes. Pricing instruments, with taxes or instruments like the ETS in CO₂ emission trading or with subsidies for new, more sustainable products, can have a similar effect. Such instruments are used in other sectors as well and have led to innovations rather than economic and social problems. There is no reason why the use of fossil energy in agriculture or with other actors in the food system should be subsidized or why these actors should be exempted from economy-wide measures like carbon pricing¹⁸.

In the food system some of these policy instruments seem to work less well for several of the sustainability issues. For real effects on production and consumption the price increases (e.g. on chemical inputs or meat) have to be quite large. They also address the actors (farmers, consumers) who have a weak position in the food system and a much stronger position in the political system, without incentivizing the innovation competences of the larger actors in the food system, like the input industry, food processors and retail. Regulation and raising minimum qualities of products and production processes are needed, but also seem to be difficult: the pressure on farmers for lower cost prices would continue, resulting in a much stronger role for the government in enforcing regulations and policing farms. That is not very stimulating in a situation where the knowledge and motivation of farmers is needed to adapt the farming system to local ecological challenges. It is therefore attractive to try to change decision-making in the food system by certification and labelling and reorient innovation processes in such a way that the true costs of food become transparent and the basis for the markets.

Against that background, the proposal of the Farm-to-Fork strategy to put extra emphasis on certification and labelling is to be supported. This approach of improved information in the food system increases transparency and also supports the introduction of more directive policy instruments like emission trading, taxing¹⁹ and regulation when needed. If well implemented, certification supports a learning process with farmers (and other actors) and creates transparency, at least in business-to-business transactions (as Global-Gap did for tracing and tracking for food safety). That helps to move markets towards true prices based on the private and social costs of production.

Labels

For consumers to be able to choose a sustainable diet, the products that contribute to a sustainable diet should be recognisable, as long as non-sustainable products are allowed to enter the market and sustainability standards have not been progressively raised and have become the norm for all food products placed on the EU market. This necessitates the labelling of products that helps consumers, restaurant chefs and retailers (on behalf of consumers) to make an informed choice.

Labels do exist, ranging from Nutri-Score on health-aspects to the *Tierwohl* label on animal welfare or the label on organic production. Most of them are privately developed and owned, others are public (organic, PDI/PDO). However, many of them are niche labels that trade only a fraction of total production and consumption. A lot of them stress only certain aspects of sustainability. Their success totally depends on the willingness of consumers to pay for the products with the sustainability label and the support in the supply chain to develop them. This market approach does not speed up the transition to a sustainable food system fast enough, given the commitments under the Paris Agreement on climate change and the ambitions in biodiversity. A stronger public effort is needed, which is compatible with current labelling and certification trends in dedicated supply chains.

¹⁸ See Danish Council on Climate Change (2021).

¹⁹ New Zealand introduces pricing of GHG emissions by 2025 and Dutch Glasshouse horticulture has to pay for excess emissions of greenhouse gases.

For environmental sustainability labels, the Product Environmental Footprint (PEF) that is based on a life cycle assessment (LCA) methodology²⁰ is available to quantify the environmental impacts of goods or services. It provides detailed specifications for modelling the environmental impacts of the flows of material and the emissions and waste streams associated with a product throughout its life cycle. However, for agriculture it still has limitations, e.g. on land use, biodiversity and seasonality. This method is directly available to inform consumers or other buyers on the sustainability of a product and could be made obligatory at EU level, like the proposed climate labelling in Denmark²¹ and the proposed sustainability labelling in Luxembourg²².

Certification

Such labelling initiatives that differentiate different products based on their average data has not much impact in redirecting the innovation at farm level or in the rest of the food industry. With the exception of some niche products, labelling does not differentiate flows of farm products and support farmers to innovate to more sustainable production processes. In reality, the environmental performance of farmers differs strongly, even in the same region for the same product. This means that options are neglected to improve production standards in farming (and other parts of the food chain). Stronger incentives are needed to promote innovation, which could come from certification (that also underpins PEF labelling with better average data or makes it possible for food processors and retail to differentiate within the same type of product (e.g. milk) on sustainability level).

Certification of production processes along the supply chain was originally introduced in farming to address food safety problems (GlobalGap) and then extended to issues like animal welfare. This method is used in public policy in the organic sector, including organic farming, and could quickly be extended to all farms.

The certification of farms should be based on key performance indicators (KPIs) like the use or emissions of nitrogen and phosphate, the use of antibiotics and pesticides measured in active ingredients, the estimated emissions of greenhouse gases and ammonia, the use of water and labour conditions as well as other issues when relevant²³. KPIs for sustainability should be outcome oriented whenever possible (e.g. nitrogen surplus is better than nitrogen input or the stocking rates of cattle). The global externalities (greenhouse gases) have to be related to the product (kg); the local externalities (like nitrogen) have to be related to the affected area (ha) or to area and kg output. Combining different KPIs could be based on an estimate of the regional social cost of the different externalities. Based on the KPIs and their thresholds, farms could be classified into different categories with a traffic light system: 1) dark green, 2) light green, 3) yellow and 4) orange (with red reserved for decertification of farms that do not comply with agricultural and environmental regulations). Thresholds can be periodically revised in such a way that progressively raised sustainability standards are applied and farmers (and the input industry) have an incentive to keep innovating in the direction of increased sustainability instead of aiming for lower food prices.

Certification processes support differences in data management between farmers and regions, as some can underpin their sustainability performance with sensor data from machinery where others have less

²⁰ https://ec.europa.eu/environment/eussd/smgp/ef_pilots.htm and https://epica.jrc.ec.europa.eu/permalink/PEF_method.pdf

²¹ <https://fvm.dk/nyheder/nyhed/nyhed/danmark-skal-have-et-statskontrolleret-klimamaerke/>

²² See for instance the work of the Luxembourg's High Council for Sustainable Development (CSDD), which suggested a systemic and adaptive label in six essential sustainability domains, with the idea to show simply at a glance the differential progress in all of those domains. <https://csdd.public.lu/dam-assets/fr/actualites/2021/Avis-du-CSDD-concernant-le-PL7672-complet.pdf>

²³ The German Advisory Council for Sustainable Development (RNE) has advised on KPI, work that can be used in further detailing our advice: https://www.nachhaltigkeitsrat.de/wp-content/uploads/2020/06/20200430_RNE_Recommendation_Sustainable_food_systems.pdf

detailed data. Using such sensor data in certification processes supports innovation with precision farming as a method to reduce emissions. Farmers with less data can be classified with defaults (forfaits) or automatically be classified as orange, which provides an incentive to improve farm data management²⁴.

