



Impact Assessment of Policies to support Healthy Food Environments and Healthy Diets

Implementing the Framework for Action of the Second International Conference on Nutrition



UNSCN

United Nations System Standing Committee on Nutrition

October 2016

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Foreword

Implementing the framework for action of the Second International Conference on Nutrition

In 2014, WHO and FAO jointly held the Second International Conference on Nutrition (ICN2) as a follow-up to the first conference in 1992. Much has changed in the last 20-plus years. We started the conference acknowledging that now, we are not just dealing with the hungry but also with stunted children, people suffering from various forms of micronutrient deficiencies, and a growing overweight and obese population, often in the same communities. The understanding and political priority for nutrition has also changed; nutrition is now high on the development agenda, and there is significant momentum for real progress.

The UN Decade of Action on Nutrition, proclaimed by the UN General Assembly on 1st April 2016, calls upon national Governments and other relevant stakeholders to actively support the implementation of the ICN2 commitments over the next 10 years from 2016 to 2025. A focus of ICN2 was the central role of food systems in fighting malnutrition in all its forms. The vision put forward by the ICN2 is consumption of diverse, nutritious and safe food for all through sustainable production, trade and distribution systems that enable healthy diets. Governments committed to act on this in the Rome Declaration on Nutrition. One of the recommendations in the ICN2 Framework for Action, is to review national policies and investments and to integrate nutrition objectives into programs and policies to ensure nutrition-sensitive agriculture and food systems, and healthy diets. What does this mean in practice? Do governments have the tools to be able to review a policy for its nutrition sensitivity? This paper takes us a step forward in the discussion by starting with a well-known tool that can be used in policy deliberation – impact assessment – and systematically exploring how it could be applied toward the outcome of healthy food systems. The paper argues that it will be difficult to expect governments to assess impact of policies on healthy food systems if they do not first identify what the main impacts are. Specifically, the paper identifies two key types of food systems impact that are critical to characterize: diet quality and food environments.

The food environment is a key outcome of the food system. The food environment shapes what people consume. It accompanies income to determine food access. One cannot purchase sufficient, safe and nutritious food to meet dietary needs unless it is available to begin with. Furthermore, if healthy diets are affordable, convenient and desirable, then healthy diets will be the default rather than a privilege reserved only for a few. That is a healthy food environment. Much more attention needs to be paid to this concept going forward if governments are to make progress in averting all forms of malnutrition, from undernutrition to obesity.

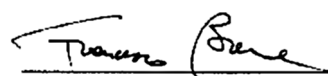
This discussion paper concludes that in order to assess impact of policies on food environments and diets we need a new “data revolution” for food data. The first ICN occurred at a time when data on prevalence, causes and consequences of nutritional status and micronutrient deficiencies were expanding rapidly. We now need a similar scale of data and information advancement in order to understand food environments and diet quality: where they are insufficient, in what ways, and with what health consequences, so that appropriate actions can be taken. We hope that along with the improved political priority for nutrition, better data will enable impact assessment of policies toward healthy food environments and healthy diets.

We hope that this paper might generate greater understanding of how policies in different sectors affect nutrition and ultimately contribute to policy coherence.



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Executive summary

The Second International Conference on Nutrition (ICN2) highlighted the role of food systems – the way food is produced, processed, distributed, marketed and prepared for human consumption – as crucial to the fight against malnutrition in all its forms, including overweight and obesity.

To this end, in the **ICN2 Rome Declaration**, Member States committed to:

- Enhance sustainable food systems by developing coherent public policies from production to consumption and across relevant sectors to provide year-round access to food that meets people's nutrition needs and promote safe and diversified healthy diets (Commitment 15c).
- Raise the profile of nutrition within relevant national strategies, policies, actions plans and programmes, and align national resources accordingly (Commitment 15d).

The **ICN2 Framework for Action** enumerates recommended actions for sustainable food systems promoting healthy diets, including *to review national policies and investments and integrate nutrition objectives into food and agriculture policy, programme design and implementation* (Recommendation 8).

These commitments are aligned with the Sustainable Development Goals (SDGs) particularly SDG 2, to *end hunger, achieve food security and improved nutrition and promote sustainable agriculture*, Target 2.1 that *by 2030 end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious, and sufficient food all year round*, and Target 2.2 to end all forms of malnutrition.

The UN Decade of Action on Nutrition, proclaimed by the UN General Assembly on 1st April 2016, calls upon countries and other relevant stakeholders to actively support the implementation of the ICN2 commitments over the next 10 years from 2016 to 2025. In order to follow through on these commitments, it is implied that policies will need to be assessed for their impact on diets and access to nutritious food. To do so requires:

1. The ability to measure and monitor relevant food environment and dietary outcomes.
2. A system to review policies across a range of sectors *ex ante* for their likely impact on these outcomes.

Currently, each of these is a challenge:

1. Available indicators and monitoring systems are not sufficient to fully assess whether food environments and diets are 'healthy' (as defined in the terminology section below), the envisaged outcomes of coherent food systems policies.
2. In most countries, there is not a system in place that ensures that such outcomes are routinely part of policy deliberation.

This paper explores opportunities for and challenges to the ICN2 goal of coherent policies that would support year-round access to food that meets people's nutrition needs. It proposes options for a system to review policies for their likely impact on food environments and dietary outcomes, which rests on the ability to measure those outcomes.

Terminology

Food systems affect the kinds of foods available, affordable, convenient and desirable to people – that is, the food environment. The food environment, in combination with individual factors such as income, knowledge, time and preferences, affects dietary consumption. Diets, in turn, affect nutritional status and risk of non-communicable diseases (NCDs).

Food system: A food system gathers all the elements (environment, people, inputs, processes, infrastructures, institutions, etc.) and activities that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of these activities, including socioeconomic and environmental outcomes. (HLPE 2014, p29)

Food environment: A food environment is the range of foods available, affordable, convenient and desirable to people. Food market environments constrain and signal consumers what to purchase; wild and cultivated food environments also can provide availability and convenience of foods. (Herforth and Ahmed 2015)

Healthy food environment: environments in which the foods, beverages and meals that contribute to a population diet meeting national dietary guidelines are widely available, affordably priced, reasonably convenient, and widely promoted. (adapted from Swinburn et al. 2013)

The outcomes of the ICN2 articulated in the Framework for Action include these recommendations related to healthy food environments:

- Improve access and affordability of fresh food.
- Increase production, reduce wastage, improve distribution of fruit and vegetables and reduce transformation into juices.
- Increase production and use of unsaturated fat instead of trans and saturated fat.
- Make safe drinking water accessible to all.
- Offer healthy food in public institutions and in private catering outlets.
- Align marketing to public information and end marketing of unhealthy foods.

Food security: physical and economic access to sufficient, safe, nutritious foods to meet dietary needs and food preferences for an active and healthy life (FAO 1996). It is dependent on food environments and individual factors.

Diet: The kinds of food and drink a person habitually eats.

Healthy diet: A diet that helps protect against malnutrition in all its forms, as well as noncommunicable diseases (NCDs), including diabetes, heart disease, stroke and cancer. According to the WHO Healthy Diet Fact Sheet, a healthy diet contains (WHO 2015c):

- Fruits, vegetables, legumes (e.g. lentils, beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat, brown rice).
- At least 400 g (5 portions) of fruits and vegetables a day.
- Less than 10% of total energy intake from free sugars.
- Less than 30% of total energy intake from fats. Unsaturated fats (e.g. found in fish, avocado, nuts, sunflower, canola and olive oils) are preferable to saturated fats (e.g. found in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard). Industrial trans fats (found in processed food, fast food, snack food, fried food, frozen pizza, pies, cookies, margarines and spreads) are not part of a healthy diet.
- Less than 5 g of salt (equivalent to approximately 1 teaspoon) per day and use iodized salt.

Developing a process for impact assessment of policies (*ex ante*)

- When new policies or programmes are considered, they are often subject to some sort of review on social impact, health impact, and environmental impact. Policies rarely serve all interests equally; typically some values are prioritized over others. Missing in policy debate, however, is impact on public health nutrition.
- Impact assessment (IA) is a potential tool that could be used to improve nutrition sensitivity. IA is the use of methods to predict the likely impacts of a policy or project on all affected populations and population sub-groups. *Ex ante* impact assessment of food system policies is envisioned to support healthy food environments and healthy diets.

Three ways to approach impact assessments of policies on food environment and diet outcomes are:

- (1) Ad hoc impact assessments of policies designed to benefit nutrition as a primary purpose for their likely impact on Food Environments and Diets (FED). An example is carrying out a FED IA on a proposed sugar-sweetened beverage tax.
- (2) Policy portfolio review of the food and agriculture sector to assess the cumulative impact of the existing policy portfolio on food environments and diets, and where opportunities lie for improving impact through a new policy or revision of existing policies. The primary policy areas include those affecting agricultural production, markets and trade, food transformation and consumer demand, and consumer purchasing power.
- (3) Integrate FED IA into broader Health or Social Impact Assessments (HIA or SIA) of new policies, focusing on the food systems policy areas listed above.

Challenges to impact assessment include: (1) The need for increased capacity and political priority for nutrition, and for impact assessments of policies in general; (2) Lack of documented comparative evidence for where similar policies may have been considered or instituted elsewhere; (3) A paucity of metrics and data to understand the situation regarding food environments and diet quality.

Developing food environment and diet quality measurement

A necessary suite of **food environment** indicators would give a sense of what the food environment looks like; that is, which kinds of foods are most available, affordable, convenient and desirable/marketed. Monitoring these indicators would signal areas where policies may positively or negatively impact the overall healthiness of the food environment.

- Currently food environments are typically measured only in terms of availability of dietary energy supply and prices of starchy staples; aggregate price of food using a basket that does not necessarily reflect dietary needs; and calorie availability.
- The most important additions to these existing indicators are the availability and affordability of diverse food groups (e.g. fruits and vegetables); and the price of a food basket that reflects the needs for a healthy diet. These additional indicators need to supplement the indicator of calorie supply from non-staples, to ensure that the non-staples available can provide healthy diets.

- Existing food price monitoring systems in many countries could provide meaningful information on the availability and prices of a diverse, nutritious basket of foods. This would be a step toward measuring the food environment.

Indicators to measure **diet quality** would reflect dietary adequacy (getting enough of certain foods and essential nutrients) and moderation (not getting too much of certain foods or nutrients). Relevant indicators include:

- Minimum Dietary Diversity reflects micronutrient adequacy. For children 6-23 months, this indicator is collected in periodic surveys (e.g. DHS). For women, this indicator (MDD-W) is not yet typically collected, but could be incorporated into periodic dietary or health surveys.
- Other additions where indicators have already been defined by global frameworks but data are not necessarily collected include: consumption of fruits and vegetables, of salt, of dietary energy from free sugar, and trans fats.
- The consumption of ultra-processed food is also important but indicators have not yet been defined and agreed upon; this needs further work.
- Monitoring systems need to be improved to measure adequacy or moderation of consumption of specific foods within the WHO recommendations. Some of the needed indicators listed above may be derivable from recent representative dietary surveys in countries where they exist.



