

# Towards sustainable food consumption

3 February 2023

## Expert workshop report

SA  EA

Science Advice for Policy by European Academies

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*3 February 2023*

## Version history

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1.0	28 June 2023	First published version

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# About SAPEA

SAPEA brings together outstanding expertise from natural sciences, engineering and technology, medical, health, agricultural and social sciences, and the humanities. We draw on over a hundred academies, young academies and learned societies in more than 40 countries across Europe.

SAPEA is part of the European Commission's Scientific Advice Mechanism. Together with the Group of Chief Scientific Advisors, we provide independent scientific advice to European Commissioners to support their decision-making.

We also work to strengthen connections between Europe's academies and Academy Networks, and to stimulate debate in Europe about the role of evidence in policymaking.

Europe's academies draw on the best scientific expertise to provide independent, balanced and authoritative scientific advice. This approach makes SAPEA a critical source of evidence for policymakers and the wider public.

Our Academy Networks collectively represent over a hundred academies, young academies and learned societies across Europe. SAPEA works to strengthen these academies and provides a means for close collaboration in a unique and interdisciplinary way.

For further information about SAPEA, visit [www.sapea.info](http://www.sapea.info).

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# Summary

The expert workshop is a vital part of SAPEA's evidence review process. It provides a critique of the draft evidence review report by the wider expert community.

The workshop on *Towards sustainable food consumption* was held on 3 February 2023 as a hybrid meeting. Participants included the invited experts, members of the SAPEA working group, representatives of SAPEA, the Group of Chief Scientific Advisors and staff of the European Commission.

The workshop format was as follows:

1. After a general introduction to the evidence review report, a keynote speaker presented an overall assessment of the report, with initial observations on strengths, possible limitations and gaps.
2. Each of the main chapters was then introduced, followed by feedback from invited discussants and an opportunity for open discussion.
3. The final chapter on policy-based options was discussed as an open forum.

The main suggestions for improvement to the draft report are summarised at the end of each section (below).

After the workshop, members of the working group considered the feedback and agreed on the actions that should be taken to address it. The draft evidence review report was then revised, prior to undergoing formal peer review. The final version has been published and is available on the SAPEA website.

## Introduction

SAPEA's expert workshop is a vital part of the evidence review process. It fulfils several purposes:

- providing a critique of the draft evidence review report by the wider expert community. Invited experts to the workshop give informal feedback, offering constructive input to the working group that is producing the report
- bridging from the evidence review stage to finalising the policy recommendations of the Group of Chief Scientific Advisors to the European Commission, who provide a Scientific Opinion

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- developing further the case studies, conclusions and evidence-based policy options in the evidence review report

Experts attend and give their views in a personal capacity and not as representatives of their employer or any other organisation with which they are associated. Chatham House rules are observed, with no attribution to any individual.

This workshop was conducted as a hybrid meeting, with some people attending in-person and others online. A list of attendees is given on page 29.

## Context and scope

The Group of Chief Scientific Advisors provides independent scientific advice to the European Commission. The Advisors work closely with the SAPEA consortium, which conducts comprehensive reviews of the evidence.

The scoping paper for *Towards sustainable food consumption* sets out the formal request for advice from the College of Commissioners to the Group of Chief Scientific Advisors. The evidence review report by SAPEA synthesises the evidence in response to the main question from the scoping paper:

What tools could be used at EU level, in addition to those mentioned in the 2020 Farm-to-Fork Strategy, to overcome the barriers preventing consumers [from adopting] sustainable and healthy diets, fostering the necessary change towards sustainability in the food environment? The Group's advice should be based on an analysis that identifies the elements [discouraging] consumers from making healthy and sustainable choices.

# Report of the workshop

The programme for the workshop is set out on page 31. A summary of each session is given below.

## Welcome and introduction to SAPEA

All participants were warmly welcomed. They included invited experts, members of the SAPEA working group, representatives of SAPEA, members of the Group of Chief Scientific Advisors and staff of the European Commission (see page 29 for a list of attendees). The role of SAPEA, the purpose of the expert workshop and basic ground rules were outlined.



# Introduction to the SAM and GCSA; background to the request for science advice

The model of the Scientific Advice Mechanism to the European Commission was presented. The Group of Chief Scientific Advisors acts as the interface between the scientific community and the European Commission. There has been previous work on food: *Food from the oceans* (SAPEA, 2017) and *Towards a sustainable food system for Europe* (SAPEA, 2020). The focus of this present evidence review report is on consumers and their behaviour, with the overarching question and a number of sub-questions posed in the scoping paper.

## Overview of the evidence review report

The working group chair provided an overview of the work so far. Most of the attention has been on the main scoping question, and some of the sub-questions still need to be addressed. It would be a significant challenge to address all the policies and legislation that affect the food system. Rather, we are concentrating on significant policy areas in nutrition and public health. There is no current EU-level nutrition policy; rather, it has emerged from a food safety approach. The Farm-to-Fork Strategy looks very much at the information environment, such as labelling. EU-wide standards on nutrition (fats, sugar etc) are lacking. Agricultural policies are more indirectly involved, although a few have a direct impact on consumers. Energy, environment and climate change are very important considerations. The Green Claims Initiative is in development and would result in an environmental labelling scheme. Public procurement is also covered in the Farm-to-Fork Strategy. These are the main policy areas but there are other actions going on. The Chair then outlined the structure of report, and talked about the challenges of bringing experts from different disciplines together, given the diversity of disciplinary 'languages', lenses and types of evidence. The Advisors had tried not to focus too much on individual behaviours but rather on structures which influence consumer choices. It had widened the scope of food systems to also consider informal food environments. The report stressed the importance of a holistic approach and policy mixes.