The classification of farms according to the certification outcome of their sustainability performance is first of all an approach to facilitate learning processes and more transparency in the food chain for better decision-making. It can also be used by food processors and retailers to label consumer products and bank on their willingness to pay.

Rewarding farmers for the costs of their sustainability improvements can be achieved with a blending obligation for food processors and first stage traders. They can be obliged to buy-in a certain percentage of the most sustainable products and pay farmers a price that offsets the extra cost. This would reward more sustainable producers and raise the average price of the product towards its true cost. Such a system of obliged blending²⁵ solves the problem that farmers need a higher price for sustainable products (relative to unsustainable ones) where consumers should experience the reverse: a higher price for unsustainable products (compared with sustainable products). It implies that as in the case of organic, food processors, traders and retailers also have to be certified.

Governments can support dark green or light green farms by allocating CAP eco-schemes to them or give them a preference in the land market (like the French SAFER system), where currently sustainable producers can be outcompeted due to lower margins per ha. At the same time, they can force yellow or orange farms to draw up a farm plan on their future for reaching 2030 and 2040 sustainability targets. Having such a plan can be one of the checkpoints in a certification process.

Dark green farms in the region can act as a lighthouse for innovation in lagging farms. Given the wide variety in environmental performance between comparable farms, there is much to learn from benchmarking and from such 'lighthouse' farms that are already closer to future norms on CO₂ emissions and the use of minerals, pesticides and antibiotics or other KPIs.

The regional component of certification

Many sustainability issues are regional or local. Water is more of an issue in Spain than in Ireland. Ammonia emission is a bigger problem close to a nature reserve. This implies that key performance indicators and their thresholds have to be regionalised. This fits into the current trend in the CAP to work with national strategic plans. Such plans also make it possible to create coherence between sustainability objectives (e.g. maximum emissions) on a regional scale and the desired contribution of individual farms in that region²⁶. Certification of farms is then key towards classifying products as well as regions.

As indicators could differ between regions, it is the true cost (the private cost plus the social cost of negative externalities) of food production of the farm and in the food chain that makes the level of sustainability between regions comparable. The Farm Sustainability Data Network (FSDN) that is proposed in the Farm-to-Fork strategy could support policy makers in setting thresholds, just as its predecessor the Farm Accountancy Data Network supported price setting and its 'objective method' in the first 30 years

²⁴ Remember that in the 1970s, farmers were only eligible in the CAP for interest subsidies on the condition of keeping books to improve farm management.

²⁵ Compare the mobility transition where obligations exist to blend ethanol/biofuels or manufacture a minimum percentage of electric cars. It offers freedom to food processors and retailers to set prices and introduce new product varieties as long as the blending obligation is respected.

²⁶ There exists also a possibility that farmers collectively adopt sustainable farm production methods (like in collective organisations that bid for nature contracts on meadow birds) and that regions are branded as very sustainable (compare with PDO/PDI rules).

of the CAP. Such data could also help monitoring if food processors pay for the extra cost that ‘green’ farmers face. At a later stage, the FSDN data can be used to estimate the true costs of farm products and compare them between regions. Based on those results regions with many farms with a very low true cost might be allowed to have a higher percentage of farms certified as green.

Implementation at farm level with digitalisation

Certification comes with a cost. However, this should not be overestimated. The certification of individual farms can be based on the farmers’ administration, which often exists for VAT accounting and makes it possible (like in organic farming) to calculate mass-balances and material balances for the key performance indicators. In addition, farm inspections are part of a certification. These inspections can be organised risk-based: farms that have shown a good sustainability performance receive less inspection visits. In the process of certification at farm level, the monitoring and auditing of the participation in the CAP (eco-schemes, conditionality and Pillar 2 conservation contracts) could be integrated. This reduces administrative burdens²⁷.

There are also options to combine the certification inspections with the many certification audits carried out for private labelling and food safety schemes. Potentially this would reduce the burden of private certifications and due diligence inspections from industry or retail brands as the common elements of these schemes on the main sustainability issues are standardised. For instance, private certification companies could combine the inspections or private schemes could apply to be recognised under an equivalence principle²⁸. Very small farms (e.g. with less than €25,000 sales), which are in some countries locally an important category but produce a very small percentage of European food (and emissions), could be exempted from the scheme²⁹. Digitalisation could further decrease the costs of certification.

An integrated approach of calculating KPIs in the same process as the obliged VAT accounting could be supported by an obligation in the food chain to exchange invoices and other paper documents in a digital readable form – as is already the case for bank data under PSD2 and for invoices in a Member State like Hungary. Current paperwork could then be handled by software³⁰ with much less work than in today’s farm office and farmers having control over their own data vault.

Digitalisation of the food system, in precision farming as well as tracing and tracking and certification, is a public-private undertaking as it has collective aspects: infrastructure (glass fibre, 5G) and standards for data exchange will not be automatically delivered by the market. The platform economy that is the result of digitalisation has tendencies to strong concentration and marginalisation in which the position of the farmer and the consumer are as weak as in the current food system. Supporting these groups in more collective (cooperative) organisational forms to manage their own data is needed, including options to share the data with advisors and certification bodies. Farmers should be supported with a public digital infrastructure that provides them with a digital dashboard with their own data store and a system of authorisations for data access by others. This makes the relationship on data with other actors in the food chain (including food processors and tech companies) more balanced.

Although certification and labelling have a certain cost, a smart organisation based on digitalisation of paper work and tuned with private inspections could make certification of farmers a preferred solution over price instruments or regulation.

²⁷ See also Rli (2021).

²⁸ See Rli (2019).

²⁹ With an opt-in clause for those who wish to be in the certification system, as otherwise they may be excluded from the supply chain by food processors or retailers.

³⁰ For a detailed description: Poppe et al. (2022)

Our advice on certification and labelling

A process of certification of all farms (as an extension of methods in organic farming and private label certifications) is realistic, perhaps with the exception of very small farms with only a few percent of total production and emissions and should be introduced quickly. Digitalisation of the food chain transactions can support this process and reduce costs. This will direct innovation towards the challenges of providing sustainable diets.

