



Catalysing Science-Based Policy Action on SCP

Task Group IRP-One Planet network

Food Value Chains:

Existing policies & action of the One Planet network along the value chain

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The science is clear on the need to decouple economic growth from natural resource use, and the positive impacts this would have on reducing greenhouse gas emissions, protecting biodiversity and driving socio-economic development. Yet this evidence does not always reach key decisions makers in a way that is relevant and actionable. Stakeholders, whether governments or businesses, need comprehensive and tailored information to help identify priorities, implement strategies, and monitor impacts around the sustainable management of natural resources.

To meet this need, the 4th United Nations Environment Assembly, in its resolution on *Innovative pathways to achieve sustainable consumption and production* (UNEP/EA.4/Res.1), requested the One Planet network and the International Resource Panel form a task group. The aim of the task group is to catalyse science-based policy action on sustainable consumption and production (SCP), thereby creating the conditions to provide actionable insights on the management of natural resources in relation to the 2030 Agenda for Sustainable Development. The task group comprises experts and governments from the International Resource Panel and practitioners from all stakeholder groups (government, business, civil society, international organisations) of the One Planet network.

Following an initial assessment of the research undertaken by the IRP, the task group decided to focus on practical approaches to catalyse the science-policy action on SCP through a sectoral focus and by adopting a value chain approach. The value chain approach aims to identify hotspots and shape corresponding actions built on existing knowledge and available data. It provides a framework applicable to different sectors, products and geographical scales. In the context of the work of this task group the data and information is analysed and discussed under three key steps:

1. **Understanding the value chain and identifying the key hotspots** (data source: IRP and other UNEP scientific assessment);
2. **Consolidating existing action and identifying opportunities to address the identified hotspots** (data source: One Planet network);
3. **Defining a common agenda and prioritising action to address identified gaps** (through participatory process).

The practical illustration of the benefits of the value chain approach to define SCP action that is informed by science is illustrated by its application to the three prioritised sectors of Food, Construction and Textiles.

This report focuses on the application of the second step of the value chain approach to the Agri-food sector. It maps existing policies and actions of the One Planet network along the food value chain and analyses these in relation to the identified hotspots, both in terms of what can be leveraged for further impact and where major gaps in addressing the hotspots can be found.



I. Methodology

This analysis undertakes a mapping of policies and activities from across the One Planet network along the stages of the food value, and against the three core food system challenges that need to be addressed. The purpose of this mapping is to identify what activities are currently taking place and how these connect with the findings of the food value chain analysis, particularly as relates to the importance of the ‘middle parts’ of the food value chain covering food processing, retail and food service. From this mapping, a number of trends, gaps and opportunities have been identified that can be useful in understanding the work undertaken to date, as well as in guiding the future direction of projects on sustainability across food value chains.

Dataset

The data sources for this analysis are: the official reporting on SDG indicator 12.1.1 for the policies and the databases on SCP activities of the One Planet network, including the One Planet network reporting and programme content featured on the One Planet network website. Policies and activities were selected based on their relevance to food value chains.

Mapping of policies and projects along the value chain

The Food Value Chain Analysis, undertaken in the first step in the application of the value chain approach to the sector, defined the steps of the value chain. It also highlights the importance of the ‘middle stages’ of the value chain, comprising food processing and packaging, retail and food services, in influencing and shaping both primary production and final consumption.

Accordingly, policies and activities were mapped against the different stages of the food value. They were mapped to the stage of the value chain which they primarily targeted, acknowledging that projects sometimes targeted other stages, though to a lesser degree. A number of policies and activities did not address a specific stage of the value chain specifically, but rather took a holistic approach that aimed to address all stages of the value chain in some way - these have been categorised as ‘General’.

Categorisation of policies and projects in relation to identified challenges

The Food Value Chain Analysis identified three core challenges of food systems. These are:

- 1) **How we produce food:** The majority of natural-resource use and environmental impacts takes place during production. Certain farming, fishing and food manufacturing practices can have damaging environmental and social consequences. Changing production practices is critical to using resources more efficiently and sustainably, while causing less damage to the environment.
- 2) **How much food we produce and consume:** One-third of all food produced is either lost at the production, transportation or processing stages, or wasted downstream in the food at the retail, food service and consumption stages. Food loss and waste, and the overconsumption of food in some societies, contribute to an overall unnecessary volume of food produced and therefore associated environmental impacts.
- 3) **What types of food we produce and consume:** Different types of food can embody large differences in the natural resources used and environmental impacts caused along the stages of the value chain including production processing, transportation, and disposal¹.

¹ Acknowledging that the same food type can be produced in different ways and in different landscapes and climates, which would have an impact on the environmental footprint of that food, however this is a generalisation based on lifecycle analysis of food types and food type environmental footprints, see Poore and Nemeck.

Policies and activities were organised, within each stage of the value chain, according to which of the three challenges they addressed. As per value chain stages, policies and activities were categorised according to the challenge that they primarily addressed, acknowledging that some projects addressed other challenges, though to a lesser degree. A large number of projects addressed two or three of the challenges in the same project. Under the trends for ‘challenges addressed,’ this takes into account projects that address multiple challenges.

While the above three challenges may appear to relate more closely to certain stages of the food value chain, the systemic nature of value chains means there are many feedback loops and interactions between the different stages that can affect other stages elsewhere. For example, the choices that a retailer makes in what products to procure or what standards to apply will ultimately affect how food is produced at the primary production stage of the food value chain. Therefore, each of the above three challenges can be addressed at many different stages of the food value chain.

II. Policies: Key trends, gaps and opportunities

The official reporting by countries in 2019 on SDG indicator 12.1.1, on the implementation of SCP related policies, collected 226 policy instruments. Of these, 27 policies, either specifically about food or those policies with a specific section on food, were retained for analysis. All policies referred to in this section are listed in Annex I.

Of these 27 policies, nearly half (12) were from Europe and Central Asia, followed by Latin America and the Caribbean (6), Africa (4), Asia/Pacific (3), Middle East (1) and North America (1). In terms of the types of policies analysed, macro-policies (national strategies, roadmaps or plans) – whether focusing exclusively on food or not – represent three quarters (74%) of the policies analysed.

Although based on the reporting choices of 43 countries and therefore not on an exhaustive list of food related policies around the world, this analysis aims at identifying some of the trends, opportunities and gaps which current policies addressing the food value chain may present, and at complementing the analysis being done on the programmatic side to identify where the One Planet network is best positioned to act.