## General remarks on the SAPEA evidence review report

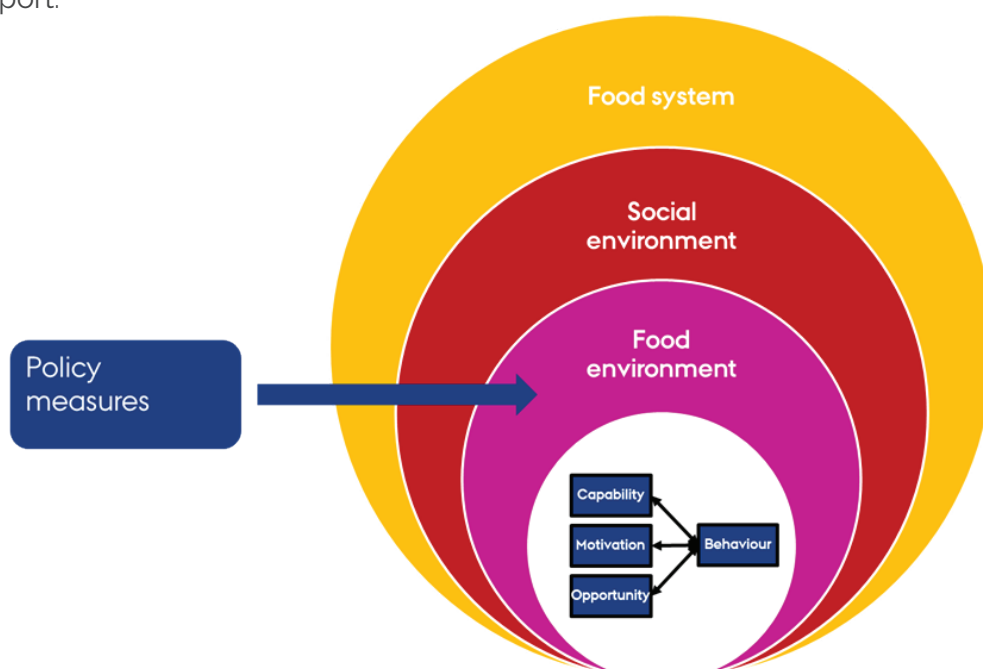
In this session, an invited keynote speaker presented an overall assessment of the report, with initial observations on strengths, possible limitations and gaps.

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### *Summary of the keynote presentation*

This report is extremely timely. Behaviour change is one of the biggest challenges in the green transition, and there is a large body of evidence in the social sciences that has been under-utilised. This report should be a milestone in ensuring that the voices of social scientists are heard in the debate about societal change. The overall structure of the report is good and takes into account different forms of consumer behaviour. The relationships between the chapters and the flow of arguments could be improved. More should be said about the need for a policy mix to address the issues instead of focusing on single policies. The speaker suggested a conceptual model that could underpin the report:



This conceptual approach is already reflected in the overall structure of the report, but the linkages between the elements could be better.

The speaker made a number of comments on each of the chapters. The selection of targeted behaviours is pretty comprehensive and pragmatic, yet Chapter 1 undersells this, as the selected behaviours in fact follow the meal provisioning chain. The major definitions in Chapter 2 should be used consistently throughout the report. The section on consumers and demand did not seem informed by latter parts of the report, as it focuses on demographics. The section on informal markets is not really followed up in the rest of the report. Sometimes, what are called 'informal' market transactions are really short supply chains. The elements defined in this chapter should be the right ones and then used throughout the report. The social environment is missing. A sentence about food behaviour being shaped by the food environment needs to be revisited. If the sentence means there is a direct influence then it should be reviewed, as it does not chime with the rest of the report. We should be looking at the mechanisms and processes in-between,

which the report does. In the section on digital, apps with augmented information should be included. Also, digital tools that provide feedback to consumers, for example, on health and the environment. Both these are mentioned later on in the report. It is not clear why sections on food waste and food assistance are in this chapter. The content in Chapter 3 should be linked to the food environment elements in Chapter 2 and food behaviours in Chapter 1, ensuring consistency throughout the report. Ideally, we need the same typology of policy instruments throughout. Chapter 4 would benefit from making use of the previous chapter, for example, the mechanisms governing human behaviour. It is true that we need more research on policy mixes, but we do know a number of things, which could be set out here as mutually adapting policies. Chapter 5 may not have the right title, and it has overlap with the previous chapter. It should provide insight into why a policy intervention may or may not have worked. Chapter 6 should underline the complementarity of different policy instruments. It was suggested to use the term "elements" and not "options".

### *Summary of recommendations*

The following to be considered:

- improve the relationships between the chapters and the overall flow of argument
- a conceptual model that underpins the report
- suggestions for improvement on each of the chapters of the report (see above)

## **What are healthy and sustainable consumption patterns? (Chapter 1 of the evidence review report)**

The chapter starts with a definition of 'dietary pattern', then looks at the diversity and origin of dietary patterns across Europe, suggesting that dietary patterns have changed over time (for example, the so-called 'Mediterranean diet') and at acute times (for example, the recent Ukrainian crisis). It then discusses recommended healthy dietary patterns, on which there is significant consensus. The chapter examines food consumption behaviour, including different definitions of 'consumption', and takes a pragmatic approach. The chapter considers environmental impacts and dimensions of sustainability, highlighting that food systems are major drivers. It also reflects on major challenges within the context of the EU, and considers principles and guidelines on sustainability and health.