Certification should be used by food processors and retailers to label consumer products for environmental and social sustainability, in addition to labelling for preventive health (like the Nutri-Score). The usefulness of such labelling depends on the context of the food environment. If such labelling does not raise the sales of sustainable products fast enough to reach the climate change and biodiversity targets, a system of obliged blending with checks on payments for the farmer's additional costs should be introduced to reward farmers for their sustainability measures.

3. Policy instruments to incentivize food system actors

In this chapter, we address the responsibilities of different actors by providing interesting options on how policy instruments could change their behaviour in such a way that these actors start contributing more to a sustainable food system. We restrict ourselves to the most important actors, acknowledging that all actors have a role to play. We stress again our advice in Chapter 1 that the deployment of policies should be balanced. For instance, supply management by encouraging the production of organic food runs the risk of imbalances in the market with a strong negative effect on current producers. Market development for sustainable products is therefore more important than the current Farm-to-Fork proposal suggests.

Support new actors and markets

To change the behaviour of the current food system and make it more sustainable, it helps to bring in new actors. Like strengthening R&D in the current food system, it is not an immediate solution as it takes time, but empowerment of new actors is nevertheless useful. Examples are businesses with innovative approaches in food processing like plant-based meat or dairy products, backed up with venture capital, as well as new actors in retail like home delivery, online (e.g. direct sales from farmers in digital short supply chains), farmers' markets and out-of-home.

Besides new actors in the food supply chain that provide new, more sustainable products, there are also potential or other actors with a quite different background that can help to change the food systems. Some cities are starting to regulate public space and the food environment with the help of new democratic bodies like local Food Policy Councils, Citizen Summits, etc. Health professionals and tech-start-ups that introduce wearables that are interested in preventive health and the role of lifestyle and food (in addition to the current curative approach by those who studied medicine) can be empowered to help consumers to eat more healthy and sustainable diets. In the environmental domain, there are organizations that want to offset their GHG emissions and buy carbon credits from farmers who are then incentivized to change water tables in peat areas³¹ or other operational farm actions.

To make the current food system more sustainable, it is also important to realise that payments for food are not the only market-based solution. In addition to the market for food, markets for ecosystem services can be created. An example in the case of positive externalities is to provide farmers with long-term contracts (e.g. 25 years) for nature management (like meadow birds or landscape elements) or CO₂ storage with instruments like tendering, auctioning or tradeable quota systems. Another example is a trading system for greenhouse gas emissions like the ETS. A specific ETS for agriculture or food production

³¹ Based on Rli (2020).

could be set up, either by including farmers directly or by counting their emissions in the sourcing of food processors.

Having different policy instruments risks setting imbalanced incentives if not all aspects of sustainability are addressed. On the other hand, it sometimes seems easier to integrate objectives at the local level of the farm than in the multi level and siloed governance levels in politics. Specifying future maximum emission levels (more and more measurable with sensors and otherwise estimated with proxies like the type of stable or the nitrogen surplus per ha) for different sustainability parameters and leaving the solution to the innovative competences of the farmer and the input industry could be a possibility.

On the consumer side, low-income groups could be empowered to choose a more sustainable diet by information and more income (minimum wages, social security) but also by food coupons for sustainable products handed out by medical staff to obese people. This would entitle them to shop for a much-reduced price at farm markets for healthy products or sustainable products and provides education (cooking lessons) and buddy groups – as long as this does not lead to a European variant of the American SNAP programme³².

Consumers

A diet transition is urgently needed, with a majority of individuals moving away from diets that contribute to overweight, obesity, diet-associated non-communicable diseases, climate change and biodiversity loss, towards healthy, sustainable diets that foster human and planetary health. To incentivize consumers to follow a more sustainable and healthy diet, labelling of products is needed. Traffic light systems like Nutri-Score for health and a similar system for climate and biodiversity are needed. The Danish experience suggests that labelling of restaurants also helps. But a liberal food policy based only on providing improved information to struggling consumers is clearly not enough to reach the objectives of the society regarding health, climate change and biodiversity. A more active approach is needed.

Consumers do not pay the true price of their food, which can contribute to overconsumption and food waste. This implies that there is no need to reduce the normal VAT rate for products that are clearly sold below their true cost, like animal products. An interesting option, as mentioned in the Farm-to-Fork strategy, is to change the VAT regulation in such a way that animal products are taxed at the standard high level. Products with clear health benefits that are under-consumed, especially fruits and vegetables, could be taxed at the reduced or a zero rate in the VAT system. For specific products like sugar, a special excise tax has been introduced in many countries, with beneficial consequences on sugar consumption. These measures would be regressive and impact especially the income of poor citizens. They should be compensated with higher social security payments, higher minimum wages or food coupons to be spent on sustainable food products.

Citizens are often more interested in their individual health and well-being and that of their family members than in environmental aspects. Although more research to substantiate claims is needed, supporting consumers to adopt a healthy lifestyle and for instance become an actor in local social food communities (community-based agriculture and similar initiatives) is an interesting option to increase consumer capabilities and bring their consumption closer to the recommendations for healthy and sustainable diets. Paying more attention to food and health in primary education is also an important policy option.

³² That has the risk of a political economy in which farmers and poor consumers have a vested interest in allocating taxes to these groups.

Retail and catering

With regard to health and sustainability aspects, a regulation of marketing is needed. This concerns the marketing of unhealthy products to children (by retail and producers of branded foods) as well as a bias in marketing on excessively cheap animal products (sometimes supported by public funds).

An interesting option in relation to certification is to oblige retailers (or all organisations that buy, for instance, more than one million euros of food or farm produce in a year) to report the sustainability of their sourcing in their annual ESG/sustainability report³³ with the data of the certification of the (directly or indirectly) supplying farmers. One step further would be to oblige a minimum level of certified green products at a price that rewards farmers for their extra costs.

Restaurant labelling can be a driver of sustainable food demand. To avoid food waste, advance reservations (by the previous evening) in canteens could be given preference.

Public food procurement

Food consumption is de facto also organised by private organisations and public institutions via their canteens and public organisation kitchens such as schools and hospitals. These organisations could support consumers not only by sustainable procurement (see below), but also by improving the motivation and capabilities of citizens. Public procurement of sustainable meals will not only change public food consumption, but will also help in normalizing a change of eating routines for private consumers. When citizens are confronted with more sustainable meals in a public kitchen or canteen, such meals become available to them more frequently and therefore become more normal.

Public procurement by governments and government-dependent organizations like schools and hospitals, needs to be based on sustainable diets defined by ambitious and verifiable criteria (green certificate; increasingly organic; the Planetary Health Diet (EAT-Lancet) could be enacted in a compulsory menu composition)³⁴.