Overview and key messages

The diagramme below provides an overview of the policy in relation to 1) the stage of the value chain primarily targeted, 2) the type of policy measure (regulatory and legal instruments, economic and financial instruments, voluntary and self-regulation schemes), and 3) the challenge they primarily address (how we produce, how much we produce and consume, what we produce and consume). For ease of reference areas with the highest number of policies are highlighted in green and areas with no policies are highlighted in red.

Value chain stage	Inputs			Production			Processing / packaging			Transport / logistics			Retail			Food Service			Consumption			Disposal		
	REG	ECO	VOL	REG	ECO	VOL	REG	ECO	VOL	REG	ECO	VOL	REG	ECO	VOL	REG	ECO	VOL	REG	ECO	VOL	REG	ECO	VOL
How we produce	15	5	10	9	5	10	1	2	2				2	2	3	2			1		2			
How much we produce & consume				2		4	3		4	1		4	1		6	3		6	3		12	2		4
What we produce & consume	3		3	3		0	3		4	1	1		7	4	5	7	1	7	1	2	12	1		

National policies and instruments are designed to achieve specific objectives but also to plan for concrete actions. From the 27 policies analysed, a total of 191 concrete measures were identified, addressing various stages of the value chain, albeit it not in equal representation². Key messages derived from this analysis include:

A concentration of measures at the two ends of the value chain:

Nearly 60% of the measures proposed are either at the input/production phase or the consumption phase. On the production side, the majority of regulatory measures tend to focus on efficiency increases (e.g. reducing water use, decreasing emissions from livestock), or reducing the use of harmful pesticides and increasing organic production.

In general, if the size of the farm targeted by a measure is specified, it is targeting smallholder farms. It is less clear if the measures in these policies are aimed at larger scale industrial agriculture, but if so, it is much less explicit than the focus on smallholders.

Regarding the consumption end of the value chain, the observation can be made that the onus of ‘being sustainable’ is placed primarily on the individual consumer, who does not have the same amount of influence on various levers as the players a bit more upstream in the value chain might have. Additionally, the large majority of the measures are voluntary and so will not have the same impact that more binding efforts would.

The focus on the ends of the value chain may indicate the difficulty for policy makers to access, regulate and influence the more consolidated stages in the middle of the value chain. The fragmented and more disparate nature at production and consumption sides make it easier to pass more overarching measures.

A mixed approach but a deficit in economic and financial measures:

Of the 191 measures identified, a good mix of voluntary and regulatory measures (respectively 94, or 49% and 71, or 37%) was found. Economic and financial measures on the other hand, only represent a minor portion of what is being planned to achieve the objectives of the policies (26 measures, or 13% of all measures identified). The official reporting on 12.1.1, including all types of policies beyond those targeted at the food value chain, also revealed a general deficit in economic and financial instruments for SCP³.

Voluntary measures such as information campaigns to raise awareness, training programmes, and access to tools and guidelines are present at all stages of the value chain, although particularly prominent at the level of individual consumption. Regulatory measures are also present throughout the value chain, but more so during the production phase. These include directives on the use of pesticides, setting aside land for certain crop use, and sanctions for non-compliance with waste disposal procedures, and they often complement the voluntary schemes. Economic and fiscal measures, such as the removal of harmful subsidies are less prominent, representing only around 13% of the total measures.

Food challenges well captured but not always as interconnected along the value chain:

In terms of which key question these 191 measures address, 71 look at *how we produce*, 65 look at *what we produce and consume* and 55 look at *how much we produce and consume*.

However, these types of measures are not evenly distributed along the stages of the value chain. Measures taken at the input and production stage are almost always meant to rationalize the use of resources or energy, minimize the use of harmful substances such as pesticides and the related environmental impacts, or to minimize emissions

² Input industry (36), primary production (33), processing & packaging (19), transport/logistics (7), retail (30), food service (26), individual consumption (33), and waste/disposal (7).

³ https://www.un.org/ga/search/view_doc.asp?symbol=E/2020/56



of pollutants harmful to the environment and health (*how we produce*). Rarely are those measures taken at primary production stage intentioned to improve the quality of food products for consumers for example. On the other hand, most of the measures taken at the consumption phase are looking at issues of food loss and waste and sustainable diets (*how much we produce and consume, what we produce and consume*), quite independently from how food is produced or processed it seems.

The relative balance between the key challenges that these measures are addressing is a positive sign, indicating that overall there is not a large gap in terms of policies which look at production processes, food loss and waste, and the types of food being produced and consumed. What is missing, however, is a better understanding of how the different stages of the value chain interact with one another in addressing these challenges. In addition, there is a gap in the middle stages of the value chain, which has the potential to make stronger links between how we produce and how and what we consume.

Food processing almost completely absent, retail and food service reveal gaps and opportunities:

At the stage of food processing and packaging, there are a host of measures which focus on the type of packaging, but almost none which look at the transformation and processing of food products. Food processing is a massive industry and the lack of attention in the policies is a major gap. Food processing is also the stage at which the link between what we produce and how we consume is most evident. There are obvious links to human health and well-being as well, in terms of the effects that highly processed and transformed food has on health, and future policies should reflect this.

Compared to processing and packaging, the retail and food service stages of the value chain actually have a much greater number of measures proposed in reported policies. However, the measures, which are most often voluntary, tend to not target most influential, large retail operations with large market share. As the retail stage is a key middle driver in the value chain, future efforts should be made to address this current lack of attention paid to the largest and most influential players in food-related policies.

Reported policies show that procurement regulations can play a key role in supporting sustainability practices along the food value chain, for example by simultaneously promoting local sustainable products and healthy diets. Further measures in private procurement could be envisaged to complement these efforts. The number of procurement measures offer more potential due to their legally binding nature, though they are often also being proposed on a small scale rather than nationwide.

Analysing policy measures along the value chain

1. Input industry & Primary production

These two entry stages of the value chain represent together 69 of the 191 measures identified across the policies, which is more than a third (36%) of the total. The vast majority of these (78%), naturally, are addressing the question of production practices (*How we produce*).

In terms of the types of measures, nearly half at this stage (46%) are regulatory in nature, and typically center around the production, use and distribution of pesticides (e.g. Sustainable Directive on Pesticide Use of the E.U) including a focus which often centres around organic agriculture. Additionally, some measures focus on the distribution of land for certain agricultural practices, such as Sweden setting aside land for local and regional varieties. In Brussels, the regulatory environment is focused on helping stimulate urban agriculture.