### *Summary of comments by the first discussant*

Overall, the links between the final chapter (evidence-based options) and the rest of the report could be stronger, perhaps adding a concluding chapter. Chapter 1 is missing

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the huge differences in the sustainability impact of specific products, especially at farm level. Consumers should be stimulated further to choose the more sustainable variant of a particular product. For this, the 'sustainability market' should function better. Sustainability claims are diverse, vague and potentially misleading. There is no integrated assessment. This provides little incentive for producers to make a more sustainable product. A harmonised methodology is available through the EU Product Environmental Footprint but not used extensively in policymaking. There are promising developments, for example in France and by various retailers, on eco-labelling (where every product gets scored on environmental impact). This could help with sustainability data throughout the supply chain, providing incentives. There are EU initiatives to work on harmonised labelling but not much progress is being made. Retailers know a lot about how to influence food consumption. Through ecolabelling, they should be motivated to use their knowledge about the environmental impact of every individual product to promote more sustainable food consumption and production. Retailers should know what the sustainable options are, and eco-labelling and data-streams throughout the supply chain could help with this. Providing information is not enough by itself; retailers also need to be monitored. Yearly sustainability reports, where they report progress on making products more sustainable, should be requested from them. Indicators need to be more specific than those currently in the Corporate Sustainability Reporting Directive (CSRD). We should measure, benchmark and rank retailers. This will stimulate the role of markets in making food more sustainable. The reputation of big brands plays a significant role, accounting for more than half the value of the company, so performing well in these rankings is a strong incentive. Agreement is needed between governments and industries on required progress, with strict time goals. This should be mandatory if there is no agreement by industry, with penalties if goals are not met.

### *Summary of comments by the second discussant*

The discussant provided a perspective on healthy nutrition. There is a trade-off between the environment and health. The move to a more sustainable diet will mean reducing animal-sourced foods and increasing plant-based foods in our diets. However, a change in dietary patterns will mean a change in nutrient intakes, with potential implications for nutrient status and health. For example, studies show Vitamin D and iodine to be concerns, depending on the country and time of year. Also, the potential effects of changing dietary recommendations will differ for different subgroups of the population, such as the elderly and children; therefore their needs should be carefully considered also. Most countries have food-based health guidelines but very often they are not followed. Some are starting to introduce sustainability to dietary guidelines. The suggestion was made to move the section on health (Section 1.4, which should be expanded) to the section on healthy dietary patterns. In this section, the relevance of the data on the global disease burden was not obvious. The section defining consumption

behaviour goes into a lot of detail; the theoretical background is not needed, only the definition. It would be helpful to consider renaming Section 1.3 on the 'sustainability of current food consumption behaviours' as it focuses more on production, or adapt the section to integrate consumption behaviours. Section 1.4 could be expanded, and could look at earlier biomarkers of health rather than just the endpoint of disease. In most cases we want to keep people healthy rather than cure disease, therefore early biomarkers are important. If considering eco-labelling or any other type of labelling (e.g. the level of food processing), one must consider consumers' knowledge/understanding and the potential implications with respect to nutrient status and health e.g. a food might be eco-friendly but of low nutritional quality and/or a food can be highly processed but nutritious.

### *Response and discussion*

Points were made about reframing away from the consumers and towards the 'citizen' and also on the implications of change for other actors in the food system. The working group responded that there is a trade-off between a focus on food consumption and what happens in the rest of the system. It should be acknowledged, but we also have to be guided by the available evidence. The citizen-consumer behaviour gap would be picked up.

### *Summary of recommendations*

The following to be considered:

- improve the functioning of the 'sustainability market' for products and the players in the supply chain, with goals/measures and penalties for non-compliance
- acknowledge potential trade-offs between health and nutrition; dietary patterns at different life-stages and within population sub-groups
- suggestions for improvement in specific sections (see above)

## **Food systems, food environments and their drivers (Chapter 2 of the evidence review report)**

This is a framing chapter. It looks at food systems thinking and drivers of change. It considers issues of globalisation and concentration. One section looks at informal food systems and another on the food environment and its definitions. A diagram of the food system, its elements and connections was presented.

The chapter suggests areas for innovation in the food environment.

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### *Summary of comments by the first discussant*

The discussant brought up local farming practices, with examples from eastern Europe, notably a growing number of small farms in the Bulgarian countryside. These are great examples from the community on how to produce food with a local identity. The farmers search for traditional seeds, products and knowledge, looking for new interpretations of traditions and what can be learned from traditional practices to solve contemporary problems. This gives the opportunity to avoid losing useful knowledge and to promote greener policies. Some answers to today's questions lie in rural areas that sit outside the main agricultural practices.