Food processors

Certification could also apply to food processors, as is currently the case in organic farming and private schemes like ISO and HACCP. Specific issues for food processing, like the use of water and energy, packaging and food waste could be included in that certification. This would underpin labelling in cases where food processors and retailers would like to market more sustainable branded products.

Food processors (or all organisations that buy, for instance, more than 100,000 euros of farm produce in a year from different farmers) could be obliged to report the sustainability of their sourcing in their annual ESG/sustainability report with the data of the certification of the (directly or indirectly) supplying farmers (in addition to their own sustainability performance).

Another interesting option resulting from the introduction of certification is that food processors could be obliged to buy a certain percentage of their inputs from light and dark green certified farms (roughly equivalent to the percentage certified as green) and obliged to pay higher prices that reflect the higher cost of producers. Such a blending obligation provides an incentive for these companies (including cooperatives) to help the supplying farmers to innovate to more sustainable production processes and reduce the costs of the sustainability actions³⁵.

³³ See the EU Commission's proposal Corporate Sustainability Reporting Directive (COM(2021) 189)

³⁴ EU Food Policy Coalition (2021).

³⁵ It could start with, for instance, dairy factories and slaughterhouses. This is a concentrated sector (through which milk and animals have to pass) and when green farms would have to buy their feed within a 500 km distance

Food processors or water companies that are related to local farmers, could be further incentivised to introduce local collective contracts to pay for ecosystem services and/or for better environmental management³⁶.

Farmers

All farmers (with the exception of the smallest) have to be certified based on the system described in chapter 2 above. Such a system is needed in order to help farmers (and other producers) to operate more sustainably. Digitalisation, especially of paper flows, can make certification much easier.

Obliging farmers to produce more sustainably and including them in a certification system increases their cost of production. In a sustainable food system, the jobs in the food system need to be valorised, properly paid and generally made attractive. Without relevant compensation, this transition will be rejected and/or will lead to policies that are not ambitious enough. This means that the change starts with farmers being paid a higher product price for more sustainable products by food processors and retailers, and in the end by consumers, or with payments for ecosystem services by governments. The extra costs of these production methods, and hence the true cost of farm products and the extent to which farmers are compensated, can be monitored by the proposed Farm Sustainability Data Network.

The budget for the Common Agricultural Policy should be used for the most urgent public objectives instead of being allocated to larger farms and landowners. That means that the traditional direct payments should be restricted to solve income problems with farmers and phased out once that role is taken over by national social security systems. In principle, there is no reason why farmers should have a higher level of social security than other groups in society. Payments per farm should not be higher than the regional minimum wage level to start with, and at a later stage, Member States could be incentivised to take income tax data into account to maximize payments to self-employed farmers.

In so far as the CAP budget is not needed for income support, it should be used for eco-schemes and pillar 2 type ecosystems contracts that reward farmers for positive ecosystem services. These contracts should preferably be long-term (e.g. 25 year) conservation contracts to help farmers to change the long-term strategy of their farm and accept natural elements in the country side and their production processes that are currently seen as undesirable³⁷. Such contracts could be auctioned, creating a market for ecosystems. CAP budgets could also be spent on helping farmers to improve their sustainability performance (in certification terms: to move from orange to green status).

Fishermen

Like farms, fish operations could also be part of a certification scheme – although more work is needed on the concept of sustainability in fisheries and aquaculture. In the same way as pressures on land across food, energy and construction sectors are balanced by policies to safeguard the biosphere, this holds for the pressures on maritime sources as the seas (and increasingly the oceans) become an important place for human activities (energy production, shipping, tourism, fisheries, aquaculture, etc.). Management of fisheries should become decentralised at the level of the fishery and needs to ensure the participation of

produced on green farms, it would also indirectly have an effect on arable farming. Like in the car market, the factories could be allowed to trade certificates between manufacturers that do more than the required share of blending and those that do less.

36 As is done already in Germany and other Member States. For example, the surface land over a spring's watershed that is used for agriculture has to meet very strict quality standards. The costs of sustainable practices by farmers could be paid by the water company and passed on to consumers.

37 If farmers in such a system can also market their product at a higher price, that is a bonus for them and not a big problem for state aid (we give subsidies to e-cars, the fact that a taxi firm creates a sustainable brand with these cars and has an advantage in the taxi market is also not seen as a problem, that is intended leverage).

all major stakeholders in the fisheries in question, through decentralised co-management groups empowering them. Special attention must also be paid to the energy use in fisheries, to create more sustainable fishing with new fishing techniques.

Banks, other financial institutions and landowners

Banks and other financial institutions should take the sustainability performance of farmers and other actors in the food chain into consideration in their risk management. This should be included in the EU Sustainable Finance Taxonomy and lead to lower interest rates for the farms and food processors with a good sustainability performance. This can offset some of the negative effects of the Basel IV rules on financing agriculture³⁸.

In current land markets (rental market, land sales), farmers with a good sustainability performance are often handicapped. Farms with a more sustainable performance sometimes have lower margins per ha (as they use their land less intensively) and have problems enlarging their farm. This situation promotes intensive land use. Governments that intervene in the land market with, for instance, the regulation of rental prices and conditions or allocation of land in sales (like in the French SAFER system) should favour farms that are certified as more sustainable. Multi-functionality of land use, such as agroforestry or combined livestock/energy uses, or intensive organic horticulture are interesting options to promote and should not be blocked by rules in the land market.

Comprehensive regulatory frameworks for sustainable land stewardship lead to distributional effects as a result of existing ownership structures, land scarcity and the character of many land-based products as basic services³⁹. These effects should be evaluated at an early stage and cushioned by accompanying instruments. Increased land rents, the residual values that capture the scarcity of land due to climate- or environmental policy measures, should therefore be taxed at a higher rate. The revenues generated in this way can be used for compensatory measures for certain actors or, for example, for expanding nature conservation areas.

Land rent taxation is a particularly attractive source of financing for public budgets because (1) its distortion effect is relatively small, (2) public investment in particular is 'capitalized' in land (e.g. rising land values due to adjacent recreational areas or infrastructure), and (3) it has a progressive effect in many cases (richer population groups who own more land are taxed more heavily). The motivation for such a tax would correspondingly be primarily fiscal or distributional.