A number of economic and financial measures are also present in some of the policies. In the case of the European Union, a series of ‘eco-schemes’ will offer a major stream of funding to boost sustainable practices, such as precision agriculture, agro-ecology (including organic farming), carbon farming and agroforestry provide financing to bring to market sustainable inputs to the value chain. Other countries such as Jordan focus more on the elimination of harmful subsidies in order to encourage sustainable inputs.

A large number of voluntary measures are also present, such as training programmes for farmers (Tunisia), the promotion of certain integrated pest management techniques (Pakistan), or the production of toolkits to assist urban farmers get started (Belgium).

In the large majority of the measures proposed at the input or production stages (whether regulatory, economic, or voluntary), the focus is on the environmental impacts (GHG emissions, wastewater treatment) and savings in energy and increased crop yields which can be gained by such measures.

It should be noted, however, that in some countries the socio-economic aspect is woven directly into the measures taken at this stage of the value chain, with a strong focus on assisting smallholder farmers have access to loans (Tunisia), or the redistribution of land in a more economical fashion (Ecuador).

2. Processing & Packaging, Transport

The processing and packaging, and transport stages represent only 26 of the 191 total measures identified in the full analysis (13%). On processing and packaging, it is interesting to note that nearly all identified measures concern only packaging, whether from a material use perspective (*how we produce*) with a focus on the package design as a way of reducing spoilage/waste (*how much we produce and consume*), or looking at the safety of package materials from a human consumption perspective (*what we produce and consume*). The question of processing is almost entirely absent, which indicates a significant gap. In taking a food systems approach to the value chain analysis, it is evident that the major food challenges cannot be addressed in piecemeal fashion. The absence of measures targeting the critical stage of food processing and transformation – which has enormous power to influence production and consumption practices - undermines efforts to address the most pressing food challenges of today in an interconnected and holistic way.

Similarly, the absence of measures related to transport is stark, with only 7 in total, none of them relating to production practices. The measures which are taken tend to be voluntary in nature such as the use of merchandise management systems to coordinate quantity, quality and delivery time of raw materials and foodstuff (Germany); or not very specific, such as a vague reference to improving the distribution system for essential food (Pakistan).

3. Retail, Food Service

The retail and food service stages of the value chain have a significantly larger portion of measures identified, both from retail (30) and food service (26). Together these represent nearly a third (30%) of the total measures, most of them being regulatory measures at acquisition stage and voluntary or information-based measures directly targeted at consumers.

On the regulatory side, of particular interest is a number of measures around procurement: giving establishments in certain municipalities the power to eliminate single-use plastics from procurement (Costa Rica), introducing measures to increase the volume of organic food and services procured (Sweden), or setting general minimum sustainability requirements in tenders (E.U.).

On the voluntary side, there are a variety of measures, including information-based, such as the promotion of various ecolabel schemes in shops (Germany), campaigns to promote ‘climate-change friendly’ food in cafeterias



(Finland**Error! Reference source not found.**), or schemes to promote the efficient collection of used bottles from restaurants (France**Error! Reference source not found.**).

It is interesting to note that retail and food service stages, if viewed as their own miniature value chains, actually reproduce many of the patterns that we see at the larger value chain level: the predominance of input and primary production and consumer-centred stages, with a notable gap in between. The measures primarily focus on the types of inputs to the system (through procurement) or disseminating information and tools to consumers in food service and retail structures to help them make decisions on things like labels and disposal methods.

4. Individual consumption & End of life disposal

At the other end of the value chain, 40 measures focus on individual consumption and disposal at the end phase of the value chain (21%). Interestingly, 24 of these measures are voluntary, and addressing either the *'how much we produce and consume'* (food loss and waste) or *'what we produce and consume'* (what type of food) questions.

Within these voluntary measures, several focus on the issue of food loss and waste by addressing the question of *'how much we produce and consume'*, such as public information campaigns in the Philippines or a restaurant scheme to encourage take away containers for leftover food in Belgium.

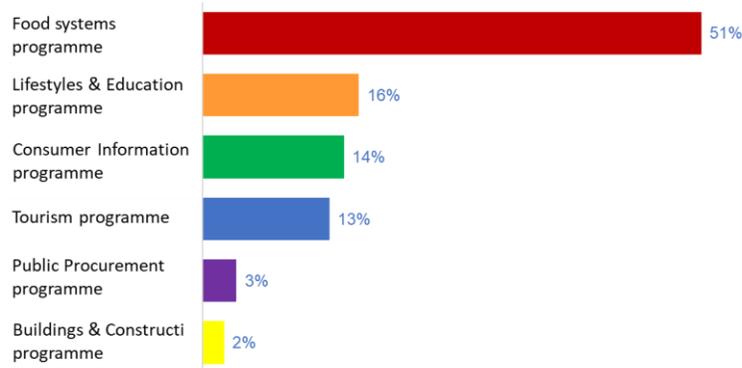
In the case of those voluntary measures addressing the question of *'what we produce and consume'* the overwhelming majority are centred around awareness raising campaigns and information dissemination. In Germany a national initiative makes strong links between sustainable diets and health, whereas in Jordan**Error! Reference source not found.** the government has ongoing campaigns to raise awareness on organic labelling among consumers. Some countries such as Belgium focus as well on the benefits of eating locally, which has the indirect link towards the external costs associated with long-haul transport, though this is not specifically mentioned in the policy.

Being voluntary, the obvious caveat to these measures is that they are not enforceable and rely on the ensemble of consumers in order to be effective. Increasing the amount of (enforceable) measures upstream, at the processing stage for example, would in effect guide the downstream choices of consumers.

III. Activities of the One Planet network: Key trends, gaps and opportunities

The One Planet network reporting 2013-2019 collected 2,379 activities across the One Planet network. Of these, 427 activities related to food were retained for analysis. This analysis was further complemented by a qualitative analysis of 116 projects on food that are showcased on One Planet network website.

Activities addressing natural resource use and environmental impacts along the food value chain are diverse in nature, including the kinds of interventions and the kinds of organisations implementing. While the One Planet network features one programme that is focused on sustainable food systems, projects being undertaken on food are by no means restricted to this programme. All six One Planet network programmes have reported activities related to food. The most represented is the Sustainable Food Systems (SFS) programme; however, the Sustainable Lifestyles and Education programme (SLE), the Sustainable Tourism Programme (STP) and the Consumer Information (CI) each have a significant number of activities related to food.