Recommendations

To transform the ICN2 commitments and recommendations into reality, it will be critical to monitor food environments and diets, and to conduct impact assessment of the food systems policies that most strongly affect those outcomes. Recommended actions toward these steps include:

1. Develop and monitor feasible, valid metrics that reflect desired outcomes of healthy food environments and diets, as elaborated above.
2. FAO and WHO work toward aligning their global databases and flagship publications to cover food environment and diet information, and agriculture and food system policies, in view of enabling tracking of the 60 recommendations of the ICN2 Framework for Action and ensuring easy accessibility to the information by countries.
3. Build capacity to do impact assessments, whether food environment and diet impacts are incorporated within a broader Health or Social Impact Assessment (HIA or SIA), or assessed in an independent effort on food systems. Advocacy for HIA in general, such as the WHO “Health in all policies” initiative, should include food environment and diet in the HIAs advocated.
4. Continue building capacity and political priority for nutrition in country, including priority for transformation into healthy food systems, healthy food environments, and healthy diets, so that impact assessments on food environments and diets would be demanded by countries and citizens and used in the policy process.

The needs for improved metrics, and for a feasible political process for reviewing policies with a nutrition lens are universal, irrespective of a country’s type of food system, income level or malnutrition problem. Building the global and national capacity for this work is a long-term undertaking that requires vision and sustained commitment, the benefits of which can be seen in the enormous utility and impact that has accompanied the Demographic and Health Surveys over several decades of development and implementation.

Under the UN Decade of Action on Nutrition 2016 to 2025, the monitoring food environments and diets, and building a system for impact assessment of food systems policies on those outcomes, would help countries to follow through on the ICN2 commitments: to raise the profile of nutrition within relevant policies, and to develop policies to provide year-round access to food that meets people’s nutrition needs and promote safe and diversified healthy diets.

1

Rationale and purpose

There is unprecedented support for nutrition in global commitments made at the Second International Conference on Nutrition (2014) and in the Sustainable Development Goals (2015). The rationale for this paper is to support countries in following through on commitments made to ensure that policies support healthy food systems that provide access to adequate nutritious food for all, and that support healthy diets.

The Second International Conference on Nutrition (ICN2) highlighted the role of food systems – the way food is produced, processed, distributed, marketed and prepared for human consumption – as crucial to the fight against malnutrition in all its forms including overweight and obesity. At ICN2 member states “*acknowledge that current food systems are being increasingly challenged ...to provide adequate, safe, diversified and nutrient rich food for all that contribute to healthy diets due to, inter alia, constraints posed by resource scarcity and environmental degradation, as well as by unsustainable production and consumption patterns, food losses and waste, and unbalanced distribution.*” (ICN2 Rome Declaration para 10).

In the **ICN2 Rome Declaration**, Member States committed to:

- Enhance sustainable food systems by developing **coherent public policies from production to consumption and across relevant sectors to provide year-round access to food that meets people’s nutrition needs and promote safe and diversified healthy diets** (Commitment 15c).
- **Raise the profile of nutrition within relevant national strategies, policies**, actions plans and programmes, and align national resources accordingly (Commitment 15d).

The **ICN2 Framework for Action** includes recommended sets of policy and programme options. Among them are:

- Recommended actions for sustainable food systems promoting healthy diets, including to **review national policies and investments and integrate nutrition objectives into food and agriculture policy**, programme design and implementation, to enhance nutrition sensitive agriculture, ensure food security and enable healthy diets (Recommendation 8).
- Recommended actions to create an enabling environment for effective action, including to **improve the availability, quality, quantity, coverage and management of multisectoral information systems related to food and nutrition for improved policy development and accountability** (Recommendation 5).

Akin to the ICN2 commitments, the Sustainable Development Goals (SDGs) highlight the importance of sustainable food systems that support good nutrition. The UN Secretary-General noted in his *Report on Agriculture Development, Food Security and Nutrition* that reaching Sustainable Development Goal 2 (SDG2) and the interlinked targets of other goals will be critical in achieving a shift to resilient, diverse and productive agriculture and food systems which are environmentally, socially and economically sustainable.¹

¹ Report of the Secretary General on Agriculture Development, Food Security and Nutrition. A/70/333. Paragraph 16.

- SDG Target 2.1: by 2030 end hunger and ensure access by all people, in particular the poor and people in vulnerable situations, including infants, to safe, nutritious, and sufficient food all year round; and
- SDG Target 2.2: by 2030 end all forms of malnutrition, including achieving by 2025 the internationally agreed targets on stunting and wasting in children under five years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women, and older persons.

Global and regional networks have arisen in the past several years in which countries commit to nutrition-sensitive policies and programs,² particularly in agriculture.³ These include the Scaling Up Nutrition (SUN) Movement and the Comprehensive Africa Agriculture Development Programme (CAADP) Nutrition Capacity Development Initiative.⁴

Many recent technical documents and civil society/popular culture materials have been produced related to the impact of policies (or the lack thereof) on the kind of food that is available, cheap, convenient and marketed to people; and in turn the impact these foods have on people's diets and nutrition (e.g. Gomez et al. 2013, Pinststrup-Andersen 2013, Alston et al. 2008, Global Panel 2014, IATP 2006, Pollan 2006). In addition there are food sovereignty movements that call for people's self-determination in the food that they produce and consume. These are closely related to discussions on the right to food and on agroecological production that is environmentally and socially sustainable (FAO 2014, Stedile and Carvalho 2011, Patel 2009, La Vía Campesina 2007, Akram-Lodhi 2015, Chappell 2015).

All of these - global, regional and national commitments – as well as popular culture and grassroots advocacy – suggest a vision of policy formulation and deliberation involving routine, explicit consideration of public health nutrition impact and/or the right to food. This vision is quite far from the status quo. When new policies or programmes are considered, they are sometimes subject to some sort of review on social impact, health impact, and environmental impact. Debates can be arduous and prolonged when one social value – such as economic growth – is at odds with another, such as environmental conservation (e.g. palm oil plantations in Indonesia, cattle ranching in Brazil). Policies rarely serve all interests equally; typically some values are prioritized over others. Missing in policy debate, however, is impact on public health nutrition.

What if governments routinely assessed new and existing policies for their impact on food environments and diets? How would it be done and by whom? Which policies would be prioritized? Is it possible with the tools that we have currently available? What is missing and what is needed?

The purpose of this paper is to explore opportunities and challenges to the envisaged goal of assessing policies to support year-round access to food that meets people's nutrition needs. The intent is that governments of all countries – whether high income (HIC), low or middle income (LMIC), independent of the type of food system and

² Nutrition-specific activities to target the immediate causes of malnutrition (inadequate nutrient intake and/or diseases), and nutrition-sensitive development to address the underlying causes of malnutrition, including lack of access to food, inadequate access to health services, sanitation and hygiene, and inadequate caring practices.

³ In recognition of its importance to nutrition, more funds have been committed to nutrition-sensitive agriculture than any other single area of nutrition. \$19.2 billion were committed by donors and governments in 2013 at the G8 meetings for nutrition-sensitive investments, the majority of which would be implemented through agriculture; compared to \$4.2 billion for direct nutrition investments (Government of UK 2013).

⁴ The CAADP Nutrition Capacity Development Initiative recommends that National Food Security Investment Plans include the objective to "increase availability, affordability and consumption of fresh, healthy and nutritious food." (Dufour et al. 2013, p65).

the nutrition situation in their countries – are able to include an assessment of impacts on food environments and diets in policy deliberation.⁵

The structure of this paper is as follows: The first section discusses what is meant by the terms healthy food systems, healthy food environments, and healthy diets, and how they relate to each other. The second section describes policies that most strongly affect these outcomes and presents options for carrying out impact assessment of those policies. Because ability to measure and monitor food environments and diets is foundational to designing and assessing policies to improve them, a third section discusses this important area. The paper concludes with a fourth section on recommendations for what is needed to enable impact assessment of policies to support healthy food environments and healthy diets.

The scope of this paper is the food and diet side of nutrition. It deals with policies that have the strongest effect on access to and consumption of food, such as agriculture policies. While many times agriculture and food systems policies are not formulated with nutrition as a primary focus, and rather focus on economic growth, the reason for this paper is to discuss a way forward for ensuring that impact on food and diets is included in the policy deliberation process, even if it is not the primary focus of the policy.

Other *non-food-related* policies impact nutrition as well, such as those affecting women's rights, incentives or disincentives for infant and young child caring practices, disease risk and health care access (e.g. parental leave policies, water and sanitation policies, and publicly-funded medical facilities). These are important non-food contributors to nutritional status, but are not addressed here, as this discussion paper does not have the scope to cover policy impact on all the causes contributing to nutritional status and breastfeeding outcomes.

There are also global targets for these nutritional status outcomes:

- The World Health Assembly has adopted six global targets to improve maternal, infant, and young child nutrition by 2025, including reductions in stunting and wasting in children under age 5, anemia in women of reproductive age, low birth weight, and no increase in childhood overweight, and increases in exclusive breastfeeding.⁶
- The Global Action Plan for the Prevention and Control of NCDs 2013-2020 includes targets to halt the rise in diabetes and obesity, and to reduce salt intake (WHO 2013).⁷

These targets require more than only food system improvements, but most, if not all of them would be positively affected by improved food environments and diets. Access to and consumption of diverse, safe, nutritious diets is an essential precursor to positive nutritional status outcomes, including lower undernutrition as well as reduced overweight and obesity and risk of diet related NCDs.

5 Although this paper focuses on policies in the domain of government, the process may be applicable to government partners such as donors and private sector actors affecting the food system as well.

6 The specific targets are: (1) 40% reduction of the global number of children under five who are stunted; (2) 50% reduction of anaemia in women of reproductive age; (3) 30% reduction of low birth weight; (4) no increase in childhood overweight; (5) increase exclusive breastfeeding rates in the first six months up to at least 50%; and (6) reduce and maintain childhood wasting to less than 5% (WHO 2014a).