### *Summary of comments by the second discussant*

This chapter should set down the conceptual foundation for the rest of the report, and also justify the choices made of what is and is not covered in the rest of the report. It is an assessment that requires some sense-making of the literature and what we know in answering the scoping question. It should advise policymakers of how to make sense of the available information to make decisions. The chapter presentation showed an emerging conceptual framework. It should bring the best of food systems thinking to address the question of what needs to change to achieve different outcomes. Health and sustainability are covered; economic and equity aspects are not, and should be. The key terms on the food system are there but not put into a consistent framework, along with how a systems view can help. The feedback loop back to the drivers is needed, as well as the activities in the food system. It is a necessary step in assessing what sort of options we are offering to policymakers. The choices will involve trade-offs across the food system outcomes, as well as how policymakers consider these trade-offs. Chapter 2 should set out how these trade-off considerations might work. The framework provided by the keynote speaker was very helpful. However, it assesses the status quo and does not assess what is needed in terms of decision-making; it would need the outcomes and feedback loop added in. The relationship between the food environment and overall food system is emerging in the presented framework. However, discussion is needed of who holds the power in the system; these are the people we need to work with. The changes will also impact on all the other actors. The discussion of the food environment is missing the wider food system outcomes, and may not show important opportunities or barriers to change. The discussant questioned whether the areas of intervention are the right ones. A discussion is needed of the key drivers; this is where many of the areas of intervention are. There are many entry points for change, and these need to be set up through the overall framework. This chapter is really important to the rest of the report. The chapter should bring something new that helps policymakers think differently about the choices they have and the implications of these choices.

### *Response and discussion*

One participant agreed that there is a lot of literature reviewed and it needs an assessment. A section on pet foods should be considered, which are a significant part of the food system.

It was agreed that aspects of the food system are currently a little inconsequential. Consumer behaviour has a major impact on the sustainability of the food system; we should say what the impact of such changes would be. This should be part of the concluding chapter.

A final point was that farmers' markets are growing in importance in some countries. They are an opportunity to bring the consumer closer to the producer.

### *Summary of recommendations*

The following to be considered:

- forms of farming practices and markets that sit outside the mainstream
- bring the best of food systems thinking to the scoping question
- in addition to health and sustainability, include economic and equity aspects
- the emerging framework should think about trade-offs; key drivers; add outcomes and a feedback loop; power relations between players in the food system

## **Consumer behaviour (Chapter 3 of the evidence review report)**

The chapter authors decided to look at three main areas (dietary patterns, more sustainable production, and food waste) and focus on barriers. They decided to structure it based on the COM-B model, with a specific focus on systematic reviews. The main outcomes from this work were outlined. The conclusions are that there are significant barriers. Most processes connected with food consumption focus on the cognitive (such as information etc). A broad set of policy interventions are needed and this chapter tries to provide a bridge into Chapter 4.

### *Summary of comments by the first discussant*

The chapter does what it sets out to do, and it comes from a consumer behaviour perspective. This is fine, but there are also other ways of thinking about food consumption. The report promises a holistic approach but does not really follow through on it. It hints at other perspectives, but there is an opportunity missed to look at other bodies of knowledge (from a wider range of social sciences from outside the dominant

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paradigms of economics and psychology) and what they offer, to complement and enhance what is there. The discussant expressed a number of concerns about the ways in which the 'alternative' paradigm is represented at the front end of the report. Specifically, the report makes a strong plea to focus on food consumption rather than consumer behaviour in isolation. A suite of ideas related to broadly sociological theories of 'practice' are invoked but in quite problematic ways — including missing literature and a misrepresentation of ideas, and then simply left hanging. The discussant noted that the contributions of this alternative paradigm were slightly misguided.

Specifically:

- the suggestion seems to be that theories of practice bring a range of activities (e.g. planning, disposal) into focus whereas these insights can easily be reached, as already pointed out, through reference to other ideas
- there is great emphasis on 'individual' versus 'contextual' factors, which is not a unique insight (behaviour economics, for example, make similar points) nor a particularly accurate one given that the point of practice theories is to decentre the individual
- there is an awkward bundling (and overreliance) of Alan Warde's contributions over a long and distinguished career, including the use of his 'modes of provision' to basically make a well-established point about alternative food networks (which was not Warde's point as far as the discussant understood it).

The discussant suggested two options:

- offer a more thorough and accurate treatment of the ideas that are invoked, including at the front end, and an additional 'complementary' chapter, and some serious consideration of what policies might look like from this perspective (there is a massive literature on this, completely unacknowledged here)
- drop the allusions altogether and be honest about what the report is

A cross-cutting issue is that the report as a whole jumps straight from 'system' to 'individual' and whilst a good discussion of the 'food environment' accompanies the diagram, the discussion of 'social environment' is underdeveloped and jumped over. It should be noted that theories of practice are perhaps a better set of conceptual resources for reconciling 'consumption' with 'system' transformation but the literature here (including in relation to sustainability transitions) is absent.

### *Summary of comments by the second discussant*

The discussant offered their perspective on ways forward. Firstly, the chapter is discordant with others, including the selection of models and tables. The model, which is linear, distracts the reader from a systems-based approach. Many routine behaviours are



non-conscious in the food system. The discussant was not sure why this particular model was chosen. As stated by the first discussant, there are many ways of understanding human behaviours. Chapter 2 has very clear descriptions of behaviours and Chapter 3 should map onto these. The methods used are not described, and it is not clear that the tables are based on literature searches, for example. Neither is it clear what the effect sizes are. What we are looking for is experimental evidence, to infer the causal link between knowledge and behaviour. To what extent does changing someone's knowledge about a food lead to a change in their behaviour? For example, huge budgets are spent on increasing the consumption of fruit and vegetables, which has increased awareness but has little or no impact on behaviour. The chapter pushes the reader away from a systems-based approach of looking at evidence.