All geographical regions, except the Middle East, are covered by the activities from the One Planet network addressing the food value chain. The largest number of activities (26%) were global in their scope, often in the form of tools or resources developed that could be applied anywhere, or otherwise activities implemented by international organisations such as the UN Environment Programme (UNEP) and the Food and Agricultural Organisation of the United Nations (FAO). 23% of reported activities were focused the African region, with the majority (40%) of activities in this region targeting primary production. Europe and Central Asia, Asia-Pacific and Latin America and the Caribbean all account of approximately 15% of the activities. While in Asia-Pacific the activities have focused on primary production and individual consumption, in Europe the activities have focused primarily on food service and individual consumption, with the largest amount of activities in the region addressing at the whole value chain level. In Latin America and the Caribbean, focus is equally on primarily production at 26%, with food service and individual consumption each accounting for 18% of the activities. Common to all regions is the lack of focus on input industry, food processing, retail, logistics and transport, and disposal. A trend which can also be seen across the global activities.

The majority of activities across the One Planet network addressing the food value chain have been implemented by civil society organisations (36%), followed by international organisations (27%). Civil society works evenly across all stages of the food value chain, though with less emphasis on food processing (only 3 activities out of 185) and no reported activities on disposal, transport and input industry. Meanwhile international organisations are dominant working at the government and whole value chain level. Research institutions are focused on addressing primary production (35%) and businesses focus primarily on the food service stage (37%).

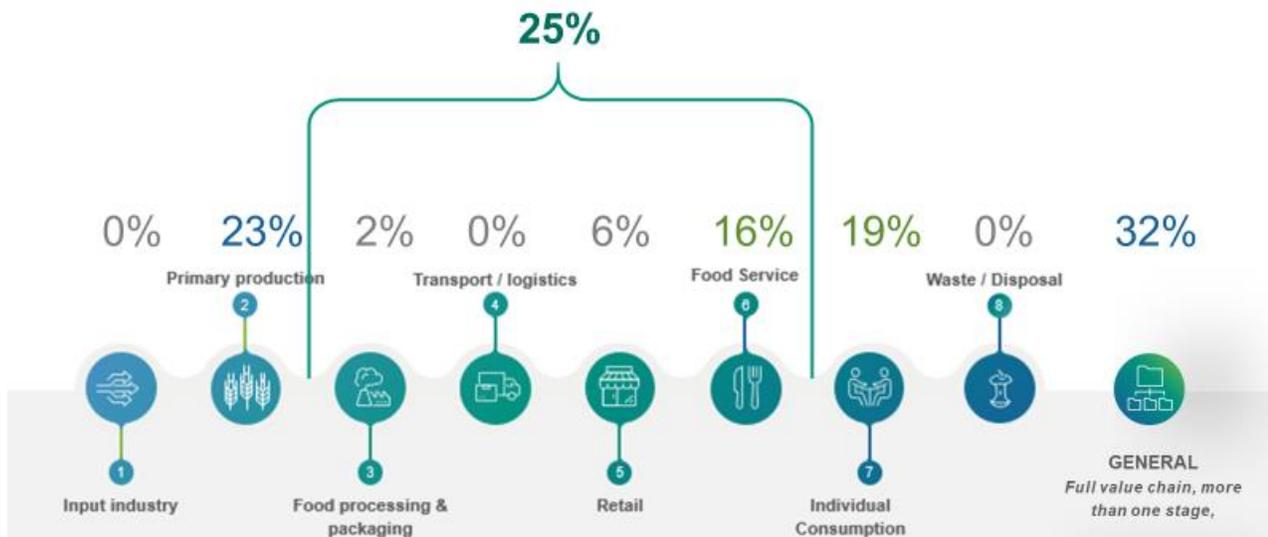
The activities of the One Planet network were analysed in relation to 1) the stage of the value chain primarily targeted, 2) the programme under which this activity is undertaken, and 3) the challenge they primarily address (how we produce, how much we produce and consume, what we produce and consume). Key messages derived from this analysis include:

The middle stages of the value chain are underrepresented

Most activities of the One Planet network take place at primary production (23%) or individual consumption level (19%); while food processing and retail are underrepresented despite their importance. There is also a significant portion of activities that address the food value chain holistically.

The middle stages of the food value chain, including food processing and packaging, transport and logistics, retail and food service, are identified in the food value chain analysis as playing a powerful role in shaping both production and consumption. Activities at these four stages combined represent only 25% of total activities,

despite these stages making up a significant portion of the food value chain in terms of size, influence and structural power.



The food processing and packaging stage and the retail stage were identified in the analysis as a pivotal connection between both food production by farmers and food consumption by individuals, and therefore of particular importance to influencing natural resource use and environmental impacts along the food value chain. These are also big players in terms of value add and employment, especially in developed countries and increasingly also in developing countries due to the trend of supermarketisation. Yet these are two of the least represented stages among activities in the One Planet network, comprising 2% and 6% of total activities respectively. Activities are mainly of the Consumer Information programme and are connected to the application of standards, certifications and labels for food product sustainability, such as through applying biodiversity standards or MSC certification to food product procurement. Other activities at these stages focus on improving the sustainability of food product packaging through reducing the amount of plastic packaging used as well as addressing the recyclability of plastic packaging of food products.

Strong activity within this ‘middle part’ of the food value chain can be seen at the Food Service stage. This is driven by a large number of activities of the tourism sector to address food sustainability, as well as by activities on public procurement.