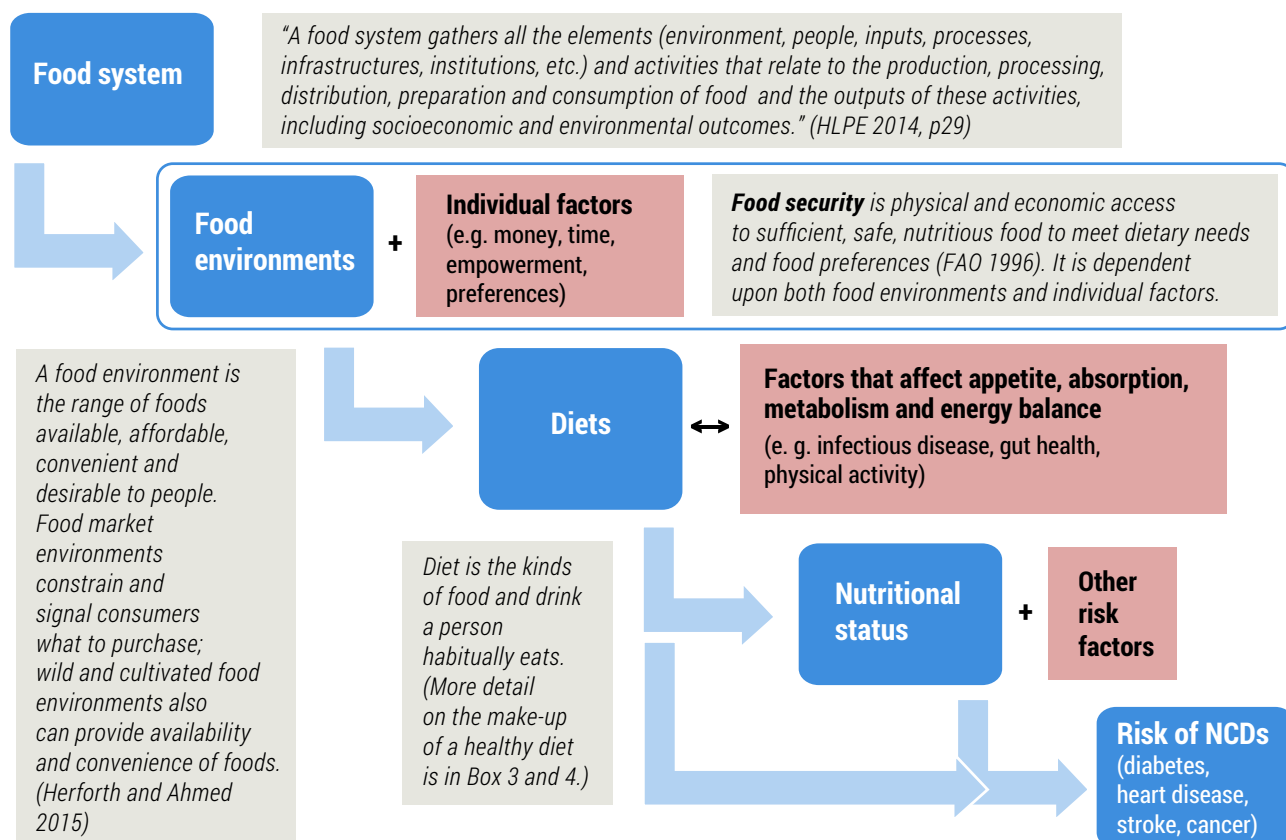
7 The specific targets are: (1) to reduce salt intake by 30%; and (2) to halt the increase in obesity prevalence in adolescents and adults.

2

Terminology: Healthy food systems, healthy food environments, and healthy diets

Many policies affect **food systems** and these affect the kinds of foods available, affordable, convenient and desirable to people – that is, the **food environment**. The food environment, in combination with individual factors such as income, knowledge, time and preferences, affects dietary consumption.⁸ **Diets**, in turn, affect nutritional status and risk of non-communicable diseases (NCDs).

Figure 1.
Framework for how food systems affect food environments, diets, and nutrition outcomes



⁸ Social ecological frameworks place individual factors determining food and beverage intake in the midst of environmental settings, which are in turn influenced by various sectors such as agriculture and industry.

Malnutrition is present in all countries in multiple forms. These forms include undernutrition (child stunting, wasting, underweight; maternal underweight; hunger), micronutrient malnutrition (deficiencies in essential vitamins and minerals), and overweight, obesity, and diet-related NCDs. These forms of malnutrition may be present in the same countries, communities, or even households. Undernutrition has dropped in some countries and regions but persists in many others, while overweight, obesity, and NCDs are growing in nearly all regions.

Poor-quality diets are the common factor across all these forms of malnutrition. Dietary risks are the number one risk factor globally for deaths and disability-adjusted life-years (DALYs) lost (GBD risk factor collaborators 2015). Lack of access to diverse, nutritious food is a major contributor to poor diets; access is, in turn, strongly influenced by food environments. A healthy food system would promote a healthy food environment and healthy diets. These terms are further defined in Boxes 1-4 below.

Box 1. Healthy food system

The ICN2 Framework for Action contains a set of recommendations for “sustainable food systems promoting healthy diets.” (see Annex 2) In short, this paper will refer to this as a **healthy food system**, which allows and promotes consumption of diverse, nutritious and safe foods through environmentally sustainable production, trade and distribution.



Box 2. Healthy food environments

A **food environment** is the range of foods available, affordable, convenient and desirable to people. Food market environments constrain and signal consumers what to purchase; wild and cultivated food environments also can provide access to foods. (Herforth and Ahmed 2015)

- *Availability: whether a food is present within a given individual's range of physical access.*
- *Affordability: price of a food, relative to cost of other foods and/or a consumer's income.*
- *Convenience: time cost of obtaining, preparing, and consuming a food.*
- *Desirability: the external influences on how desirable a food is to a consumer, including freshness/integrity of a food, how it is presented, and how it is marketed. This definition does not include intrinsic tastes/preferences of an individual, which influence consumption but are individual rather than environmental factors.*

Healthy food environments are environments in which the foods, beverages and meals that contribute to a population diet meeting national dietary guidelines are widely available, affordably priced, reasonably convenient, and widely promoted. (adapted from Swinburn et al. 2013)

The outcomes of the ICN2 articulated in the Framework for Action include among others these recommendations related to healthy food environments:

- Improve access and affordability of fresh food.
- Increase production, reduce wastage, improve distribution of fruit and vegetables and reduce transformation into juices.
- Increase production and use of unsaturated fat instead of trans and saturated fat.
- Make safe drinking water accessible to all.
- Offer healthy food in public institutions and in private catering outlets.
- Align marketing to public information and end marketing of unhealthy foods.
- Explore regulatory and voluntary instruments.
- Establish food or nutrient-based standards.
- Encourage the establishment of facilities for breastfeeding.



Box 3. Healthy diets

A healthy diet helps protect against malnutrition in all its forms, as well as noncommunicable diseases (NCDs), including diabetes, heart disease, stroke and cancer. For adults, a healthy diet contains:

- Fruits, vegetables, legumes (e.g. lentils, beans), nuts and whole grains (e.g. unprocessed maize, millet, oats, wheat, brown rice).
- At least 400 g (5 portions) of fruits and vegetables a day. Potatoes, sweet potatoes, cassava and other starchy roots are not classified as fruits or vegetables.
- Less than 10% of total energy intake from free sugars which is equivalent to 50 g (or around 12 level teaspoons) for a person of healthy body weight consuming approximately 2000 calories per day, but ideally less than 5% of total energy intake for additional health benefits. Most free sugars are added to foods or drinks by the manufacturer, cook or consumer, and can also be found in sugars naturally present in honey, syrups, fruit juices and fruit juice concentrates.
- Less than 30% of total energy intake from fats . Unsaturated fats (e.g. found in fish, avocado, nuts, sunflower, canola and olive oils) are preferable to saturated fats (e.g. found in fatty meat, butter, palm and coconut oil, cream, cheese, ghee and lard). Industrial trans fats (found in processed food, fast food, snack food, fried food, frozen pizza, pies, cookies, margarines and spreads) are not part of a healthy diet.
- Less than 5 g of salt (equivalent to approximately 1 teaspoon) per day and use iodized salt.

Source: WHO Healthy Diet Fact Sheet, September 2015

Note: Please see the original source for references.

The ICN2 Rome Declaration states, "nutrition improvement requires healthy, balanced, diversified diets, including traditional diets where appropriate, meeting nutrient requirements of all age groups, and all groups with special nutrition needs, while avoiding the excessive intake of saturated fat, sugars and salt/sodium, and virtually eliminating trans-fat, among others." (paragraph 14j)



Box 4. Healthy food environments and diets for infants and young children

Although this paper focuses on how food systems provide access to healthy diets as defined for people over the age of two years, it is also important to ensure healthy food environments that support optimal infant and young child feeding and care practices. The WHO Healthy Diet Fact Sheet (2015) specifies that a healthy diet for infants and young children is:

- Breastfeeding exclusively babies during the first 6 months of life and breastfeeding continuously until two years and beyond
- From 6 months of age, breastmilk should be complemented with a variety of adequate, safe and nutrient dense complementary foods. Salt and sugars should not be added to complementary foods.

Policies that support healthy diets for this age group involve a wide array of non-food policies that impact caregiving practices and knowledge (as described above). Food systems policies have a role in ensuring that diverse, safe, nutritious foods are available, affordable, and convenient (as for older children and adults), and additionally that the International Code for Marketing of Breastmilk Substitutes is followed (resolution WHA34.22, ICN2 Framework For Action Recommendation 29).

The ICN2 Rome Declaration includes: Develop policies [...] for ensuring healthy diets throughout the life course, starting from the early stages of life to adulthood, including of people with special nutritional needs, before and during pregnancy, in particular during the first 1,000 days, promoting, protecting and supporting exclusive breastfeeding during the first six months and continued breastfeeding until two years of age and beyond with appropriate complementary feeding, healthy eating by families, and at school during childhood, as well as other specialized feeding. (Commitment 15g)



3

The role for impact assessment of policies

The ICN2 commitments include raising the profile of nutrition across sectoral policies, and “reviewing national policies and investments [...] to enhance nutrition sensitive agriculture, ensure food security and enable healthy diets.”

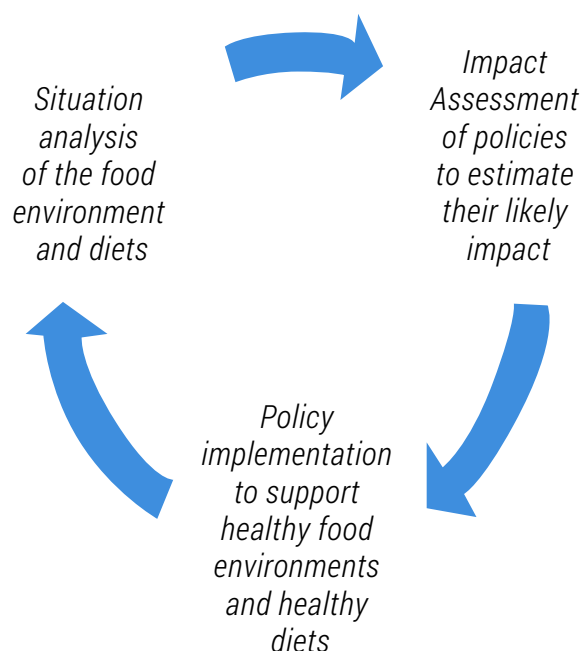
Impact assessment (IA) is a potential tool that could be used to meet these commitments and improve nutrition sensitivity. An impact assessment (IA) is the use of methods to assess or predict the likely impacts of a policy or project on all affected populations and population sub-groups. Forecasted impacts are the difference between the future with the policy or project and a future without it (NOAA 1994). IA allows alternative plans and impacts of a proposed policy to be understood and recommendations made for the best alternative and, where needed, mitigating actions (NOAA 1994).