Input industries

Input industries face a challenge to reduce the polluting effects of the products that they supply. The certification process described above could be organised in such a way that not only food processors become responsible for the sustainability of their sourcing, but that input industries also have extra responsibilities in providing inputs (antibiotics, chemicals, concentrated feed) to farms that have an excessive low level of sustainability (and high level of inputs). This could take the form of extra advice to the farmer from an independent advisor. Banks could be interested in the composition of the portfolio of such clients too: financing a feed mill that supplies to farms with a high contribution to regional emissions should be seen as an extra risk.

The role for input industries is strengthening the change towards less damaging inputs and substituting knowledge on ecological processes for chemical inputs. New technologies in precision farming, agro-

³⁸ *These rules put more emphasis on cashflow in assessing loan applications, which could make financing land transactions (and farm takeovers) more difficult.*

³⁹ *The text in this paragraph has been copied from the WBGU (2021).*

ecology⁴⁰ and new breeding techniques for climate resilient varieties offer a way forward. To care for soil compaction, biodiversity and integrity, erosion, and CO₂ emissions in an ecological setting, machines have in many cases to give way to small autonomous robots that might complement a more diversified manpower base. Competition policy should be critical regarding competitive behaviour in concentrated industries but be friendly towards collaborative sustainability initiatives and new players.

For the food system to become more sustainable, the role of the Agricultural Knowledge and Innovation System has to be revitalised. More advanced understanding of the total environmental impacts of the food system is still required and new production technologies for ecologically sound food production should be developed. A transparent view on the true costs of food will help to target R&D. Environmental protection and sustainability should play a substantial role in the training of farmers. Best practices of the most sustainable farmers should be shared with others in order to attain a high level of sustainability. If farmers can only rely upon advice from food system partners or commercial consultants, they will find it very difficult to perform a transition of their farm or find other gainful activities. Knowledge exchange networks of farmers-to-farmers and farmers-to-scientists on equal footing could be promoted. A similar issue exists at consumer level, where health and education professionals should play this role.

Importers and exporters

The certification and labelling of farm and other products could be used in addressing the responsibilities of importers and exporters. Like in organic farming (and in several voluntary sustainability schemes such as ‘responsible’ soya and palm oil), imports could also face the obligation of certification (with, for example, light green as a minimum condition) as an instrument to progressively raise sustainability standards so as to become the norm for all food products placed on the EU market.

The framework law should prevent policies in the European Union that do result in exports of products with a low sustainability level (‘yellow’, ‘orange’) as that implies that foreign markets are supplied with cheap products at the expense of the European environment. Terminating the export of products that have been certified as ‘yellow’ or ‘orange’ could help to make the food system more sustainable (as environmental problems are created by the marginal production) and provide more options for local production and income generation in developing countries (see Annex 3 for additional remarks).

Our advice on policy instruments to incentivize food system actors

The detailed suggestions above on policy instruments in the framework law on sustainable food systems should take certification and labelling as a base. The introduction at farm level and in the food chains (processors, retail) makes it possible to progressively raise sustainability standards and direct innovation to current challenges. It supports labelling products for consumers and other buyers. Demand can further be supported by rules for public procurement. Food processors and retailers could be instructed to report the sustainability aspects of their sourcing in their ESG reporting. Similarly, the input industry could become more responsible for the sustainability effects of its sales to farmers. Governments can help more sustainable farmers with eco-schemes, long-term ecosystems contracts and in the land market, as well as with knowledge and innovation.

A next step is to use the certification system for raising standards by blending obligations in which food processors and traders should buy-in a certain percentage of the most sustainable products and pay farmers a price that offsets the extra cost. This would reward more sustainable producers and raise the average price of the product towards its true cost. Such a system should also include importers and exporters to guarantee a level playing field with third countries and to prevent adverse effects.

⁴⁰ See *IDDR* (2018).

In addition to this policy instrument of certification and labelling, other policy measures could be used, like regulations on marketing or differentiation in value added tax. Instruments like economy-wide taxation of carbon should include the food system (with agriculture). It could be necessary to offset negative effects on incomes of consumers or farmers by changes in minimum wages, income tax or in social security systems.

4. Monitoring and political governance

In this chapter, we address a couple of aspects for the framework law on monitoring and governance. Monitoring helps to inform the debate on food system policy with facts. That is important. As uncertainties or disagreements about facts can also worsen conflicts regarding interests and differences concerning values as OECD (2021) made clear. Interest groups are sometimes tempted to create uncertainty concerning facts as a tactic to block proposed policy initiatives. Disagreement about facts can lead to framing a policy debate when also differences regarding values play a role. But interest groups that invoke values for self-serving reasons, are not to be misunderstood. They signal that the values in question are real, and are held by at least part of the public. Efforts to frame a policy discussion in terms of values can thus help to move a policy debate in a desired direction. The interaction between facts, interests and values can create complex problems, labelled as 'policy controversies' or 'wicked problems'. It is difficult to come up with 'frame-robust' policies. Hence the importance of institutions (the 'rules of the game') that govern the political and economic outcomes⁴¹.

Our advice on monitoring

The monitoring of the food system policy should be based on data that describes the sustainability of the total food system, including the behaviour and sustainability performance of different categories of actors in the value chains. It could take the form of a bi-annual report on the State of the Sustainability of the European Food System that the European Commission should present to the European Parliament and the Council of the European Union. It should include the monitoring of the effectiveness and efficiency of the different policy instruments.

Monitoring the impact of policies at farm level can be based on the proposed Farm Sustainability Data Network (FSDN). It is important to measure all sustainability indicators in an integrated way at the sample farms, collected in an auditable accounting approach. This makes it possible to observe farm management decisions and the sustainability performance of farms, as well as to assess the impact of a policy measure on a farm with its trade-offs and jointness on different sustainability measures including income. This data can also be used to analyse the extra private and other costs that farmers with a green certificate face compared with other farms and monitor if food processors pay these extra costs. The FSDN data can also be used for benchmarking and advisory activities. Such a development from FADN to FSDN might help to regain the FADN the position it had in the past for the 'objective' method of price setting in the CAP. Methods to calculate true costs (valuing externalities) could be further developed to compare different regions.

As explained above, the monitoring of all individual farms (except the smallest) could be done with a certification process that also makes use of a public digital infrastructure that provides farms and their advisors with a digital dashboard with their own data store and a system of authorisations for data access. This could be an extension of the IACS system in which farmers not only get access to the data with field maps and KPIs they supply, but also benchmark data for their farm (estimated with the FSDN data for the

⁴¹ Based on OECD, 2021

region) and, for instance, soil maps, satellite data and future climate scenarios. The farm data on emissions could be linked to the European Pollution Release and Transfer Register.