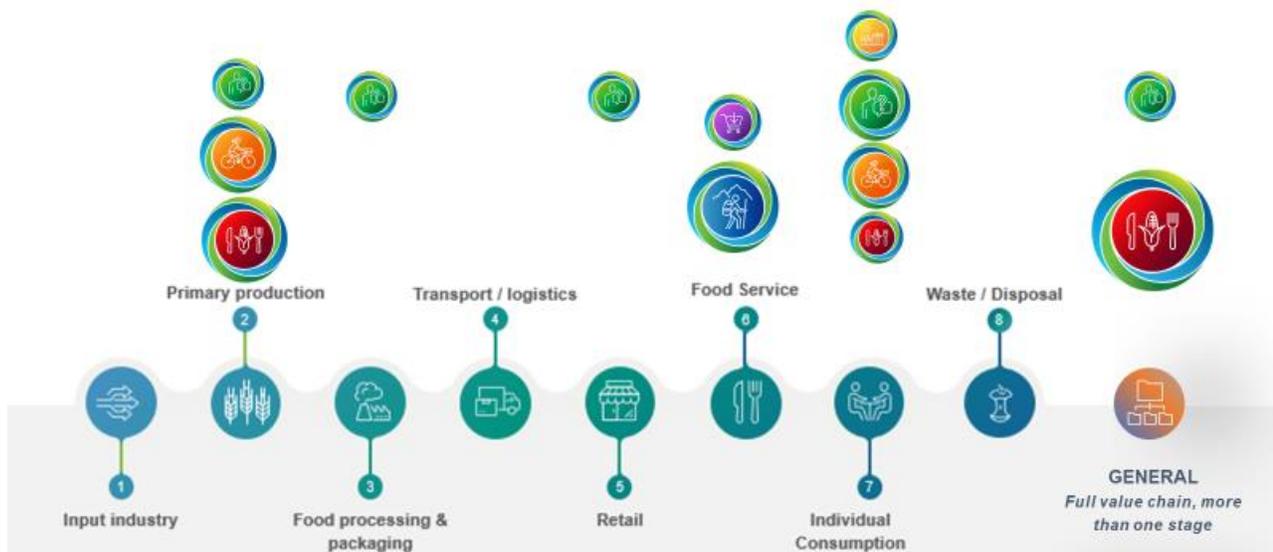
There are no activities of the One Planet network projects specifically targeting the Transport/Logistics stage of the food value chain.

The activities of the programmes are complementary

Many of the One Planet network programmes have activities at multiple stages of the food value chain. This is especially the case for the Sustainable Food Systems programme, which has activities a large number of activities at holistic level that address multiple stages simultaneously, as well as activities at primary production, individual consumption and at holistic level. The Consumer Information programme is working within four of the eight stages, the Sustainable Lifestyles and Education programme within two, while the Sustainable Tourism and

the Sustainable Public Procurement Programmes are focused at only one stage, food service, where the bulk of activities is taking place.

The Sustainable Food Systems programme's primarily holistic approach is well complemented by the activities of the other programmes at specific stages of the value chain. Specifically, the Consumer Information, Tourism and Public Procurement programmes are the most active in the middle stages of the value chain identified as a key intervention point. There is an opportunity to further leverage the expertise of these programmes in addressing retail and food services.



Sustainable Food Systems programme dominates upstream and at holistic levels

In terms of value chain stages, the Sustainable Food Systems programme dominates the upstream stages of the food value chain, with a majority of activities at the primary production stage (22%). The programme however is mostly focused on holistic projects working on activities that take a whole-of-value-chain approach (55%). This reflects the focus and conceptualised prioritisation of the SFS programme on 'systems'.

The Consumer Information programme connects the middle stages of the value chain to production and consumption

The Consumer Information programme's activities on the development and application of standards, certifications and labels for food are featured in over half the stages of the food value chain. This is an example of the systemic nature of value chains, and how the activities at one stage of the value chain can have an impact at other stages. At the food processing, retail and food service stages of the food value chain, the Consumer Information projects were focused around how food companies can apply and implement standards, certifications and labels for food to the products they procure, produce, sell and serve. At the primary production stage of the food value chain, these standards, certifications and labels for food translate into changes in farming and fishing practices to use fewer natural resources and cause fewer environmental impacts. At the individual consumption stage, standards, certifications and labels provide individual consumers with information they need to allow them to make more sustainable food choices, as well as ensuring that consumers have sustainable choices available to them. The Consumer Information projects along the food value chain demonstrates the important way in which the operations of 'middle stages' of the value chain can influence both production and consumption.



The Sustainable Tourism Programme dominates the food service stage of the value chain

Tourism organisations are important within the food service stage of the food value chain. The food products that tourism companies choose to source and serve to their guests, and the ways in which this food is served and managed, can have a strong influence on natural resource use and environmental impact along food value chains. Many activities at this level see tourism companies choosing to procure food locally and seasonally, to apply standards, labels and criteria on their food procurement, such as buying MSC certified seafood, as well as undertaking steps to address food loss and waste. The projects that address the food service stage are from both major global hotel chains, as well as small-scale individual tourism providers.

Sustainable Public Procurement programme influences governments

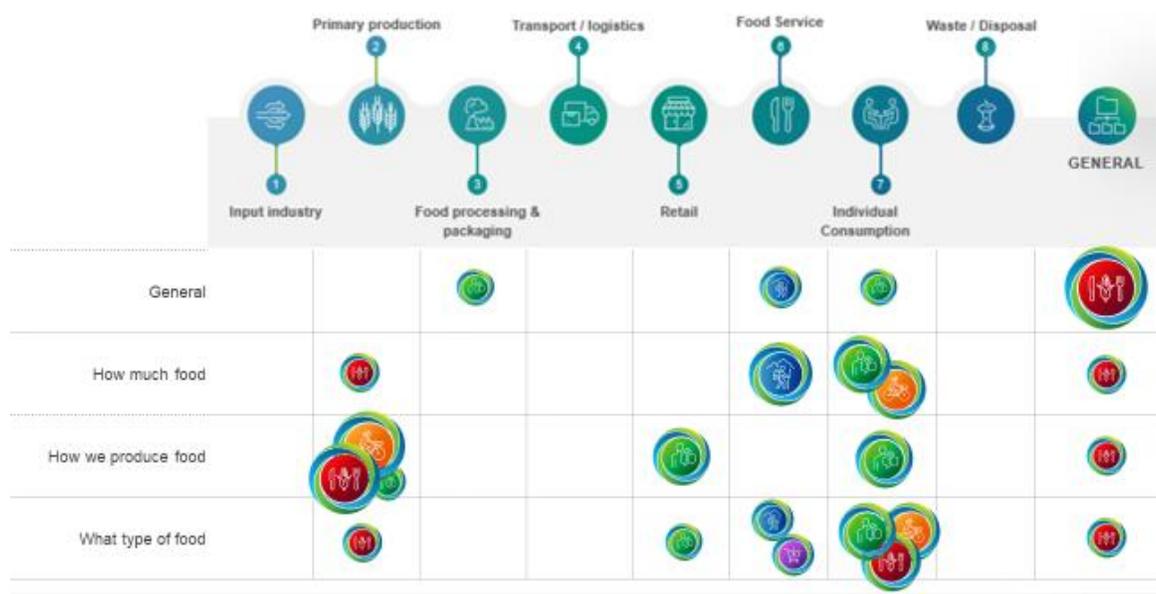
In countries where services such as schools, hospitals and workplaces are provided publicly, governments can play a key role in reducing natural resource use and environmental impacts along food value chains. Through applying sustainable public procurement practices, governments put in place policies and programmes to ensure all food purchased by the state meets certain sustainability criteria, therefore helping to shift farming and fishing practices to be more sustainable. Governments, such as Ethiopia, are applying sustainable public procurement to support the livelihoods of smallholder farmers, with the support of the FAO, for example through school feeding programmes that connect farmers with local schools to provide the produce for school lunches thereby improving student nutrition and providing smallholders farmers with market opportunities.