An iterative cycle of the first three steps below (Figure 2) is envisioned, with the desired outcome of improved food environments and diets, which contribute to improved nutritional status and lower NCD rates. The process is similar to the UNICEF triple-A cycle (UNICEF 1990): assessment of the nutrition situation, analysis of causes (and how they are likely to be affected by a potential action), and action taking; cycling back again to assessment.

Which policies should be reviewed and how? Impact assessment is needed when “the expected economic, environmental or social impacts of action are likely to be significant” – either on society as a whole or on a particular societal group or geographic area (EC Better Regulation Toolbox, Tool #5). It is not needed in cases where there is little or no policy choice available, when impact is very small and when impacts cannot be clearly identified.

Governments can select policies that would be subject to an IA due to their high influence on the food system. In most cases these would include new policies, revisions of policies and implementation measures. This chapter discusses examples of policies that could best support healthy food environments and healthy diets.⁹

Figure 2. Cycle with initial steps for assessing the impact of policies on food environment and diets

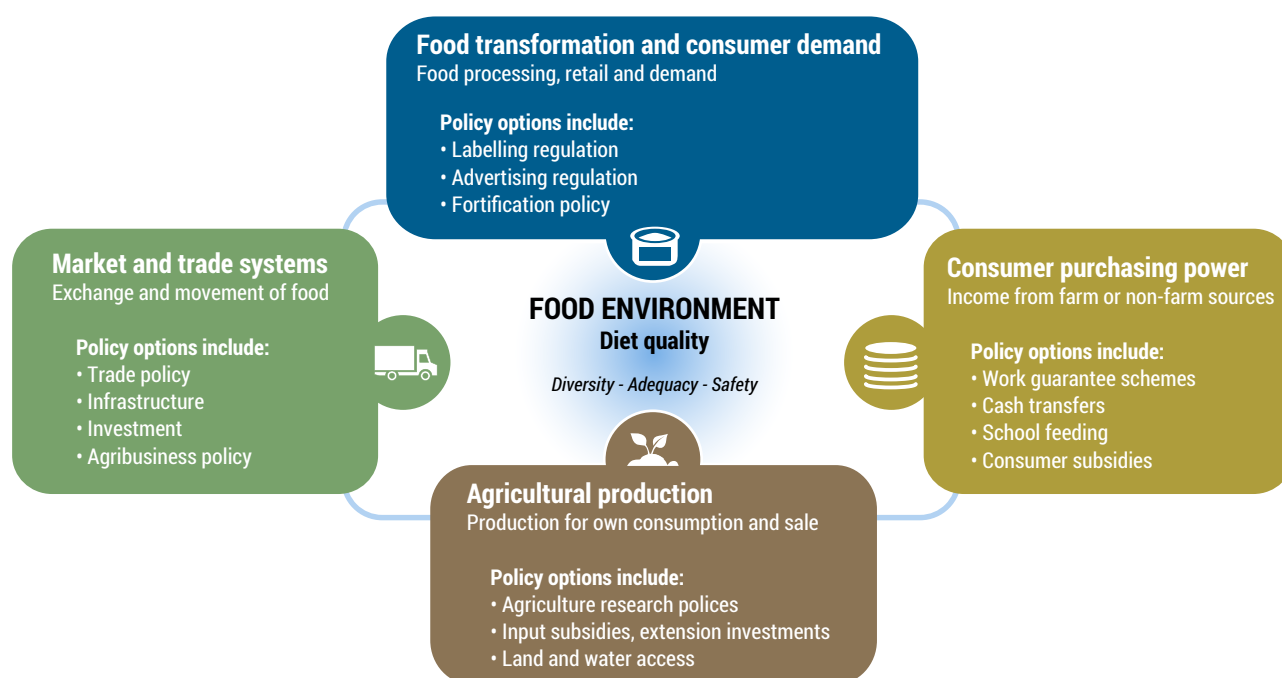


⁹ In this series, UNSCN Discussion Paper 2 (UNSCN 2015: Investments for healthy food systems. A framework analysis and review of evidence on food system investments for improving nutrition. Authored by Rachel Nugent et al) presents further policy options to improve nutrition in different food system types.

3.1. Types of policies that affect food environments and diets

Four broad categories of policies most directly affect food environments and diets: (1) agricultural production, (2) market and trade systems, (3) food transformation and demand, and (4) consumer purchasing power (Figure 3, Global Panel on Agriculture and Food Systems for Nutrition 2014).

Figure 3.
How food systems policies link to food environments and diet quality



Source: *Global Panel on Agriculture and Food Systems for Nutrition (2014)*.

The *Key Recommendations for Improving Nutrition through Agriculture and Food Systems* (Ag2Nut 2013, FAO 2015) states Food and agriculture policies can have a better impact on nutrition if they:

- Increase incentives (and decrease disincentives) for availability, access, and consumption of diverse, nutritious and safe foods through environmentally sustainable production, trade, and distribution. The focus needs to be on horticulture, legumes, and small-scale livestock and fish – foods which are relatively unavailable and expensive, but nutrient-rich – and vastly underutilized as sources of both food and income.
- Include measures that protect and empower the poor and women. Safety nets that allow people to access nutritious food during shocks or seasonal times when income is low; land tenure rights; equitable access to productive resources; market access for vulnerable producers (including information and infrastructure). Recognizing that a majority of the poor are women, ensure equitable access to all of the above for women.

The following examples of policies to support healthy food environments and healthy diets follow these principles.

Agricultural production

Policy areas within this category include agricultural research policies, input subsidies, targeted subsidies, extension investments, and land and water access policies (GloPan 2014, NOURISHING). In many cases, the status quo is policy that supports staple grains, explicitly or implicitly (through inputs targeted to specific crops), which can crowd out opportunities for more diverse food production and consumption (Pingali 2015). There are several opportunities, however, to increase incentives for diverse, nutritious foods.

- The ICN2 Framework for Action recommends increased production and improved distribution of fruit and vegetables. Targeted subsidies might include production incentives for nutrient dense foods, including producer supports (including small and medium producers engaged in local/regional food systems), and support for market infrastructure and supply chains for perishable foods. Ensuring that input subsidies or other supports are crop-neutral can enable entry into markets for fruits, vegetables, and other under-produced crops (World Bank 2014, Pingali 2015). De-coupling of agricultural subsidies has been discussed in this vein (Pilchman 2015).
- Sample pro-nutrition policy options within agricultural research include increased investment for research and development (R&D) in biofortification of staple crops to increase micronutrient content; and increased investment for R&D in indigenous, “neglected” crops.
- On the side of avoiding the harm to diets that may come from comparatively cheap sugars and oils, agricultural policy incentives for the production of sugar and unhealthy oilseeds (such as palm oil) could be reduced. Incentives for increased production of healthy and sustainable oilseeds could accompany reduction of incentives for less healthy oilseeds and unsustainable production practices. The ICN2 Framework for Action recommends increased production of and accessibility to unsaturated fat instead of trans and saturated fat.

Market and trade systems

Policy areas within this category include trade policy, infrastructure, investments, agribusiness policy, public procurement, and healthy retail incentives (GloPan 2014, INFORMAS, NOURISHING). Several of these areas could be designed to target poor people in rural and urban areas, such as infrastructure investments or healthy retail incentives in underserved geographic areas, or agribusiness incentives for smallholders.

- Infrastructure investments could include investments for improved water quality or irrigation and roads in underserved areas, and healthy retail incentives could include incentives for shops to locate in underserved areas; planning restrictions on food outlets; and regulations and incentives to reduce in-store product density of unhealthy foods and increase product density of healthy foods. There are several efforts to define healthy and unhealthy foods that could be targeted (Ni Mhurchu 2013).
- Agribusiness policy might include incentives for smallholders, small scale food processors and small and medium enterprises (SMEs) that are processing local food to enable competition.
- Agribusiness policy can promote gender equality and women’s empowerment by safeguarding and increasing women’s access to, and control over, incomes and natural resources and agricultural inputs.
- Public procurement is an instrument that could be used to link production of fresh food to institutional demand, to offer healthy foods and set standards in public institutions, e.g. school, work, and health facilities.

Currently trade liberalization has influenced the food systems in many countries towards increased availability and accessibility of more processed food and greater consumption of foods high in fat, sugars and salt, thus contributing to the emerging obesity epidemic. Yet there may be opportunities to leverage trade policy toward achieving positive nutritional objectives.¹⁰ Paper 1 in this series (UNSCN 2015: Enhancing coherence between trade policy and nutrition action, authored by Corinna Hawkes) addresses actions for policy makers to consider to enhance coherence.

Food transformation and consumer demand

Food transformation policies affect the composition, shelf stability, quality and desirability of foods available to consumers. Such policies could include:

Regulations and voluntary instruments

- Prohibit the use of trans fats, reduce energy density of processed foods, regulate portion sizes of packaged foods, and front-of-package labelling.
- Fortification policy can affect nutrient content of food during food processing (e.g. adding iron and folic acid during wheat flour milling, salt iodization).

Marketing encompasses promotion, sponsorship and advertisement (WHO 2010), which affects consumer demand

- In 2010 WHO Member States endorsed a set of recommendations on the marketing of foods and non-alcoholic beverages to children (resolution WHA63.14), calling for national and international action to reduce the impact on children of marketing of foods high in saturated fats, trans-fatty acids, free sugars and salt (WHO 2010). The ICN2 Framework for Action recommends ending the marketing of unhealthy foods, and marketing aligned to public information.
- In 2016 WHO Member States adopted the resolution WHA69.9 that relates to ending inappropriate promotion of foods for infants and young children and “welcomes with appreciation” the guidance by the WHO Secretariat, calling for a number of implementation steps by Member States and WHO.
- The NOURISHING Framework and INFORMAS explore policy options in the area of consumer demand (Hawkes et al. 2013, Swinburn et al. 2013b). These include: restrict marketing to children that promotes unhealthy diets in all forms of media; sponsorship restrictions; advertisement restrictions and other consumer protection policies.

Policy instruments can be used for nutrition promotion and consumer education/ empowerment, including:

- Mass media and targeted campaigns, development and promotion of food-based dietary guidelines, workplace health schemes and nutrition education programmes.
- Labelling regulation¹¹ covers nutrition information on packages and in some places, on menus, as well as rules about health claims.

¹⁰ The ICN2 Framework for Action includes two recommendations on international trade and investment: Encourage governments, United Nations agencies, programmes and funds, the World Trade Organization and other international organizations to identify opportunities to achieve global food and nutrition targets, through trade and investment policies (Recommendation 17); Improve the availability and access of the food supply through appropriate trade agreements and policies and endeavour to ensure that such agreements and policies do not have a negative impact on the right to adequate food in other countries (Recommendation 18).