Monitoring at consumer level could benefit from a micro-data panel comparable to the FSDN. This panel data might include data on food consumption, lifestyle and health status (wearables). Consumers might be empowered with a public data vault where they can store such data and retailers could be obliged to make check-out and loyalty card data digitally available in the same way as banks are obliged under PSD2 to make bank data digitally available to their individual clients.

Our advice on political governance

The European Union has responsibilities for global resilience, including food and nutrition security and an intact biosphere. There are many international policy mechanisms, often within the United Nations network, but also at OECD, that can improve the governance of global food systems. An IPCC-like forum on food could make the urgency and direction of change more scientifically based. The EU should play an active role in these, in line with the EU's international role as a standard-setting actor for sustainability.

Investments in climate change mitigation in the food systems as a share of all mitigation funding need to be in line with the share of GHG emissions (about a third). Examples are land restoration that allow for sequestering carbon in soils, and provide a wide range of other ecosystem services.

The Framework Law on Sustainable Food Systems is an important turning point in the European policies on food: the innovation capacity of the food system will be redirected from ever lower food prices to solve the challenges in climate change and biodiversity. That does not necessarily mean higher food prices, but the expectation that income problems will be solved with lower food prices in the future has to be buried. Such a change asks for a broad support, generated by citizen's assemblies (as the Irish Citizen's Assembly, the French Convention Citoyenne du Climat), with randomly selected citizens or other mechanisms for broad national agenda setting⁴².

To govern the European Food System and align the relevant current EU policies, the European Commission should establish a coordination group composed of relevant Commissioners whose DG is involved in the food systems in a broad sense. In addition, a coordination mechanism between the European Commission and the national ministries should be set up to coordinate actions and measures. This coordination mechanism⁴³ should work cross cutting through policy domains (agricultural, fisheries, environmental, competition, health and social policies, to name a few). Member States have to develop comprehensive national strategic plans for sustainable food systems including actions in the social domain for a just transition⁴⁴. A European Food Policy Council⁴⁵ should be set up to advise on the transition to a more sustainable food system and the implementation of the legal framework. It should consist of stakeholders from across the food supply chain and civil society as a whole. Stakeholders should include interest groups related to food, health and the effected environment⁴⁶.

⁴² Germany had a high-level committee to assess the future of agriculture: https://www.bmel.de/SharedDocs/Downloads/EN/Publications/zukunftskommission-landwirtschaft.pdf?__blob=publicationFile&v=5

⁴³ The European Food Security Crisis Preparedness and Response Mechanism could be a model for coordination

⁴⁴ As suggested in JRC (2022).

⁴⁵ Or in the words of JRC (2022): "... create an "EU Sustainable Food Systems Platform" as soon as possible. It would have a system-wide remit aimed at facilitating exchanges between Member States, regional authorities and other key actors in the food system about how to implement and support the achievement of the Farm to Fork Strategy objectives during the preparation of a forthcoming framework legislation already. This platform, connecting private initiatives, know-how and resources with public policy goals, can partly build on the experiences of, for example, the EU Platform on Food Loss and Waste".

⁴⁶ Schmidt (2017)

Background

1. What is the European Food System?

The European Food System is a term we use to describe a network of actors and their relations that includes the related resources, the inputs, production, transport, processing and manufacturing, retailing, related services and consumption of food as well as its impacts on environment, health, and society¹. It contains many food supply chains that are oriented to the flow of certain products from input industry to consumer. It includes fisheries and aquaculture.

The boundaries of the system are fuzzy: some actors providing inputs are in the chemical industry, machinery industry, the financial industry, logistics or business services. They include effects on non-European partners from whom inputs are sourced or to whom products are sold.

Several actors in the food system are involved in production or sales activities that are closely related, like ornamentals (flowers), crops for energy or bio-based industries or waste-management and have a multifunctional business model. The importance of the food environment in consumption makes the range of actors even more diverse as this brings cities, schools, canteens, railway stations, petrol stations, restaurants and many more actors into the food system.

It is questionable⁴⁷ if an exact definition of a sustainable food system can and should be given in law. In essence, it comprises all those actors and their relations that have an effect on sustainable diets, as defined in chapter 1 of the main text.

A sustainable diet is defined by FAO⁴⁸ as those “*with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations*”. One has to realise that sustainability is normally related to the processes that create the food, with agriculture as the main activity where most unsustainable practices occur, partly as a result of a biological processes in the open air. Although food waste at consumer level also plays a role. Healthy relates to the diet at consumer level, at the level of total intake, not at individual product level. The FAO definition takes these aspects together.

2. Trends in the European Food System

Improved food security and lower food prices...

Over the past 60 years, the Common Agricultural Policy has been successful in improving the food security in Europe and feeding the growing population. Increased incomes of Europeans implied higher labour costs and a need to achieve higher labour productivity in food production. This induced technological change and led to an industrialisation of the food system, in farming for instance with mechanisation, motorisation and robotisation, pesticides, clearance of landscape structures, antibiotics, modern animal housing, the use of migrant labour, increased international trade, etc. Standard technologies sometimes overruled local and/or natural circumstances. In general, these developments have kept food prices low, increased demand for animal proteins, made labour resources available for other sectors and led to regional concentration of activities. That contributed to an increased European welfare, although this neglects the true cost of production and did not benefit all in and outside Europe equally.

⁴⁷ In line with Baldock, D. and K. Hart (2021)

⁴⁸ Burlingame et al. (2010); see also our background section 1.

... but side effects in production...

However, it became clear long ago that these technical and societal shifts also had and have negative impacts⁴⁹: (*) depletion of biodiversity due to removal of landscape features and excessive use of fertilisers, (*) pollution of soil, air and water resources (especially in areas of concentrated production) with effects on biodiversity and human health of farm workers and local residents and on climate change, (*) animal welfare problems, (*) erosion of soils and soil compaction due to heavy machinery, (*) drainage of peatlands causing high CO₂ emissions, (*) depletion of aquifers, (*) risk of zoonoses and spread of antimicrobial resistance, (*) creation of a segment of small farmers with low incomes and (*) marginalisation and depopulation of remote regions with fewer and larger farms⁵⁰. There is also a growing land and biomass footprint outside the EU linked to demand for food, feed, biofuels and materials, accompanied directly or indirectly by environmental effects.