The three food challenges each present opportunities to build upon

The three challenges across food value chains were addressed relatively equally across all the activities, with between 18-27% of activities addressing either how, how much, or what we produce and consume.

While the majority of activities addressed one main challenge of the three, there are 36% of the activities where two or three of the challenges were addressed simultaneously. This was especially prevalent in the activities, which also address multiple stages of the value chains and activities at the food service and individual consumer stages. For example, tourism businesses operating at the food service stage may implement initiatives around sustainable menus that address how food is produced by sourcing organic produce, what food is produced and consumed by offering plant-based menu items, as well as the question of how much food is produced and consumed by implementing measures to reduce food waste, such as smaller plate sizes or guest awareness activities.

Each of the One Planet network programmes are addressing the three different challenges to some degree, with the Sustainable Food Systems programme taking a holistic approach reflecting their prioritisation of the systems approach. The Sustainable Food Systems programme is primarily addressing the challenges of ‘how we produce food’ and dominates at this stage of the value chain compared to other programmes. The Sustainable Lifestyles and Education programme addresses all three challenges evenly. The Sustainable Tourism Programme has a larger focus on the question of ‘how much food we produce and consume’, reflecting the large number activities at the food service stage addressing food waste. The Sustainable Public Procurement programme is mostly focused on ‘what type of food we produce and consume’, in particular reflecting the role of governments to shape what type of food is sourced for food provision within public services, such as school feeding programmes that emphasise using produce sourced from local farmers.



‘How we produce food’: systemic opportunities at retail and food processing stage

The challenge of ‘how we produce food’ is addressed mostly in activities at primary production stage, followed by an even spread along the food value chain. This highlights the required support for changes in primary production, while acknowledging the systemic nature of the food value chain, demonstrating that interventions at all different stages can have an influence on how food is produced at the primary production stage.

The primary production stage of the food value chain is where the majority of natural resource and environmental impacts occur. Addressing the key challenge of ‘how we produce food’ through changing primary production practices is therefore critical to reducing natural resource degradation and depletion as well as environmental impacts in food value chains. Though expressed using different terminology such as bio-dynamic farming practices, agro-ecological practices and organic farming, the activities focus on transitioning to agricultural practices that work in harmony with natural systems to improve farmer yields, and are more sustainable in terms of their management of natural resources, their use of inputs and the environmental impacts that they cause. Some features of the sustainable agriculture practices present in the One Planet network projects and resources include: increasing diversity of crops, reducing and improving the efficiency of the inputs that go into farming (e.g. fertilisers and pesticides), increasing soil health and fertility, and addressing climate change adaptation and mitigation.

Activities addressing ‘how we produced food’ in food processing and retails stages of the value chain are mostly related to standards, certification and labels of food products. Retail is a key interface between producers and consumers, and what retailers choose to put on their shelves and how they operate can in turn influence the natural resource use and environmental impacts along the whole food value chain. This is especially the case due to the trend of vertical integration along the food value chain, which sees retailers also increasingly becoming food processors and email primary producers in some case, often connected to the increase in ‘own label’ products sold by retailers. The standards and contracts that retail and food processing companies put in place for their suppliers, either directly from farmers or indirectly from upstream food companies, can have a significant influence on the ways in which food is produced and the natural resource use and environmental impacts that occur at the primary production stage. Equally, retail stores make up a significant amount of the ‘food environment’ in which individual consumers purchase their food and make decisions around food. Retailers can



therefore be influential in shaping individual consumption patterns and encouraging consumers to shift to more sustainable diets. While effective sustainability information to consumers seems to be well understood, there is an opportunity to further understand how labels and standards influence primary production.

‘What type of food we produce and consume’: mostly addressed at food service and individual consumption

The challenge of ‘what type of food we produce and consume’ addresses the significant differences in natural resource use and environmental impacts that go into producing and consuming different types of food. This challenge addresses the significant differences in natural resource use and environmental impacts that go into producing and consuming different types of food. For example, consuming local and seasonal food options may result in fewer greenhouse gas emissions associated with the transport and refrigeration of products imported from far away. Some types of grain or vegetables are more resilient and easier to grow, requiring fewer inputs of water, fertiliser or pesticides. Equally, many animal-based products especially beef and dairy, carry larger environmental footprints than other types of foods that they could be swapped for with similar calorie and nutrition profiles. Some highly-processed food also contain a much larger environmental footprint due to the comparatively large amount of raw ingredients that are needed to produce a the finished highly-processed food product, as well as the amounts of energy, waste and pollution that occur as a result of processing.

Activities addressing this challenge focus on foods that are locally or seasonally sourced at the food service and individual consumption stages. For food service, this is primarily around providing menus sourced from local and seasonal produce. For individuals, this was about shifting diets to also feature more local and seasonal produce, as well as shifting away from meat consumption and toward plant-based alternatives. There are little or no activities at food processing and retail stages of the value chain, despite highly-processed foods having a much larger resource and environmental footprint and contributing to lifestyle diseases. Individual consumption is also shaped by the sustainable food options are available to consumers. Therefore, projects could also seek to work with food processing companies and retail businesses at the middle section of the food value chain on producing sustainable food options.

Activities addressing this challenge focus on foods that are locally or seasonally sourced at food service and individual consumption stage, and on types of grains or vegetables that are easier to grow at primary production stage. There is comparatively little focus around animal-based food products or highly-processed food productions, and this is only at the individual consumption stage, despite the large contribute of these two food types to natural resource use and environmental impacts.

‘How much food we produce and consume’: the opportunity for a stronger coordination of activities

While a large number of projects are addressing the challenge of ‘how much food we produce and consume’ through tackling food loss and waste, these projects do not make explicit the connection between food loss and waste and the associated natural resource use and environmental impacts. There could be an opportunity to highlight the importance of how much food is produced and consumed, while also communicating the environmental stakes, when developing, implementing and communicating on food loss and waste projects.