¹¹ Codex alimentarius.

Consumer purchasing power

Social safety nets, especially during shock situations, can increase consumer purchasing power and therefore are related to the kinds of foods people buy and consume. Safety net instruments include work guarantee schemes, cash transfers, school feeding programs and consumer subsidies (Global Panel 2014). These sorts of social protection programmes are often designed to be pro-poor. They may be designed to simply increase consumer income or they can be designed in a way that provides people with nutritious food directly (FAO 2015d).

- Food transfers and productive asset transfers, with or without nutrition education, are social protection tools that can be used to help improve people's diets (FAO 2015d).
- Food price policies can include subsidies, price ceilings, or taxes. Pricing incentives can either discount or tax specific foods (e.g. fruits and vegetables, sugar-sweetened beverages, fat). Hungary has passed a "fat tax" on a range of products high in fat, sugar, and salt to address the obesity epidemic (Holt 2011, WHO 2015d). Mexico has recently passed a nationwide tax on sugar-sweetened beverages (See Box 5).
- Government and corporate policies can facilitate recovery and redistribution of safe and nutritious food for human consumption. This entails storing, processing, and distributing received food according to safety, quality and regulatory frameworks, directly or through intermediaries e.g., food banks and food pantries, social supermarkets.

3.2. Possibilities for an impact assessment process

The aim of an impact assessment of policies would be to move toward integrated policies that work coherently across multiple sectors to create healthy food environments and healthy diets. This section discusses the following questions: What could the process look like to deliberate between policy options, and also to assess potential impact of policies on food environments and diets (FED)?

Option 1: Assessing FED impacts of individual food system policies designed to benefit nutrition

Policies that are specifically designed to address nutrition problems as a primary purpose, such as those described above, are the lowest-hanging fruit for IA on food environments and diets. In practice, these already undergo some type of IA in order to make the case for their necessity. For example, some countries have pursued IAs related to food marketing policies. Fiji is currently doing a regulatory impact assessment of a draft regulation on restricting food marketing to children. Malaysia is planning a regulatory impact assessment of their current policy (industry pledge) on marketing restrictions. Samoa is pursuing an IA in the area of food price policies; it has developed a nutrient profile model to assess the potential impact of fiscal policies (i.e. which foods would be taxed and which not). Mexico has recently passed a nationwide tax on sugar-sweetened beverages, which was based on a de facto IA for dietary and health impact (See Box 5).

Box 5.**Mexico sugar-sweetened beverage tax: An example of impact assessment to inform a food price policy**

The government of Mexico began taxing sugary beverages on January 1, 2014. It placed an excise tax of 1 peso per liter (10%) on non-alcoholic, non-dairy, sugar-sweetened beverages. There was significant evidence about the likely impacts of a tax that informed deliberation around this policy, such as would be used in an IA process.

First, data were available on the baseline situation. Mexico has the highest per capita consumption of soft drinks, 43 gallons per capita per year (compared to 30 gallons per capita per year in the United States, which has the second highest consumption) (Brownell et al. 2011). Mexican school children (age 5-11) consumed 20.7% of their energy from beverages in 2006, half of which (10.3%) was from sugar-sweetened beverages (excluding dairy and fruit juice) (Barquera et al. 2010). 64% of Mexican adults are overweight, and 28 percent are obese (WHO 2015d); 11% of Mexicans have type 2 diabetes.

Second, research had demonstrated the likely impacts on targeted outcomes. A significant body of research linked consumption of sugar-sweetened beverages to obesity and type 2 diabetes (Escobar et al. 2013, Malik et al. 2006, Vartanian et al. 2007). Epidemiologic modeling studies suggested that taxing sugar-sweetened beverages could mitigate the risk in obesity and diabetes (Basu et al. 2014).

Third, the policy's distributional impact was studied and debated. One critique of the tax was that it was regressive: because poor people purchase and consume more soft drinks, the tax would affect them most. Supporters argued that this would be a beneficial targeting effect, because the poor (in Mexico and other countries considering a soda tax) are also at greatest risk of obesity and diet-related NCDs, and least able to pay for treatment of those conditions, and thereby would receive the greatest benefits from prevention efforts (Powell et al. 2009).

The tax specifically targeted the food environment (affordability aspect), and in the first year of its implementation, significant effects on dietary consumption have been found. "In 2014, purchases of taxed beverages decreased by an average of 6% (-12 mL/capita/day), and decreased at an increasing rate up to a 12% decline by December 2014. All three socioeconomic groups reduced purchases of taxed beverages, but reductions were higher among the households of low socioeconomic status, averaging a 9% decline during 2014, and up to a 17% decrease by December 2014 compared with pretax trends." (Colchero et al. 2016) It appears the tax is working as intended; the one-year evaluation of its impacts matches closely with predicted impacts.

Option 2: Policy portfolio review

A policy portfolio review would entail assessment of the cumulative food environment and diet (FED) impact of the existing policy portfolio, and where opportunities lie for improving impact through a new policy or revision of existing policies. For example, the UN OneHealth Costing tool (WHO 2014b) is a model for planning, costing, impact analysis, budgeting and financing of all major health system components.¹²

¹² The tool is available at: <http://www.who.int/choice/onehealthtool/en/>, and further information is available at: http://www.who.int/nutrition/publications/onehealth_tool/en/

A policy portfolio review of FED impact would show how policy support for food (production, processing, distribution, transformation, marketing, preparation and consumption) compares to known gaps in food access and diets in the population and population sub-groups. It would highlight the extent to which policies favor foods that are under-consumed or over-consumed compared to dietary recommendations, policies that favor foods that are ultra processed (nutrient poor and energy rich), as well as the extent to which policies favor foods that have bigger or smaller environmental footprints.¹³

A portfolio review could be done for each of the four food systems policy areas listed above. The one where it's been discussed most often is in the agricultural production area. A holistic look at agriculture policies has been recommended previously (Pinstrup-Andersen 2013, World Bank 2014). An agriculture portfolio imbalanced in favor of some foods over others can have impacts on food environments (including what is produced, its price, and how it is marketed), and on diets. Moreover, agricultural policy biased toward staple crops has been pointed out as a reason that farmers do not respond to demand signals for more diversified food (Pingali 2015).

In the U.S., subsidized commodities make up 57% of average energy intake, with the percentage increasing for certain demographics (younger, poorer, less educated) (Siegel et al. 2015). Other research has shown that what is consumed mirrors what is produced in the U.S. more than dietary recommendations (Krebs-Smith et al. 2010). An analysis of a policy portfolio review might show results like the "perverse pyramid" developed by the Physicians for Responsible Medicine in the United States (2007) (See Annex 1). The group tallied agricultural subsidies in the United States by food group, and compared them to food groups recommended in the U.S. Dietary Guidelines for Americans. Others have noted a disconnect between the kinds of foods promoted by U.S. agricultural policy, and the kinds of foods recommended for consumption, also by the U.S. Department of Agriculture (Muller et al. 2009). This sort of analysis is informative for showing how policy portfolios may affect food access and dietary consumption through incoherence and conflicting incentives.

Another example of a policy portfolio review for nutrition related impacts occurred in Slovenia (WHO Global Nutrition Policy Review p54, Lock et al. 2003). The government conducted a "health impact assessment" of food and agriculture policies, and used the results to make recommendations for the preparation of the National Food and Nutrition Policy. In that case, the IA did not change the existing policies, but informed other new policies which could potentially mitigate negative impacts or gaps in the existing portfolio.¹⁴

Option 3: Integrate FED impacts into HIA and/or SIA methodology

A possibility for incorporating FED impact assessment into policy design and deliberation is to bundle it into existing impact assessments where they take place. Three of most relevance to the idea of a nutrition-related impact assessment are Health Impact Assessments (HIAs), Social Impact Assessments (SIAs) and Environmental Impact Assessments (EIAs).

¹³ Typically, recommended diets tend to have lower environmental impact than diets that contribute to obesity and NCDs.

¹⁴ Further information can be found at "Health impact assessment of agriculture and food policies: lessons learnt from the Republic of Slovenia" <http://www.who.int/hia/examples/agriculture/whohia008/en/>.

IAs are ideally designed to capture differential impacts on different populations, assess equity of the policy, and identify risks and benefits to specific groups. They seek to answer: which populations would likely be positively affected? Negatively affected? Are different priority weights to be assigned to different sub-populations, such as children and women of reproductive age?^{15,16} It may be sensible to include these impacts for food environments and diets within broader IAs that have a body of experience and methods to answer them.

Health Impact Assessments (HIAs) are “A combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.” (European Centre for Health Policy 1999). They have also been defined as: “A structured method for assessing and improving the health consequences of projects and policies in the non-health sector. It is a multidisciplinary process combining a range of qualitative and quantitative evidence in a decision making framework.” (Lock 2000).

HIAs are an attractive choice for incorporating FED impacts because they can include lifestyle and diet in their scope. HIAs can cover a wide range of determinants of health, including access to nutritional food and risk behaviors (Govt of Western Australia 2011). Because diet is closely related to risk of NCDs, it would make sense to include diet in a HIA. Indeed it would be difficult to justify excluding diet in an HIA, because globally it is the number one cause of DALYs lost and more deaths are attributable to dietary risk than any other single identified health risk (GBD 2015). The food environment in turn is a determinant of dietary risks, and thus could be well justified for inclusion in a HIA.

Social Impact Assessments (SIAs) often are part of an Environmental Impact Analysis, although they can also be done independently. Social impacts imply “the consequences to human populations of any public or private actions-that alter the ways in which people live, work, play, relate to one another, organize to meet their needs and generally cope as members of society.” (NOAA 1994). SIAs would be an appropriate place for food environments to fall under because the kinds of food available, affordable, convenient and marketed to people affects the way people live and meet their needs. Food is a social issue, as has been emphasized by numerous food sovereignty and food justice movements. Dietary quality could also fall under a SIA, as the intake of food is related to social norms as well as other distributional entitlements such as income and empowerment.

HIAs and SIAs are standard considerations for policy in some organizations, and where they are, a strong case should be made for including FED impact assessment in one or both. In most countries, however, HIAs and SIAs are not necessarily routinely included in the policy deliberation process. Therefore, incorporating FED impact assessments rests on a larger effort to mainstream HIA and SIA into all policies. The WHO “Health in all policies” initiative advocates for this, and offers HIA as a tool for increasing policy coherence for health in general (WHO 2015).

¹⁵ The USAID IYCN project developed a Nutrition Impact Assessment Tool focused on avoiding harm to nutrition from programs (2011). That tool deals with harms to infant and young child feeding, among other equity concerns.

¹⁶ At national level, food fortification assessment may provide a model, as proposed fortification schemes incur analysis of the likely benefits vs. harms to populations. E.g. folic acid fortification of wheat flour weighed the possibility of risk of too high intakes in some populations (children) against the risk of too low intakes in other populations (pregnant women), and analyzed that the large benefit for the latter group outweighed the small risk to the former.