The discussant made suggestions:

- keep the chapter, justify why the model was selected, link the content to other chapters
- redraft, and take a model or frame that fits within a food systems perspective
- drop the chapter and revise Chapter 2 to develop a framework, with a paragraph that draws attention to some of the routine/habitual nature of many behaviours, with a box within a broader infographic showing the entry points for interventions

### *Response and discussion*

There was a question about the environmental assessment in Chapter 1 and whether the literature had been looked at for the lower part of the food chain, particularly processing. The working group chair acknowledged this and said this section could be expanded.

A comment made was that the scoping paper reflected the tension between a food systems approach and the individual consumer. This thinking comes from the liberal side of politics, and research is biased in this direction. The players at either end of the chain – farmers and consumers – are economically weak and not likely to change the system. If we continue like this we will not realise our climate objectives.

A participant acknowledged that it is a challenge to bring these two areas together, as they are covered by different disciplines; in this respect, the report is doing a good job. The current approach in Chapter 3 is more of a social psychological one. Other approaches, for example from sociology, may be complementary. This chapter summarises a huge body of research and s/he did not agree that it should be removed. S/he did agree that there could be more emphasis on the other approach, showing how they complement one another. The second discussant responded that behaviour is a mix of the psychological and what is happening in the environment, and there is an over-emphasis of the former. The COM-B model can be read in a number of different ways and is not suitable for generating hypotheses. It does not address routine habits and

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behaviours, driven by food environments. In this case, the COM-B model would not be the most appropriate.

A further comment was that implementation will be based on what the EC is legally allowed to do. Policy will be directed at either the consumer, the retailer or competition policy. Consumer interventions are feasible, but other measures, such as taxes, are difficult at EU level. We therefore need a reality check of what is possible.

The working group chair acknowledged what he described as the paradox of the scoping paper. If we take a food systems approach, we would dispense with the Farm-to-Fork Strategy. Rather, the Group had taken the ambitious path to expand thinking. The framework law has the same problem; it probably requires a set of food system principles, to which we can contribute.

A final comment was that we need to offer a thinking tool to policymakers, looking at frameworks in a constructive way. There is a need to push the report one step further.

### *Summary of recommendations*

The following to be considered:

- bring in other bodies of knowledge, more broadly from the social sciences
- describe methods more clearly in the chapter. Re-consider frameworks, and whether the choice of COM-B is the most appropriate model from a systems-based approach
- perform a reality-check of what the EC is actually able to do

## **Proximate food environments and diet (Chapter 4 of the evidence review report)**

This chapter takes a social psychological and economic view of possible interventions in the proximate food environments and diets, noting that the way that evidence is established can differ across disciplines. The focus is on formal food environments. Interventions in the informal food environment/short supply chains are likely to be different.

### *Summary of comments by the first discussant*

The first discussant agreed that we need a systems approach. However, it was not agreed what the system should look like, and it is difficult to bring everything into one single framework. However, it needs to be done. It takes time to build comprehension and understanding, but this does not interest policymakers, who want solid, feasible interventions and potential solutions. The report needs more assessment and more of a

solutions base. Potential solutions need to be part of the thinking from the beginning of the report. This chapter covers a lot of ground, but more assessment and more nuances are needed. Each intervention has an effect, be it the one we want or not; there can be side-effects. S/he questioned why certain other aspects were not looked at, such as behavioural policies, or at least why they were not considered. S/he suggested reconsideration of the use of the word 'proximate' in the chapter title, as it may be understood differently. The chapter should also look more into digital food environments, including virtual food systems, which are very immersive and where there is a lot of investment. We should be very clear on the terms used; for example, what exactly do we mean by 'consumption' and 'consumer'? Actors' roles are very inter-dependent. Regarding Chapter 3, the discussant acknowledged that there are other available models, but the COM-B model does resonate with policymakers. There are forms of the COM-B model that do include habitual behaviour.

### *Summary of comments by the second discussant*

The second discussant provided written comments, which are summarised here.

Some instruments are more detailed than others. Chapters 4 and 5 are closely related and there may be some repetition between the two.

Health and sustainability are generally considered separately, yet trade-offs may be necessary (as already stated). This could be acknowledged more clearly, perhaps by underlining when the policy instruments integrate the two dimensions, or when there is a lack of evidence on the efficacy of this integration. The JRC's work on a sustainability compass for policy navigation to sustainable food systems could be mentioned [Hebinck et al., 2021].

Several policy instruments discussed in this chapter have also been used in other areas of public health, for example, in smoking reduction. It may be interesting to give some indication of the efficiency and impacts of price and taxation, information interventions and/or development of substitutes on different target groups, and to analyse whether lessons learned in this context would be relevant and useful for interventions on food environment.

An analysis of the impacts of different instruments/interventions on the quality of the food offer (reformulation, substitutes, packaging/portion size, etc.) could be enriched. What are the unintended effects, for instance, of the increased use of artificial sweeteners in the replacement of sugars, development of ultra-processed 'mock meat' etc.? What monitoring system(s) could support public and private interventions?

On the relation between public regulation and private industries, it could be interesting to strengthen the discussion on this. It would be useful to understand better how private

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industries can be voluntarily involved in efforts (or compelled, when necessary), and analyse the risks that would result from their greater involvement in food environment regulation.

Another comment regards the groups targeted by interventions and their social fairness. The analysis of impacts on vulnerable groups and those with a low socio-economic status is less developed, and could be reinforced, if scientific evidence is available. Social equity should be at the centre of policy instruments (both in their design and evaluation), since food environments cannot leave vulnerable groups behind.