The Common Agricultural Policy, Environmental Policy (Nitrate Directive, Habitats Directive on Natura 2000, etc.), Regional Policy and national/regional regulations have addressed these issues and progress has been made in making the production more sustainable with less negative impacts per unit of food produced and often also per ha of land used - an important indicator as many polluting impacts are local and due to concentration of production (which suggest that land sharing and land sparing both have a role to play). Similar processes are changing fisheries and aquaculture (governed by the Common Fishery Policy). Unfortunately, these policy instruments have until now only been partially successful, as persistent problems remain. Environmental directives are not properly implemented and enforced and environmental incentives are, in many cases, neither economically attractive nor ecologically effective enough. That makes it very unlikely that these policy instruments are fit for purpose to solve the issues of climate change, which is already affecting farming and forces the food system to adapt, in addition to the contribution it has to make to mitigate the emissions of greenhouse gases, respecting biodiversity and restoring habitats.

..and in consumption

A similar issue exists on the consumer side of the food system. Over the past 60 years, European food became more diversified and safer. Some major food safety crises improved the governance of the food system (EU Food Safety regulations), with better tracing and tracking. Food processing became more important and helped consumers to save time. The focus on consumer convenience also made food available in cities and in many places 'on the go'. Cheap food, modern processing and retail are associated with food waste. Increased income and relatively lower prices of food led to a higher intake of calories (often too high from a human health perspective) and animal proteins, with the effect that large areas of land are now dedicated to feed production – in the European Union or via imports. Fruits and vegetables (that are harder to handle in a more industrialised system, need often more time and knowledge in preparation and have therefore seen a relatively smaller drop in prices) are often missing on the plate. The Planetary Health Diet as advocated by EAT-Lancet, states that fruit and vegetables should be half of our diets, and only a quarter should be animal-based⁵¹.

⁴⁹ See for instance the outcome of a IPBES-IPCC workshop: https://zenodo.org/record/5101125#.YfEN0N8o_mE

⁵⁰ *Less than one third of the EU's population lives in rural areas and they are more at risk of poverty and social exclusion than in towns and cities. The average road distance to essential services is much shorter in urban areas compared with rural areas and only 60% of households in rural areas have access to fast broadband (EU rural areas in numbers (2022). European Commission. Consulted 8 February 2022). By 2011, just over 40% of European regions were experiencing depopulation. By 2050, the population of Europe's urban regions is projected to increase by 24.1 million persons and will provide home to almost half of the EU-28 population (Eurostat 2016). By contrast, the population of predominantly rural regions is projected to fall by 7.9 million. (Source: <https://www.espon.eu/sites/default/files/attachments/ESPON%20Policy%20Brief%20on%20Shrinking%20Rural%20Regions.pdf>)*

⁵¹ See <https://eatforum.org/eat-lancet-commission/>

Some processing and food modifications have had unfortunate side effects on nutritional health. A well-known case is the removal of fat in foods, which started in the seventies to address weight gain. At the same time, highly processed foods rich in carbohydrates with a sweet taste and lower price strongly increased in sales. The increase in their consumption seems to have contributed in part to the rise in obesity and diabetes, which became a separate risk factor in heart disease, as well as a rise in many diet types⁵² Ultra-processed foods are correlated with cancer⁵³. There is also an important social dimension in the issue of sustainable diets, as not all individuals can access and afford healthy and sustainable diets, leading to important health disparities⁵⁴.

The focus above on consumers and primary producers is not to say that there are no sustainability problems in other parts of the food chain, like the processing industry, the input industry and retail. Food waste, packaging and resource use (energy or water) are examples. But it seems that the challenges at both the levels of consumers and of primary producers are greatest. This is not to say that farmers and consumers are responsible for the sustainability problems or that policies that target these groups will be effective and efficient. Farmers and consumers are hardly sovereign in the food system, as a result of the existing economic and political governance mechanisms. The challenge is to transform the system and redirect innovation processes from focussing on even lower prices to innovation on creating sustainable food consumption and production. This calls for a food system approach.

There are many interesting grass-root initiatives of local consumers and farmers that find new ways of working, for instance in short-supply chains, organic farming and more multifunctional farm strategies as well as changes in dietary habits. However, these initiatives do not scale up very fast and it is unlikely that even with more support, they will disrupt the dominant food system in the next decades in such a way that health, climate and biodiversity objectives will be reached in time. This means that a transition of the current dominant system is also needed.

Governments and the food system

The European food system consists of many food chains that move inputs (seeds, chemicals, machines, etc.) to farmers who create food, feed and fibre for the processing industry and retail. These product flows take place in value chains with specialised companies, supported by service providers in logistics, finance, quality control, information technology, etc. In the food system also non-governmental organisations, from industry-organisations to environmental lobbying groups, as well as different levels of governments, play a role in shaping the governance mechanisms. Over the past 60 years, many organisations have merged into larger entities, in the retail and industry often with an international character and a high level of concentration. Even many farmers' cooperatives work on an international scale. And those organisations who work more regionally also feel the influence of international trends. Farmers and consumers have very little power in these supply chains. Neither categories nor environmental interest groups have local, regional or national governments that find it easy to reduce pollution when international competitiveness is at stake.

For governments it has proven to be difficult to influence consumer behaviour towards more sustainable diets. Consumers are often seen as sovereign in their food intake and it has been the general perception that it is not easy to provide them with information, time and income to make a healthy and sustainable choice. However, consumers are not necessarily sovereign, since they are dependent upon the supply in

⁵² LaBerge (2008).

⁵³ https://www.isglobal.org/en_GB/-/el-consumo-de-alimentos-y-bebidas-ultraprocesados-se-asocia-con-mayor-riesgo-de-cancer-colorrectal

⁵⁴ Placzek, O. (2021).

retail and catering. Also, food consumption is driven by both routines and identity, both of which are difficult to change, unless strategies involving other measures than information and price are taken into account. Although an intrinsic motivation often exists and is shown by citizens at the ballot box, this does not automatically go hand in hand with actual consumer buying behaviour. Furthermore, there are large economic and social inequalities between different groups of consumers in European countries. Raising standards or introducing taxes hurts poor people most and can impact their food insecurity. Methods to compensate with social security payments or higher minimum wages exist, but run into barriers of routines and social relations. Interventions to provide a better food environment are also difficult, as the products in themselves are not necessarily unhealthy: it is necessary to look at diets and lifestyles and to involve retailers and the catering industry to take up responsibility. Nevertheless, good practices exist. Food chains have introduced labels on sustainability (with certification of production as a guarantee) and health (e.g. Nutri-Score). Governments have issued food intake recommendations, regulated public food procurement and installed levies and taxes (on alcohol and sugar). Some cities have introduced a food policy.