3.3. Challenges of impact assessment

While an IA process presents appealing possibilities for improving policy design and impact on food environments and diets, there are several challenges to be addressed before being able to carry out IA for FED impacts. IA rests on data about the situation, evidence about the impacts of similar policies and actions, a thoughtfully-guided participatory process, as well as ownership and uptake on the part of the policy makers. None of these needs is currently being clearly met. This section discusses these challenges, pointing to what is needed to enable IA for FED impacts and identifying next steps.

Political priority and capacity

On 1 April 2016, the United Nations General Assembly proclaimed the United Nations Decade of Action on Nutrition (2016–2025) (UNGA resolution 70/259). The goal of the Decade of Action on Nutrition is to increase activities conducted at the national, regional and global levels in order to implement the ICN2 commitments and recommendations in the ICN2 Framework for Action, so as to achieve existing global targets for improving maternal, infant and young child nutrition and reduce noncommunicable disease risk factors by 2025, and to attain by 2030 the corresponding targets in the 2030 Agenda for Sustainable Development.

The Decade for Action on Nutrition, ICN2 outcomes and 2030 Agenda offer an opportunity for high level advocacy and concrete actions to make sectoral policies nutrition sensitive, in particular agriculture and food system policies, and to increase capacity for impact assessment of policies. An enabling political environment for nutrition is critical to be able to introduce FED impact assessment into the policy process. The first seven recommendations of the ICN2 Framework for Action deal with “creating an enabling environment for effective action” (See Annex 2). Annex 2 and 3 show examples of strategies to create an enabling political environment for promoting nutrition.

Aside from nutrition capacity, IAs in general necessitate considerable time and capacity to be done well. Integrating FED impact assessment into existing HIA and SIA efforts must contend with challenges that these existing efforts face already. For example, “Far too many health impact assessments have not been communicated to the decision-makers, or failed to be policy-relevant, or arrived too late to help.” (Kemmer 2003). Option 3 (integration of FED impacts into HIA or SIA) requires the following ingredients to be successful: first, that HIA and SIA are standard components of the policy process. Second, that HIAs and SIAs are done well and that the capacity exists to include high-quality, well-informed FED assessment. Third, that policy-makers actually can and will use the results in the deliberative process. Based on HIA literature, none of these are necessarily assured (Kemmer 2003, Banken 2003, Parry and Wright 2003).

This leads to the question, who would be responsible for a portfolio review, and what would be done with the conclusions? IA is typically carried out either by the policy-makers themselves, or by external / independent technical consultants, with benefits and drawbacks to either approach. Institutionalizing IA in routine policy process is ultimately the goal; however, this may carry a risk of “box-ticking” and red tape (Banken 2003). An unbiased view is important to the integrity of conclusions, favoring an externally-conducted IA; however, an IA that meets policy-makers specific needs and timeline is also important, favoring an IA “owned” by the policy-makers (Kemmer 2003).

In an IA, stakeholders must be consulted about the problem, the available policy options, and the potential positive or negative impacts of those policy options (EC Better Regulation Toolbox, Tool #10). In principle, an IA process is participatory and open to the views of all relevant/affected parties; it is also comprehensive, transparent, unbiased, evidence-based, and embedded in the planning and policy cycle (EC Better Regulation Toolbox, Tool #1). The participatory and inclusive nature of an IA should assure that values are heard and democracy is strengthened around the issue being assessed; in this case, food (WHO HIA). The skills of those conducting the IA are also important to ensure participation, which is often challenging due to many factors including timeliness vs. comprehensiveness (Parry and Wright 2003).

It would be important to link any such exercise to ongoing country processes, as was the case in the Slovenia experience (WHO Global Nutrition Policy Review p54, Lock et al. 2003). A review of the Food Security Strategic Plan or the overall National Development Strategy would offer opportunities for incorporating results of the analysis into national policies. In some low-income countries, government focal points of the Scaling Up Nutrition Movement may be a starting point; in other countries that elevate nutrition to a prime minister level, such as Uganda, a multi-sectoral policy review could take place.



Comparative evidence

To predict what the probable impact of a policy will be, impact assessors often use a comparative method to look at what happened when a similar policy was put in place elsewhere. “If we wish to know the probable effects of a proposed project in location B, one of the best places to start is to assess the effects of a similar project that has already been completed in location A” (NOAA 1994).

Therefore, it may facilitate IAs to have points of comparison readily available in a repository or database of food system policies that have been designed for positive nutrition impact. As a starting point, the Global Database on the Implementation of Nutrition Action (GINA),¹⁷ launched in 2012, is maintained as an information source for nutrition policies and interventions.¹⁸ It builds on and incorporates the former WHO Global Database for National Nutrition Policies and Programmes, which was established after the ICN1 to monitor country progress towards meeting the ICN1 commitments. GINA includes some policies from non-health sectors, which anyone can submit in its “wiki” format.

It would be useful for a database to include not only National Nutrition Policies, but also specific food system policies in all areas shown in Figure 3. For example, Hodge et al. (2015) list the policies with the highest potential to impact agriculture-nutrition linkages in three countries in East Africa, and many of them are not nutrition policies (See Annex 4). FAO is also taking stock of the best ways it can contribute to mapping and monitoring of nutrition-sensitive policies from a food and agriculture perspective (FAO 2015b, p38). [FAO-Lex](#)¹⁹ is a database of national laws, regulations and policies on food, agriculture and renewable natural resources that includes about 700 policy documents including those on food security and nutrition. FAO’s Food And Agriculture Policy Decision Analysis Tool ([FAPDA](#))²⁰ is a web-based tool that monitors policy decisions in more than 80 countries on consumer-oriented, producer-oriented and trade oriented policies. These efforts could be aligned and harmonized with existing WHO databases (e.g. GINA), in view of covering the 60 recommendations of the ICN2 Framework for Action and ensuring easy accessibility to the information by countries.

Metrics and data

Projection of estimated policy impacts requires measuring the impacts of interest. Unfortunately, there is a serious deficit in metrics and data that measure the food environment and dietary quality, thus making it difficult for countries to assess the impact of policies on their food environment and dietary quality. That said, some impact assessments may be done using national dietary surveys, which can provide specific information of interest (e.g. sugar-sweetened beverage consumption in Mexico). However, available indicators and data are not sufficient to allow more holistic assessments on diet quality and on food environments. Generally, data on nutritional status and health outcomes are available, while dietary and food environment baseline information may be more limited or absent. These data gaps are discussed at length in the next chapter.

17 Available at: <http://www.who.int/nutrition/gina/en/>

18 WHO NCD Progress Monitor (WHO 2015e) and the NOURISHING framework (<http://www.wcrf.org/int/policy/nourishing-framework>) also provide information.

19 Available at: <http://faolex.fao.org/faolex/index.htm>

20 Available at: <http://www.fao.org/in-action/fapda/tool/index.html#main.html>

4

Measuring and monitoring food environments and diets

How can countries monitor policy impact on food environments and diets, if data on those outcomes are not available? In the absence of such data, it will be difficult to deliberate policy options and to estimate the impact of “nutrition-sensitive” policies on food and diets. Gillespie et al. (2015) show that stakeholders perceive that a common barrier to more nutrition-sensitive policy and action at country level is the lack of data to enable policy decisions and appropriate action.

The need for monitoring data informed the first ICN held in 1992, and indeed the mid-1990s saw what could be considered the first nutrition “data revolution”: anthropometric information started to be available across countries with the initiation of Demographic and Health Surveys (DHS), the new term “hidden hunger” put a focus on micronutrient deficiencies and their consequences, and data on infant feeding started to be tracked (Herforth 2015). We now have much more information on the prevalence and consequences of malnutrition than we did in 1992.

While the data revolution of 20-plus years ago did not include indicators or information systems on food environments or diets, there are several calls to fill this data gap now:

- The Global Panel on Agriculture and Food Systems for Nutrition and World Bank analyses call explicitly for improved metrics and data on food environments and diet quality for effective food system policies in the post-2015 era (World Bank 2014, Global Panel 2015).
- The nutrition community has advocated that the indicators to track SDG2 include a measure of nutritional quality of food such as dietary diversity (UNSCN 2015, 1000 Days et al. 2015, BMGF 2014).
- The 2030 Agenda generally calls for improved data to track the SDGs and their targets, as spelt out explicitly in SDG17: “by 2020, enhance capacity-building support to developing countries, including for Least Developed Countries and Small Island Developing States, to increase significantly the availability of high-quality, timely and reliable data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts (Target 17.18).”
- The *Key Recommendations for Improving Nutrition through Agriculture and Food Systems* (Ag2Nut 2013, FAO 2015) state that “Food and agriculture policies can have a better impact on nutrition if they **monitor dietary consumption and access to safe, diverse, and nutritious foods.**”²¹

The following sections discuss what is needed to monitor dietary consumption and food environments so that countries may use this information for policy and programme design and for policy impact assessment. Currently available metrics of diet quality and food environments are reviewed, including data sources (at national and local levels). Where existing data and metrics are insufficient, prospective indicators are discussed that would provide more complete information and fill existing data gaps.

²¹ This principle was developed through a consultative process involving dozens of development partners, and appears in the *Key Recommendations for Improving Nutrition through Agriculture and Food Systems* (FAO 2015, Ag2Nut Community of Practice 2013, Herforth and Dufour 2013). The same principle appears in *Agriculture and Nutrition: A common future. A Framework for Joint Action on Agriculture and Nutrition*, presented at the ICN2 by the EC, FAO, World Bank Group, and Technical Centre for Agricultural and Rural Cooperation (2014).

4.1. Diet quality

The global community has recognized the importance of assessing diet quality in addition to food quantity in terms of calorie availability. Measurement is critical to understand what dietary gaps exist, in what geographies and seasons, and in what populations.

Diet quality has been described as having at least two basic components, adequacy (getting enough of certain foods and essential nutrients) and moderation (not getting too much of certain foods or nutrients) (Guenther et al. 2013). Diversity is sometimes considered another component, as a way to ensure adequacy, and is associated with good health outcomes. Measuring diet quality should include all of these components. However, that may not be possible in a single indicator, but could involve an index or suite of indicators.

The WHO Healthy Diets Fact Sheet (Box 1, above) represents dietary recommendations for which there is sufficiently strong evidence to be globally applicable. It includes recommendations related to each of these elements of diet quality:

- *Diversity*: WHO recommends a diversity of foods, including a diversity of plant-based foods as part of a healthy diet.
- *Adequacy*: WHO defines a minimum daily recommended amount of fruit and vegetable intake. There are also recommended intake levels of calories, water, and vitamins and minerals elsewhere; the Healthy Diets Fact Sheet recommends iodized salt as a source of iodine.
- *Moderation*: WHO has guidelines on maximum intakes for sodium and added sugars, and states that industrial trans fats are not part of a healthy diet.

The available global dietary guidance provides a reasonable starting point from which to define a needed set of indicators of dietary quality. The following sections consider how far currently defined and collected indicators reflect adequacy, moderation, and diversity; at a minimum around the foods and food components WHO has endorsed as part of a healthy diet.