Finally, further consideration should be given to the rapid digitalisation of the food environment and the efficacy of interventions that could be designed in this context.

### *Response and discussion*

A comment was made that it was good that 'nudging' does not have its own section but is spread through the chapter. Nonetheless, some relevant instruments are much older; evidence in areas like 'placement' go back many years and this older literature could be addressed as well. It could be mentioned that their use in policy is more recent. A further remark by a discussant was that we should be careful about assumptions. On nudge and placement, the discussant thought that robust field studies are often lacking. The discussant's view was not to use the word "nudge" as it is not precise enough scientifically.

### *Summary of recommendations*

The following to be considered:

- more assessment and more focus on solutions
- greater clarity in the use of terms
- more emphasis on the digital environment
- trade-offs between health and sustainability (as mentioned already)
- examples from other areas (such as smoking reduction) and whether there are lessons to be learned for food
- unintended impacts from policy interventions; social fairness
- underline that evidence on 'placement' goes back a long time, but only recently applied to policy; that 'nudging' is not precise enough scientifically

## Policy examples (Chapter 5 of the evidence review report)

This chapter is work in progress. It outlines forms of public policies and possible policy strategies. The chapter uses Hood's (1983) policy instrument typology. It provides examples of three policies aimed at sustainable consumption — sugar, meat and organic food.

### *Summary of comments by the first discussant*

The relationship between this chapter and the others can be improved. The chapter jumps too fast to particular cases. Firstly, interventions in food systems, such as the CSRD and sustainable finance, and the behaviour of supermarkets (which influence the food environment), are missing. Secondly, models such as COM-B should be used in this chapter, as part of the policy cases. Thirdly, there should be more on the use of digital tools (such as apps like providing information on the CO<sub>2</sub> emissions of products on a checkout receipt) and whether these are effective. Fourthly, the scoping paper asks about additional actions that could be taken by policymakers, but there is also a question over whether certain policies or measures could be abolished; an example would be abolishing subsidies on (the marketing of) meat. Generally, the cases look at the impact on uptake, not the impact on lower income groups; this is reported in the literature on sugar, for example. On meat and the protein transition, it makes sense within the context of the circular economy to have some level of meat or dairy consumption. S/he welcomed the section on organic food and the need to stimulate demand as well as supply. There was an interesting experiment in the Netherlands with pricing of organic food, reported in the literature but not yet in the references.

### *Summary of comments by the second discussant*

It is difficult to know what the exact aims of this report are, and the detailing of methods is missing. The chapter title is confusing; it actually provides a narrative of policy mix examples. The classification of policy instruments (Hood) is 40 years old and not necessarily robust; there are many others. It would be better to use a newer one. The chapter does not seem to acknowledge that the environment is complex, involving big firms, innovators, SMEs, and many different varieties of consumers. Trade-off effects are missing; for example, there is no point in steering consumers in a certain way if there are no investors to enter the market. S/he was not sure why these three cases were chosen. There is nothing on consumer acceptance of GMOs, vertical farming, clean meat etc. An assessment is lacking of which of the policy interventions would make it from Chapter 4 to Chapter 6. The function of Chapter 5 could be to provide a review of different

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methodologies and models that would make a policy choice meaningful. There are some studies out there already on this.

### *Response and discussion*

The chapter highlights the need for a mix of policies and interventions. However, the report leans more heavily towards regulatory and financial measures. There is a need to capitalise on consumers as agents of change, for example, when they demand changes in working conditions. Food waste is mentioned but not analysed as a driver for sustainability from the consumption angle. The FAO has produced a brief on food waste (Global Panel, 2018).

A working group member responded that Chapter 4 is about how consumers make choices and Chapter 5 is about how consumers interact with the policy sphere. This is evidence on how consumers react to policy tools and how we make them more acceptable.

A further comment was on the need to identify gaps in the literature and evidence. Also, a need to look at private sector policies on consumer choices, as well as advocacy by NGOs and others, going beyond public policy.

### *Summary of recommendations*

The following to be considered:

- a stronger relationship between this chapter and the rest; inclusion of aspects like sustainable finance and use of models (like COM-B)
- more reference to the digital environment (as already stated)
- abolition of some measures, alongside creation of new ones
- more detailing of methods and use of a more recent typology
- acknowledgement of the complexity of the environment and trade-off effects
- possible repurposing of the chapter

## **Evidence-based policy options (Chapter 6 of the evidence review report)**

This is work in progress. The report focuses on what is in the realm of government, based on the evidence. The evidence on combinations of policies is relatively limited; science focuses much more on single instruments. A summary of EU policies that already exist is still to be done. This involves mapping some of the key areas (such as information environment, physical availability, economic access etc) onto the Farm-to-Fork Strategy,

which tends to focus on the information environment. There is therefore plenty of room for expansion; the main messages also need to be extended. The evidence on the negative outcomes of retail concentration is mixed, given the parallel rise of globalisation and multinationals. The working group chair agreed we need to acknowledge and integrate informal food environments. He also agreed with the suggestion to rename policy-based 'options' as policy-based 'elements'. The chapter would be restructured around these 'elements' or 'principles'. He accepted the suggestion to swap round Chapters 1 and 2, as the food systems chapter provides a framing. Chapter 3 would be better contextualised. The COM-B model would be introduced earlier and integrated better. Links would be established between Chapters 3 and 4. The case studies in Chapter 5 would be explained and the methods explained better, and the cases framed within this method.