The challenge of ‘how much food we produce and consume’ dominates at the food service and the individual consumption stages of the value chain. With the proliferation of many different projects taking place at these stages addressing food waste, there could be an opportunity to consolidate efforts through collaborating and sharing experiences and results with a view to replicating best practice.

For the activities taking place at the retail stage of the food value chain, the majority of activities focus on reducing food loss and waste at retail, without considering the influence that retail can have on this upstream with farmers and downstream with consumers. Retailers play a large role in influencing the food purchasing decisions of

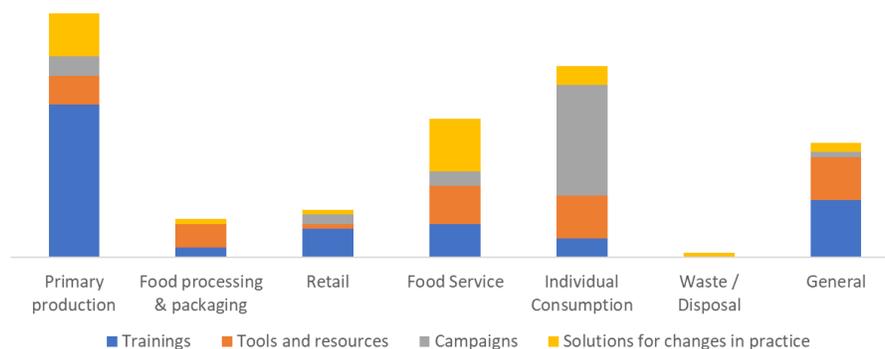
consumers through the retail environment, sales, marketing, point of sale of food products. There is an opportunity for retail to play a stronger role in adjusting operations at the retail stage to positively reshape consumer behaviour to prevent food loss and waste, as well as to raise awareness and educate consumers on the issue and help influence them to make better decisions. Some food loss and waste solutions at the retail level involve discounting soon-to-expire food to avoid it being wasted at the retail stage, however this end up resulting in increasing the food loss and waste at the individual consumer level.

Amongst initiatives addressing the challenge of ‘how much food we produce and consume’ at the food processing, retail and food service stages of the food value chain, many include food redistribution to charity as part of their activities. Redistributing edible food that might otherwise be wasted to those in need provides a short-term solution to two different challenges. However, redistributing surplus food to charities does not address the root causes of either of these two structural problems which are inherent in contemporary food systems; that of the over-production of food by food companies and the persistent food insecurity and under-nutrition of individuals in our societies. Activities at the food processing, retail and food service stages of the food value chain could aim to focus more on prevention of food waste, while governments and NGOs working at the food system should continue to address food insecurity in all countries.

Tools and solutions to address the challenges in the food value chain

Across the One Planet network, partners are offering tools, resources, trainings, campaigns and solutions addressing the stages of food value chain, as well as the three challenges presented. Concrete tools and resources address several stages of the food value chain, in particular primary production, processing, service and the individual consumption stages, while 51% of trainings address primary production through training of smallholder farmers. Concrete solutions for changes in practices are found primarily in the tourism sector focusing on food waste reduction and sourcing, in particular in the food service stage. While the solutions of the sustainable food systems programme focus on the implementation of the systems approach. Communication campaigns are targeting consumers in addressing what and how much food we produce and consume.

Types of tools and solutions addressing the food value chain



Primary production

At the level of primary production, the One Planet network facilitates sustainability in the production processes through access to data through databases and mobile applications, such as a tool offering pesticide risk databases and algorithms. Certifications and standards guide farmers in applying sustainable practices in primary production,

such as green certifications in the dairy sector in Sri Lanka, as well as toolboxes for practitioners to establish and operate guarantee systems and adhere to standards and certifications.

Addressing how we produce and consume, the One Planet network partners offer trainings in particular to smallholder farmers to increase their capacity in addressing sustainability in their primary production processes, such as training Cocoa farmers in Ghana on biodiversity management and farmer groups in Zimbabwe on value chain development, market engagement and conservation agriculture.

Processing & Packaging

While packaging and transport presents a gap in the activities of the One Planet network to address middle stages of the food value chain, the network does offer tools and resources to apply sustainable practices in how and how much we produce and consume. This includes a practitioner's guide for innovative markets, evaluation tools to assess the sustainability of mass consumption products and guidance on eco-innovation. Similarly, to the primary production stage, focusing in the processing stage on the application of certifications and standards, trainings target food standards, criteria and sourcing.

Retail & Food Service

24% of the identified concrete tools and resources address the middle stages of the food value chain through retail (3%) and food services (21%). Here emphasis is on procurement, sourcing and food waste prevention. Trainings support the application of these tools and resources, for instance focusing on the sustainable sourcing of seafood in South Africa, workshops on waste reduction for hotels and capacity development for policy implementation of sustainable public food programmes in Africa. Solutions to implement concrete changes in practices addressing the retail (3%) and food service (38%) stages make up a total of 41% of reported practices. Within food service, these target how much and what type of food we produce and consume through the implementation of procurement policies, food waste reduction programmes and sustainable waste management practices. While retail is addressed, the primary focus of the available tools, trainings and solutions are on the food service stage. Addressing actors both at the retail and food services stages, and linking to the individual consumption stage, a new set of guidelines sets the ground for effective product sustainability information to consumers. The guidelines include a comprehensive set of high-level principles for users to follow, and guidance on how to apply them. They cover fundamental and aspirational approaches and can be applied in developed and developing countries, and by companies of all sizes. The guidelines are accompanied by both trainings, case studies and an online self-assessment tool.

Due to the identified relevance of retail in addressing the food value chain as an integrated system, including through large retailers, there is a need to further increase focus in the development of tools and solutions on offering sustainability guidance at this stage.

Individual consumption

Focused on the type of food we consume and produce (18%), existing tools and resources addressing the individual consumption stage (a total of 24%) tackles consumer habits through learning, information on sustainable diets and responsible consumption, and mobile applications, such as MyFoodways and eco-label guides. Concrete solutions to changing consumer practices addresses sustainability in lifestyles, including giving consumers access to trustworthy sustainability information through SmartLabel.

The bulk of outreach activities addressing individual consumption across the One Planet network are in the form of communication campaigns (15%), with 70% of all campaigns targeted at the consumer. Engaging consumers on how we, how much and what we consume and produce, the campaigns address food waste, sustainable and



healthy diets, food security, local and urban agriculture, and local produce. Campaigns include engaging consumers through the Good Food 4 All run in the EU, urban agriculture in Pakistan, and encouraging a sharing economy with agricultural produce in Kenya and seed sharing in Malaysia.