Available indicators

- % of young children reaching minimum dietary diversity²² (WHO et al. 2008): Measures micronutrient adequacy of diets of children age 6-24 months and caring practices, collected in Demographic and Health Surveys (DHS) and some UNICEF Multiple Indicator Cluster Surveys (MICS), which are national household surveys done periodically.
- % of households consuming iodized salt: Proxy for iodine adequacy, published annually in UNICEF State of the World's Children reports.

²² Another possibility is MAD (Minimum Adequate Diet). However that deals more with care practices including breastfeeding. MDD captures diet diversity from food among young children, not including breastmilk.

What could be measured: Indicators which have been defined, but for which data are not necessarily collected or reported across countries

- % of women reaching minimum dietary diversity (MDD-W): a validated indicator of micronutrient adequacy among women of reproductive age (EU et al. 2014). This indicator is currently collected in some countries and by some projects, but not systematically across multiple countries/globally. Currently it is not part of DHS or MICS, although these surveys would be ideal sources for data collection for this indicator.
- % of the population habitually consuming adequate fruits and vegetables can be assessed using the STEPS instrument.²³ The WHO STEPwise approach to Surveillance (STEPS) is a simple, standardized method for collecting, analysing and disseminating data on NCD risk factors (including some of those in the WHO Global Action Plan for the Prevention and Control of NCDs 2013-2020) in WHO member countries. This tool does not collect quantitative intakes of fruits and vegetables, but rather self-reported habitual servings consumed.
 - Data from STEPS surveys (e.g. fruit and vegetable and salt intake in adult population) are country owned and not always shared. Comparable country estimates are slated to be published in the Global Health Observatory.²⁴
 - This indicator can also be collected for school children through the Global School-based Student Health Survey, which includes a question on habitual fruit and vegetable intake.²⁵
- % of population consuming <2g sodium/day (5g salt),²⁶ thus meeting WHO recommended limits for salt intake (WHO 2012). This indicator is included in the Global Action Plan for the Prevention and Control of NCDs Monitoring Framework, but currently is not collected/compiled across countries. The WHO STEPS instrument collects some information on self-reported habitual salt consumption, but not quantitative intakes; salt module through spot urine analysis is now being integrated in STEPS.
 - See the above caveat that STEPS survey data are not always available.
- % of population consuming <10% and <5% dietary energy intake from free sugar: <10% meets WHO recommended limits for intake of free sugars, and there are additional health benefits from intakes <5% (WHO 2015b). Not collected/compiled across countries; would require full dietary intake surveys.
- % of population consuming any trans-fats. This would reflect WHO dietary recommendation to consume no trans-fats. As may also be the case for added salts and sugars, this indicator might best be left to the food environment, because people do not seek out trans-fats to eat; it's a food ingredient they are exposed to rather than an active dietary choice.

²³ Available at: <http://www.who.int/chp/steps/en/>

²⁴ Available at: http://www.who.int/gho/ncd/risk_factors/en/

²⁵ Available at: <http://www.who.int/chp/gshs/en/>

²⁶ In populations where eating away from home is increasing, urbanization will exacerbate the measurement challenge.

What ideally needs to be measured but needs further work

- Total diet quality score based on dietary guidelines: How well individuals' diets match dietary guidelines, expressed as either a single score or a suite of clearly defined indicators that represent a healthy diet. For example, the Healthy Eating Index is a measure of how diets compare to U.S. Dietary Guidelines (Guenther et al. 2013). Many countries do not have dietary guidelines, and could develop them to be used as a benchmark for healthy diets.
- Ultimately, it would be useful to have cross-culturally valid, globally comparable indicators of diet quality. One way to facilitate this would be to have global guidelines on the basics of a good diet. The WHO Healthy Diet Fact Sheet could be used as a partial composite description of healthy diets, against which actual diets could be compared. At the moment however, global dietary guidelines are not comprehensive, which makes it difficult to come up with a clear indicator or score representing diet quality that would be globally valid.
 - The ICN2 Framework for action recommends: "Develop, adopt and adapt, where appropriate, international guidelines on healthy diets" (Recommendation 13). WHO's Nutrition Guidance Expert Advisory Group (NUGAG) Subgroup on Diet and Health is currently working on recommendations on dietary patterns.
- % junk food/ultra-processed food in total food intake: This would be a proxy for a diet pattern related to chronic disease risk. Previous research has shown that a higher proportion of dietary energy from ultra-processed foods is associated with poorer diet quality, in terms of nutrients consumed (Monteiro 2013). Various terms and classification systems have been used, such as ultra-processed food (Monteiro et al. 2016), foods of minimal nutritional value, and processed foods (FAO 2015c). An international consensus on defining this type of food would enable data to be collected on it and an indicator to be validated.

Moving forward on measuring diet quality

Overall, there is a lack of regularly monitored, globally comparable data and indicators of dietary quality, considering the well-recognized importance of diets to nutritional status and health status.

Some indicators of dietary quality have been recently developed and validated, such as dietary diversity scores which reflect micronutrient adequacy. These are tracked in most countries for infants/young children, but not adults.²⁷ The MDD-W indicator is a valid indicator of micronutrient adequacy in women, and should be measured across countries.

More research is needed to develop proxies that can be used to measure dietary quality more fully, encompassing aspects of both adequacy and moderation (Herforth et al. 2014). For example, indicators on the dietary share of ultra-processed products have been proposed (Vandevijvere et al. 2013). These need to be developed keeping in mind feasibility of both collection systems (are dietary surveys needed? How in depth?), and users (what indicators reflecting diet quality are meaningful to policy makers?). Moving forward on the ICN2 recommendation to develop, adopt, and adapt international guidelines on healthy diets will be helpful in the creation of globally comparable diet quality indicators.

²⁷ The proportion of children aged 6–23 months who receive a minimum acceptable diet (WHO 2015 – Indicator PR1) is measured in DHS in many countries.

As above, a primary challenge to achieving this goal is that there is very little individual food consumption data collected, and limited capacities to do so. Dietary surveys, where they take place, are conducted in wide time intervals (5-10 years apart), not least because they are expensive. Existing data sources to monitor population diet quality include food intake surveys and household budget and expenditure surveys, and these have various strengths and weaknesses in terms of data quality, precision and feasibility (Vandevijvere et al. 2013). Both indicators and data collection methods need to be developed to monitor diets globally (Vandevijvere et al. 2013). It is important to note that currently the FAO/WHO Global Individual Food Consumption Data Tool (GIFT)²⁸ initiative is attempting to compile existing publicly available dietary intake data. GIFT, or a similar dietary intake database, may be a source from which these suggested indicators can be calculated. Many countries have no publicly available dietary data, however, and the problem of infrequent data collection remains. Two potential solutions are: (1) improving the frequency and reliability of full dietary surveys, and (2) inserting brief dietary indicators into survey efforts such as DHS and MICS (which do not currently contain a diet module and may be conducted more frequently than dietary surveys).

Table 1.
Existing and possible indicators of diet quality

Indicator	Dietary quality component reflected	Currently reported?	Existing or potential data source
% young children reaching MDD	Diversity, Adequacy	Yes	Demographic and Health Surveys in 41 countries
% women of reproductive age reaching MDD-W	Diversity, Adequacy	No	Demographic and Health Surveys
% children consuming adequate fruits and vegetables (WHO recommendations)	Adequacy	Somewhat; if existing survey revised	Global School-based Student Health Survey
% adults consuming adequate fruits and vegetables (WHO recommendations)	Adequacy	Somewhat; if all countries consistently reported data	WHO STEPS instrument
% of population consuming <2g sodium/day (5g salt)	Moderation	Somewhat; if all countries consistently reported data	WHO STEPS instrument
% of population consuming <10% and <5% dietary energy intake from sugar	Moderation	No	Dietary surveys
% of population consuming any trans-fats	Moderation	No	May be best measured in the food supply rather than dietary intake
% junk food/ultra-processed food of total food intake	Moderation	No; indicator under development	Dietary surveys; possible other mechanisms
Total diet quality	Adequacy and moderation	No; indicator(s) not developed	Dietary surveys; possible other mechanisms

28 Information available at: <http://www.fao.org/nutrition/assessment/food-consumption-database/en/>

4.2. Food environment

One of the primary ways food systems policies can affect nutrition is through improving the food environment, such as by increasing year-round availability and affordability of diverse, nutritious foods, and limiting the affordability, convenience and marketing of unhealthy foods.

It is worth noting that the construct of the “food environment” is not one that has been explicitly tracked internationally. It is a concept more familiar in the context of obesogenic environments in high-income countries (HICs). It is, however, an increasingly valuable concept globally, because the world can no longer be divided into poor, food insecure countries and rich, over-consuming countries. Malnutrition in all its forms (undernutrition along with obesity and diet-related NCDs) exists in most countries, including LICs and LMICs, often in the same communities, and even within the same households and individuals.

There is no single indicator of the food environment. Therefore indicators are reviewed that reflect pieces of the food environment.

Available indicators

Currently, the main globally-monitored indicators related to the food environment deal with availability and **affordability of calories**:

- Dietary Energy Supply (DES): Kilocalories available per capita per day. Calculated from FAO food balance sheets, monitored since the 1970s by FAO, reported in State of Food Insecurity in the World (SOFI) reports.
- Prevalence of Undernourishment: Proportion of the population unable to access adequate calories, based on DES and adjusted based on income inequalities. Calculated from FAO food balance sheets, monitored since the 1980s by FAO, reported in SOFI reports.
 - These indicators are important to estimate hunger, addressing the overall quantity of food available, but they need to be complemented by other indicators that address the nutritional quality of food.

Recently, a few indicators to reflect **availability of nutrient-dense foods** have been compiled across countries:²⁹

- Fruit and vegetable availability (grams/ capita/day): calculated from FAO food balance sheets, reported in the Global Nutrition Report 2015.
 - This is an important indicator of a healthy food environment, as it signals whether the availability of fruits and vegetables is adequate to meet population needs (WHO and FAO 2003; Lock et al. 2004). Recent analyses show that fruit and vegetable availability falls below dietary recommendations in most

²⁹ % of protein supply derived from animal origin (grams/capita/day) is calculated from FAO food balance sheets, reported in FAO SOFI reports and the Global Nutrition Report. This indicator is problematic because there is no defined optimal value of animal-source protein consumption. Therefore it is not clear whether increases in its availability would be positive or negative. Animal-source protein can be found in foods that are associated with positive outcomes for young children (dairy), positive long-term health outcomes for the general population (fish, eggs, yogurt), or with negative long-term health outcomes (processed red meat). There are also concerns related to environmental outcomes, such as greenhouse gas production. Animal protein supply, without consideration of the food containing the protein, nor consideration of affordability among different groups, has little clear relationship with healthy food environments.

countries in the world (Siegel et al. 2014; Keats and Wiggins 2014). This is an important food group to be tracked, as fruit and vegetables are non-substitutable in terms of health outcomes. Research suggests that protective health benefits from fruit and vegetable consumption cannot be explained solely by micronutrient content, and perhaps arise from other components of the food such as fiber and phytonutrients, or effects on satiety and digestion/absorption.