### *Response and discussion*

There is a considerable literature on the 10 companies that own many of the well-known brands in ultra-processed food, which focuses on misinformation and the lobbying of governments. There is also a growing literature on meat and dairy industrial producers, some of it cited in Chapter 5. Few of the big producers have any 'net-zero by 2050' ambitions, and many in the US are undermining policy initiatives. This evidence needs to be represented. An example was a book, *Commercial determinants of health* (Maani, Petticrew, & Galea, 2022). A set of literature should be put together on this.

Some of the options need to be revised in line with the narrative of the report. For example, the report states that consumers find it difficult to assess the sustainability of a product, whereas option 2 says we should improve the availability and placement of sustainable products. An additional option would address the improved identification and traceability of sustainable products. Option 3 talks about portion sizes, but this is not addressed in the report. Option 7, personalised tools, and feedback, needs better explanation. The environmental dimension seems to be the main focus when discussing sustainability, but we should take a broader perspective, including social and economic challenges, as addressed in the 2030 Agenda. How can food consumption foster more sustainable food systems? Examples include fair trade and smallholder-inclusive food consumption. On option 8, the FAO advises against regional food-based dietary guidelines, as these will not be able to address the identified problems of each of the EU countries.

Chapter 6 should provide different assessment criteria to help policymakers assess the options. There is a need to highlight trade-offs but also be forward-looking, helping policymakers think through what they may have to consider, based within a systems framework, to come up with new ideas and options. The participant offered to send a paper.

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A working group Member confirmed that chapter authors would go back to the mapping of the food environment, incorporating what is proposed in the Farm-to-Fork Strategy, and adding in new proposals, possibly with a suggested journey of change (although this would require further work). This would enable them to identify the trade-offs.

### *Summary of recommendations*

The following to be considered:

- present more evidence on misinformation and lobbying by big players in the system
- reassess some of the options in line with the report narrative (see details above)
- be forward-looking in presenting options and highlight trade-offs (as mentioned previously)

## Summary of other feedback

A number of comments were made via the 'chat' function in Zoom, which are summarised as follows:

- The role the system plays in employment generation, incomes, livelihoods, rural communities, food culture.
- Within the system are industry actors. some of whom pose significant barriers to change with others being important in facilitating positive change.
- A change in part of the system, such as the consumer part, will have implications for the other actors in the system and outcomes and this needs to be acknowledged and assessed in the report.
- Details on the methods used to search the literature are missing. This may explain the omission of more recent robust systematic reviews on shifting consumption of unhealthy unsustainable foods There should be a systematic review or a 'review of reviews' and a critical reflection of the results. Or systematic maps might be appropriate.
- The report would benefit from a glossary of technical terms, clearly defined for the purpose of this report. Several terms such as 'healthy diets', 'healthy food environment', 'healthy or unhealthy foods' do not have a common single definition in the scientific or popular literature, or a single set of metrics that are used for measuring these attributes. Clarity of terms used for this report would avoid the risk of differing assumptions among readers.
- It could be useful for the report to define what is understood by sustainable and unsustainable food products in the context of the analysis, and how a commonly agreed definition may also help promote more consistent policies.



- It is incorrect to discuss what we have known as food waste with 'metabolic food waste'. 'Food waste' is defined as food and the associated inedible parts removed from the human food supply chain in the sectors of retail, food service and households. The authors should avoid associating obesity with 'metabolic food waste'. The aetiology of obesity is very complex and should not be reduced to overconsumption of calories or food alone.
- Some sections like the one on food waste could be further elaborated to include issues that could influence food waste like family size; frequency of shopping; household food preservation, etc. All these issues could have very different implications on household food waste when different European regions or countries are compared.
- Alcohol production and consumption contributes to carbon emissions as well as unhealthier diets, and ingredients used in the production of alcoholic beverages make claims on agricultural land that could be used for food production of even left to nature.
- Overall, a more nuanced narrative with regards to healthy diets and sustainability would be good. Not all animal source food products are highly harmful for the environment, and animal source foods are an important part of a healthy diet (when consumed within recommended quantities). At times, the narrative seems to imply that meat must be substituted with innovative 'meat substitutes'. Again, nuance is required in this messaging as innovative meat substitute products may have content that is not optimal from a nutritional perspective (e.g., high in salt, fat, sugar). Similarly, organic foods may be promoted for some environmental benefits, but they may not be superior to similar, non-organic products from a nutritional perspective.
- Evidence on availability and portion and package size is robust, with important effect sizes for shifting selection and consumption behaviours at scale and equitably.
- The report's premise of the 'concrete actions' for sustainable food systems seems to be primarily embedded in public sector actions. There is little discussion with regards to private sector innovations that can be harnessed and generally how private sector investment, market intelligence and tools can be leveraged to influence consumer trends in the right direction, via, for instance, more public-private partnerships also in policymaking.
- Language needs to be clarified (formal, informal, non-market etc) on food system structures and how different actors relate to each other
- Advertising, greenwashing and lobbying should be covered in depth, and where the gaps are.

### Closing remarks

The Member of the Group of Chief Scientific Advisors acknowledged a very rich discussion, with areas of consensus. He recognised the need for a systems perspective, and to balance this with a focus on actors. There is a need to target the message to the audience, considering who has the power to make decisions for each of the recommendations. For example, different DGs cover different areas of policy. We need a policy mix, but these policies need to be consistent and aligned. The Advisors have already started work on their recommendations, based on the draft report. The workshop has been a big help in developing understanding and the overall work will have a significant impact on EU policymaking.