Holistic tools and solutions

With 24% of tools and resources, 19% of trainings and 7% of concrete solutions to change practices are addressing the food value chain in a cross-cutting manner, the One Planet network also provides more generalized guidance and support on sustainable food systems. The majority of these are addressing multiple of the three identified challenges.

Tools and resources include e-learning on food loss analysis across the value chain, a sustainable food systems glossary on key concepts and approaches, a collaborative framework for food systems transformation providing a manual for policymakers and other stakeholders, and a people centred advocacy toolkit. Trainings include regional and local workshops, such as the sustainable food systems roundtable in Africa and a food summer school in Bangalore, India, as well as a massive open online course (MOOC) on food and our future for Southeast Asian policy makers. Solutions for concrete changes in practice focus on the power of procurement to address sustainability in the food value chain and addressing market share in food value chains.

IV. Conclusions

The mapping of policies and activities on food across the One Planet network highlight a number of broad trends, opportunities and gaps emerge.

The policy analysis provides a general picture of the landscape at the policy level and of the related opportunities and gaps in terms of enabling conditions. The overall trends that emerge include:

- **Measures are primarily concentrated at primary production and individual consumption level.** This also highlights a gap in measures at the middle stages of the value chain, the stages that shape how we produce and how and what we consume.
- A good mix of voluntary (e.g. awareness, training, guidance) and regulatory measures (e.g. directives, quotas, mandatory procedures) exist at various stages of the value chain; while **economic and financial measures remain more limited**, such as the removal of harmful subsidies.
- **A relative balance between the key challenges that the policy measures address**, indicating that overall there is not a large gap in terms of policies which look at production processes, food loss and waste, and the types of food being produced and consumed. A better understanding of how the different stages of the value chain interact with one another in addressing these challenges is however missing.
- There are **opportunities to scale up measures highlighted on procurement regulations**, as they can play a key role in supporting sustainability practices along the food value chain (for example by simultaneously promoting local sustainable products and healthy diets) but are currently proposed on a small scale rather than nationwide

Future efforts should be made to address the current lack of attention paid to the largest and most influential players in food-related policies. Measures at food processing stage of the value chain are largely absent from the majority policies and the measures at the retail and food service stages are mostly voluntary and tend not to target the most influential operations with large market share.



In the meantime, existing activities and resources are key to operationalise voluntary measures put forward in policies and beyond. The activities of the One Planet network on food provide an indication of where key activities and resources, that can be leveraged to address identified hotspots and challenges, can be found. While acknowledging that the One Planet network activities remain a limited dataset in a global context, a number of broad trends, opportunities and gaps emerge. These include:

- While the middle stages of the food value chain remain underrepresented in the activities of the One Planet network, there are **key opportunities to build on the work undertaken at food processing, retail and food services stages** by various programmes and actors of the One Planet network.
- Activities on the development and application of standards, certifications and labels for food are taking place at food processing, retail and individual consumption stages of the value chain. Food processing and retail are a key interface between producers and consumers: what retailers choose to put on their shelves and how they operate can in turn influence the natural resource use and environmental impacts along the whole food value chain. **While effective sustainability information to consumers seems to be well understood, there is an opportunity to further understand how labels and standards influence primary production.**
- **There are opportunities to scale-up and expand activities taking place at the food service stage of the value chain.** Activities at this stage are mostly in the tourism sector and primarily focused on providing menus sourced from local and seasonal produce or on reducing food waste. There are opportunities to expand the focus to include considerations regarding animal-based food products or highly-processed food productions. There are also opportunities to replicate the work of tourism companies to other actors including food companies and retail in producing and providing sustainable food options.
- **A consolidation of progress on food loss and waste at the individual consumption and food service stages would reduce the risk of duplicating efforts.** Replicating existing initiatives and best practices will highly benefit from collaboration and sharing experiences and results.
- **Procurement regulations have been identified as a key entry point and the Sustainable Public Procurement programme is working with governments to shape publicly-provided food services.** However, to a large degree, procurement of food takes place from one business to another and there remains a gap for food processing companies, retail and food service companies. Beyond the already active tourism companies, private food service includes fast food restaurants and other major restaurant chains, as well as individual food service, hospitality SMEs and micro-enterprises.



Annex I: List of policies analysed

Belgium (Bruxelles) - [Strategie good food « vers un système alimentaire durable en région de bruxelles-capitale](#)

Belgium – [Lutte contre les pertes et gaspillages alimentaires](#)

Belgium (Flanders) - [Declaration of commitment: Together against food losses](#)

Chile - [Plan de Acción Nacional de Consumo y Producción Sustentables 2017 - 2022](#)

Costa Rica - [Política Nacional de Producción y Consumo Sostenibles 2018 -2030](#)

Costa Rica - [Estrategia nacional para la sustitucion de plasticos de un uso](#)

Costa Rica - [Programa Nacional de Etiquetado Ambiental y de Eficiencia Energética de Costa Rica y creación del comité técnico de etiquetado ambiental y energético](#)

Cote d'Ivoire - [decret portant creation et fixation des modalites d'attribution « l'ecolabel cote d'ivoire](#)

Ecuador - [Plan Nacional de Desarrollo 2017-2021-Toda una Vida](#)

European Union – [Directive of the European Parliament on the reduction of the impact of certain plastics on the environment](#)

European Union – [Farm to Fork Strategy](#)

Finland – [Getting more from less](#)

France – [50 mesures pour une économie 100% circulaire](#)

Germany – [National Strategy for Food Waste Reduction](#)

Germany - [National Programme on Sustainable Consumption](#)

Jordan - [National strategy and action plan for sustainable consumption and production](#)

Namibia - [National Solid Waste Management Strategy](#)

Norway – [Food Loss and Waste in Fish Value Chains](#)

Norway – [Industry agreement on reduction of food waste](#)

Pakistan - [Pakistan National Action Plan on SDG 12 Sustainable Consumption and Production](#)

Philippines - [An act providing for the development and promotion of organic agriculture in the philippines and for other purposes](#)

Saint Lucia - [Styrofoam and Plastic Food Service Containers 2019 \(Prohibition\) Act](#)

South Africa – [Industrial Policy Action Plan](#)

Sweden - [A National Food Strategy for Sweden](#)

Tunisia - [Plan d'action national sur les modes de production et de consommation durables](#)

United States - [U.S. EPA Sustainable Materials Management Program Strategic Plan](#)