On the farming side similar difficulties have emerged. Farmers are often willing to produce in a more sustainable way. Adaptation to climate change calls them to action. But when markets (food processors) do not ask and pay for those practices, sustainability actions hurt their competitive position and regulation is unwelcome. Without compensation most farmers find it hard to become more sustainable. They are in a rat race to achieve the lowest cost price for their products and the highest bid price for additional land to realise efficiencies of scale. Technical innovations are often preferred over ecological or social ones; capping or closing down activities (like mink production during the COVID-19 pandemic) is exceptional.

Legislators face a difficult trade off: stricter environmental standards would lead to higher farm production cost, lower incomes for farmers and an even stronger increase in farm size. Also here, good practices have emerged. Food processors create dedicated supply chains with contracts and farm certification (although that gives some farmers the feeling that they become even more dependent on these companies). Legislation on organic farming has for a long time created a market for sustainable products.

The latest renewal of the CAP has extended the payments to farmers for nature management in pillar 2 and introduced eco-schemes in pillar 1 that reward farmers for positive contributions to more sustainable farming. That change also addresses the issue that farmers not only deliver food, feed and fibre, but often produce services in a multifunctional process. If locals or tourists prefer certain landscape elements one could question if these should be rewarded via food prices: if the oak tree and the hedges in the meadow have to be paid through the milk price, they will always be an obstacle. As there is still a lot of flexibility left to Member States regarding how the new CAP is implemented, there is a risk that the proposed implementation plans will fall short of expectations.

In conclusion

The analysis above illustrates that current policies, notwithstanding private and public contributions, have not yet been able to transform the European food system into a system that delivers sustainable diets with low environmental impacts which contribute to food and nutrition security and to healthy life for present and future generations. We see the need, and therefore welcome the initiative of the EU Commission to try to create a breakthrough with the introduction of a *lex generalis* that provides a framework for a sustainable European food system. Such a framework law on a common food system policy at the highest level of the European Union could create a joint approach in the common market, integrate different policy silos in production and consumption and remove worries of unfair competition that are an important consideration for national regulators.

3. The international context

The European Union is an important importer and exporter of food and feed. Concerning relations with third countries, higher environmental standards in the European Union should not lead to more environmental degradation elsewhere due to a shift in production (and more imports). However, it should be realised that many environmental effects of farming are regional (and should be measured in emissions per affected area, not on a per kg basis), so that re-allocation could be a solution, especially if the effects of indirect land use change (the land sparing / land sharing issue) are not too large⁵⁵

Our challenges are such that the EU should not wait until the international governance of the food system solves the issues. Europe has to act and provide an example. This responsibility means that actors in the food chain have a responsibility for the sustainability of products that they source from outside the Union. That production creates income and jobs in the exporting countries, which is especially welcome for developing countries. And although these countries are also bound by the Paris Agreement to minimize their emissions of greenhouse gases and by international agreements on biodiversity conservation, the framework law should prevent policies in the European Union leading to off-shoring production, especially if this results in larger global emissions or further destruction of ecosystems. The introduction of a relevant carbon border adjustment mechanism is therefore essential.

Europe has an important role in helping the world to feed itself. That role should first of all focus on strengthening local food chains in developing countries and help countries in their food sovereignty, which is defined as the right of peoples and sovereign states to democratically determine their own agricultural and food policies⁵⁶, as far as this is an option within planetary boundaries⁵⁷. Exports should not disturb their markets with products made at the expense of the European environment and biodiversity or at the expense of non-European environment by importing large amounts of biomass from countries with high, but poorly protected biodiversity.

Production in the Union for export should preferably be high-value products that cannot easily be produced in the importing countries (e.g. seeds, clinical nutrition), or products in which the EU has a natural competitive advantage (e.g. wheat) of the highest sustainability standard or by-products not consumed in Europe (like the famous pigs' feet and pigs' ears for the Chinese market).

Certification in import and export

The proposed certification and labelling of farm and other products could be used in addressing the responsibilities of importers and exporters. Like in organic farming (and in several voluntary sustainability schemes as in the case of 'responsible' soya and palm oil), imports could also face the obligation of certification as an instrument to progressively raise sustainability standards so as to become the norm for all food products placed on the EU market. For instance, imported products should at least be as sustainable as those produced in Europe with a light green level⁵⁸.

⁵⁵ See for instance Beyer et al. (2022).

⁵⁶ See IAASTD (2009). *The IAASTD with its 58 signatory states was the first intergovernmental, UN-led process to introduce the term of food sovereignty into the debate and to define it. Originally developed as a concept by the international peasants' movement La Via Campesina. See also the Declaration of Nyéléni. Forum for Food Sovereignty, 2007 (<http://www.fao.org/agroecology/database/detail/fr/c/1253617/>) and its 6 principles <https://nyeleni.org/IMG/pdf/DeclNyeleni-en.pdf>*

⁵⁷ For optimal trade patterns in situations with different social costs of products due to differences in regulation, see: Kathy Baylis et al. (2021).

⁵⁸ See the EU's Trade Policy Review (February 2021) and subsequent proposals and discussions. For details see Matthews (2022).

The framework law should prevent policies in the European Union leading to exports of products with a low sustainability level ('yellow', 'orange') as that implies that foreign markets are supplied with cheap products at the expense of the European environment. Terminating the export of products that have been certified as 'yellow' or 'orange' could help to make the food system more sustainable and provide more options for local production in developing countries.

However more insight is needed into how these options could be legally made possible within existing multilateral agreements, especially on the aspects that go beyond the carbon border adjustment mechanism. One idea⁵⁹ is to put in place an excise tax on all products (imported and domestic) based on their *global* GHG emissions (and other externality) profile; and then provide rebates for all producers (foreign and domestic) who can demonstrate with certification that their own emissions are lower than what was assumed – which would be the case by equivalence for the (dark) green certificated domestic products. This would apparently be allowed under WTO rules.

⁵⁹ *Developed by Dirk Heine et al. (2021). See also: Jacques Delors Institute (2022).*

Annex: Composition of the Working Group

The composition of the working group that has contributed to this position paper:

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