The chair of the SAPEA board advised that the report of this workshop would be published alongside the Scientific Opinion and evidence review report, probably in early summer. Feedback from the workshop would be reflected in the next draft of the report, which would then go for independent peer review. There would then be a final version that would be published. The contribution of all participants would be publicly recognised.

Thanks were extended to all participants. Close of workshop.



# Annexes

## References cited

Global Panel. (2018). Preventing nutrient loss and waste across the food system: Policy actions for high-quality diets. Policy Brief No. 12. London, UK: Global Panel on Agriculture and Food Systems for Nutrition.

Hebinck, A., Zurek, M., Achterbosch, T., Forkman, B., Kuijsten, A., Kuiper, M., ... & Leij, A. (2021). A Sustainability Compass for policy navigation to sustainable food systems. *Global Food Security*, 29. doi: <https://doi.org/10.1016/j.gfs.2021.100546>

Maani, N., Petticrew, M., & Galea, S. (Eds.). (2022). *The commercial determinants of health*. Oxford University Press.

SAPEA, Science Advice for Policy by European Academies. (2017). *Food from the oceans: how can more food and biomass be obtained from the oceans in a way that does not deprive future generations of their benefits?* Berlin: SAPEA. doi:10.26356/foodfromtheoceans

SAPEA, Science Advice for Policy by European Academies. (2020). *A sustainable food system for the European Union*. Berlin: SAPEA. <https://doi.org/10.26356/sustainablefood>

## List of attendees

### *Invited experts*

- Koen Boone, The Sustainability Consortium
- Christine Cherbut, INRAE
- Dessislava Dimitrova, Bulgarian Academy of Sciences
- Edel O. Elvevoll, The Arctic University of Norway
- David Evans, University of Bristol
- Klaus Grunert, Aarhus University
- Preetmoninder Lidder, FAO
- Theresa Marteau, EAT Lancet Commission, University of Cambridge
- Aifric O'Sullivan, University College Dublin
- Krijn J. Poppe, Council for the Environment and Infrastructure of The Netherlands
- Kai Purnhagen, University of Bayreuth
- Lucia Reisch, University of Cambridge
- Monika Zurek, University of Oxford

### *Working group members*

- Erik Mathijs, KU Leuven
- Janis Baird, University of Southampton
- Rune Blomhoff, University of Oslo
- Andrea Büttner, Fraunhofer Institute for Process Engineering; Packaging IVV
- Carsten Daugbjerg, University of Copenhagen
- Francesca Galli, University of Pisa
- Wencke Gwozdz, Justus-Liebig-University, Giessen
- Meike Janssen, Copenhagen Business School
- Petr Jehlička, Czech Academy of Sciences
- Linus Mattauch, Technical University Berlin
- Elin Rööös, Swedish University of Agricultural Sciences
- Jutta Roosen, Technical University of Munich
- Tanja Schneider, University of St Gallen
- Antonia Trichopoulou, Academician, Supervisor of the Academy of Athens Bureau of Public Health Research and Education
- Mónica Truninger, University of Lisbon
- Jenny van Doorn, University of Groningen
- Stefanie Vandevijvere, Sciensano

### *Members of the Group of Chief Scientific Advisors*

- Nicole Grobert (Chair)
- Eric Lambin

### *Staff of European Commission RTD.02*

- Ingrid Zegers
- Nicola Magnani
- Lucia Selfa Aspiroz
- Anabelle Ascher
- Leonard Engels

### *Other European Commission staff*

- Francisco De Asis Sanchez Crespo, European Commission DG ENV – In person
- Karen Fabbri, European Commission DG RTD – In person
- Anda Ghiran, European Commission JRC – In person
- Alice Pignacca, European Commission DG SANTE – In person
- Ana Patricia Lopez Blanco, European Commission DG AGRI – In person
- Jesus Barreiro Hurle, European Commission JRC-Sevilla – Virtual
- Josefa Barrero, European Commission JRC-Ispra – Virtual
- Susanne Belz, European Commission JRC-Ispra – Virtual
- Joao Leite, European Commission JRC-Ispra – Virtual
- Amalia Munoz Pineiro, European Commission JRC-Geel – Virtual
- Jan Wollgast, European Commission JRC-Ispra – Virtual

### *Other observers*

- Margot Vanhecke, FAO Brussels – In person
- Adina Dumitru, European Environment Agency – Virtual

### *SAPEA representatives*

- Antonio Loprieno, Chair of the SAPEA Board
- Céline Tschirhart
- Marie Franquin
- Rafael Carrascosa Marzo
- Louise Edwards
- Rúben Castro
- Agnieszka Pietruczuk

## Programme (all times CET)

09:00	Welcome and introduction to SAPEA
09:05	Welcome and introduction to the SAM and Advisors Background to the request
09:15	Overview of the evidence review report
09:25	General remarks on the evidence review report
09:40	Report on Chapter 1: What are healthy and sustainable consumption patterns? Discussant responses General discussion
10:20	Break
10:30	Report of Chapter 2: Food systems, food environments and their drivers Discussant responses General discussion
11:10	Report on Chapter 3: Consumer behaviour Discussant responses General discussion
12:00	Break
13:00	Report on Chapter 4: Proximate food environment and diets Discussant responses General discussion
13:40	Report on Chapter 5: Policy examples Discussant responses General discussion
14:20	Break
14:30	Report on Chapter 6: Evidence-based policy options Overview and general discussion
15:00	Closing remarks and next steps

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