- % calorie supply from non-staples: calculated from FAO food balance sheets, reported in FAO SOFI in 2013 and the Global Nutrition Report.
 - This indicator may be a proxy for availability of nutrient-dense foods, but does not reflect a healthy food environment on its own, because it cannot distinguish relative availability of healthy nutrient-dense foods vs. unhealthy nutrient-dense foods. This indicator is intended to be a proxy for the diversity and/or micronutrient density of the food supply.

Food **affordability indicators** that are currently in use primarily reflect prices of starchy staples (mainly maize, rice, and wheat), and overall “price of food” or food price volatility indicators based on either starchy staple prices, or on a basket of food reflecting typical consumption in a country (not based on nutritional needs or dietary recommendations). Available information includes:

- Prices of staple grains:
 - Collected periodically (often weekly or monthly) and reported by FAO (Global Information and Early Warning System [Food Price Monitoring and Analysis Tool](#))³⁰ and WFP Vulnerability Analysis and Mapping (VAM), and other national-level tracking systems focused on LICs.
- Prices of other foods:
 - Food Consumer Price Index (Food CPI) is reported in several places, including WFP VAM’s “Market Monitor” quarterly publication. It is based on a group of commonly consumed food without a clear relationship to dietary needs.
 - There are three main institutions that maintain semi-overlapping global food price databases: FAO, WFP, and USAID (FSIN 2015). The food prices they track do not include foods that are often lacking in diets compared to dietary recommendations, such as fruits, vegetables, most legumes, eggs, or fish. (For example the FAO Food Price Index consists of the average of five commodity group prices: cereals, vegetable oil, sugar, dairy, meat).
 - National governments may be collecting prices of a more diverse set of foods, however, these are not globally reported and tracked.

³⁰ Available at: <http://www.fao.org/giews/pricetool/>

What could be measured: Indicators which have been defined, but for which data are not necessarily collected or reported across countries

Existing globally available data capture only availability and price of calories, staple foods, and overall food baskets without specific attention to how well they would meet dietary needs. To measure food environments that would align with and support WHO recommendations for healthy diets, the following indicators are needed:³¹

- Sugar availability could be measured (grams/capita/day, calculated from FAO food balance sheets), as a proxy for excess added sugars in the food environment; sugar availability has been shown to be positively correlated with diabetes prevalence (Basu et al. 2013).
- It would be useful to track an indicator of junk food/ultra-processed food.^{32,33} FAO has published guidelines on the collection of information on food processing through food consumption surveys (FAO 2015c).
- Potable water availability could be considered a food environment indicator, since it is an essential part of healthy diets. This is tracked,³⁴ but not as part of food security or food environment assessments.
- A production level indicator of diversity may be useful in rural areas in particular. Functional diversity of production at community level (Remans et al. 2011) is a summary measure of crop diversity with regard to the nutrients they provide, and could be a proxy for access to diverse food in some locales. Functional diversity could be calculated using data from any agricultural survey that measures which crops are produced in a way that the data can be aggregated to community or district level. Measuring the functional diversity of markets is also possible.

What ideally needs to be measured but needs further work

Existing information is sparse for the food environment elements of affordability, convenience, and desirability. To measure **affordability**, indicators are needed that reflect the cost of nutritious diets and diverse food groups, which are not captured by existing data on prices of staple grains and other big commodities. These could include:

- Minimum cost of a healthy diet in local markets compared to the income range of communities. No indicator is yet available at national scale; can be determined at local level using Save the Children Cost of Diet tool (Chastre et al. 2009).
- Price index of a nutritionally recommended healthy diet. Analogous to a consumer price index (CPI) for commonly consumed foods (food CPI), a consumer price index could be constructed for a recommended diet (nutritious food CPI).
- Price tracking of all food groups, as defined by food-based dietary guidelines.

31 % share of food budget spent on fruits and vegetables has also been suggested (GNR 2015), as a measure of affordability of fruits and vegetables. This is not an ideal food environment indicator, however, because it cannot disentangle food prices from dietary behavior; it reflects both at the same time, and therefore is not specific to either the food environment or diets. It is a function of both prices and consumption preferences.

32 Monteiro et al. (2016) define "ultra-processed" foods as "food products manufactured from industrial ingredients resulting from the extraction, refinement and modification of constituents of raw foods with little or no whole food."

33 "Packaged food retail (volume per capita)" was suggested in GNR 2015, but is problematic because healthy foods (e.g. many fruits and vegetables) are often packaged, although the indicator is intended to reflect unhealthy shelf-stable processed food.

34 The WHO/UNICEF Joint Monitoring Programme has established a standard set of drinking-water and sanitation categories that are used for monitoring. Further information is available here: <http://www.wssinfo.org/>

Convenience reflects the time and effort required to obtain, prepare, and consume food. The simplest proxies for convenience may be the distance to markets where healthy and less healthy foods are sold; additional indicators would be needed to account for food preparation time. The WHO School Policy Framework identifies school-based indicators, which may also reflect availability and convenience of foods to children (WHO 2008b).

Desirability includes both the quality of food and marketing, and social norms associated with the food. Other suggested indicator of desirability is the measure of children's exposure to food marketing across all major media (Swinburn et al. 2013a, Kelly et al. 2013).

Finally, indicators of **safety of the food supply** are also important to track.

Moving forward on measuring the food environment

To date, globally available indicators are far from what is needed to reflect healthy food environments. The following summary table (Table 2) lists several indicators needed to improve upon the status quo in understanding the food environment; that is, the kinds of foods and diets that are available, affordable, convenient and desirable.

Most of these indicators are not currently collected or reported; neither globally, nor typically within individual countries. In some cases, indicators need to be developed. In most cases, data systems need to be strengthened to collect the needed data. This may be quite possible; for example, although current reported data are inadequate for prices of diverse foods, data collection systems may be adequate. For example, the techniques used to regularly compile and report local level market price data for staple grains (such as through WFP's VAM) could be expanded to more diverse foods (Herforth 2015).

The indicators listed in Table 2 may be most critical to understanding food environments in terms of the type of *foods actually available, affordable, convenient and marketed* in a given place. It is to be noted that none of the indicators alone is sufficient to indicate healthy food environments. Only if considered together can these indicators signal areas where policies may positively or negatively impact the overall healthiness of the food environment.

It is important to cite the International Network for Food and Obesity / Non-communicable Diseases Research, Monitoring and Action Support (INFORMAS) effort to monitor, benchmark and support public and private sector actions to create healthy food environments on all policies. INFORMAS is developing many other indicators over a broader scope.³⁵

³⁵ For more information see: www.informas.org.

Table 2.
Existing and possible indicators of food environments

The color code in the table groups indicators based on the part of the food environment they measure.

Indicator	Level	Part of the food environment it measures	Related to dietary adequacy or moderation	Currently reported?	Existing or potential data source
% calorie supply from non-staples	National/ district	Availability (proxy)	Demographic and Health Surveys in 41 countries	Yes: SOFI and Global Nutrition Report (GNR)	FAO Food Balance Sheets
% of population with access to drinking water		Availability	Adequacy (water)	Yes: WHO/UNICEF, joint monitoring programme for Water Supply and Sanitation WSS	WHO/UNICEF, joint monitoring programme for Water Supply and Sanitation WSS
Fruit and vegetable availability (grams/capita/day)	National/ district	Availability	Adequacy	Yes: GNR	FAOSTAT, Food Balance Sheets
Sugar availability (grams/capita/day)	National/ district	Availability	Moderation	No	FAO Food Balance Sheets
Trans fat restriction laws	National	Availability	Moderation	Somewhat; for trans fats and saturated fats combined	NCD Progress Monitoring through Global Country Capacity Survey
Price index of a nutritionally recommended diet	National/ district	Affordability	Adequacy	No	In most countries, National Bureaus of Statistics (NBS) food price data collection systems could be a data source
Average consumer prices of diverse food groups	National/ district	Affordability	Adequacy and Moderation (relative prices)	No	NBS or other food price data collection systems could be a data source
Average distance to market where fruits and vegetables are sold	National/ district	Convenience (proxy)	Adequacy	No	GIS and/or household survey could be a data source
Average distance to market where ultra-processed/junk food is sold	National/ district	Convenience (proxy)	Moderation	No	GIS and/or household survey could be a data source
Children's exposure to food marketing on all major media	National	Desirability	Moderation	Somewhat ³⁶	NCD Progress Monitoring through Global Country Capacity Survey

Note: To extend the healthy food environment concept to infant feeding and care practices, an additional indicator would be: Country has legislation/regulations fully implementing the International Code of Marketing of Breast-milk Substitutes (resolution WHA34.22) and subsequent relevant resolutions adopted by the World Health Assembly (WHO 2015 – Indicator PE2).

4.3. Potential for global tracking of food environment and diet quality indicators

Just as indicators of food environments and diets need to be developed, so do the relevant potential monitoring systems. Actors involved in this essential step toward policy impact assessment for FED include: National bureaus of statistics, ministries of agriculture (for food price information, crop production information), ministries of health (for diet quality information), international organizations that collect or analyze food and diet data and manage global databases (such as FAO, WHO, WFP, UNICEF), regular survey efforts (such as DHS), as well as CSOs and private sector efforts to collect such data.

In addition to the need for improved data on both diets and food environments, there also needs to be a system for reporting them and tracking them internationally. Several options for reporting exist:

- Include food environment and diet indicators in annually published reports, such as the Global Nutrition Report (GNR)³⁷ and FAO's State of Food Insecurity in the World (SOFI). The latter one is already set to be expanded to routinely include nutrition in future editions and to report on SDG2. The novel structure and high level profile of these reports presents an opportunity to advocate for increased collection and compilation of food environments and diet indicators.
- Incorporate these indicators into high-level monitoring frameworks, such as:
 - The WHO 2025 Global Monitoring Framework on Maternal, Infant, and Young Child Nutrition, which has a core set of indicators to be reported by all countries, in addition to an extended set of indicators countries can choose according to their needs. Currently, this framework includes only one dietary indicator, the minimum acceptable diet for children age 6-23 months (MAD), primarily designed to reflect care practices around breastfeeding and complementary feeding (WHO et al. 2008). It also includes one suggested (non-core) indicator of food environments, "Number of countries with legislation /regulations to protect children from the marketing of unhealthy foods and beverages". This is the only indicator out of the 36 put forward by this framework that lacks a data source.³⁸
 - The WHO Global Action Plan for the Prevention and Control of NCDs (resolution WHA66.10) and its monitoring framework, which includes dietary indicators on fruit and vegetable intake, salt intake, and saturated fat intake, as well as policies to limit marketing to children, and policies to limit saturated fats and eliminate trans fats.
 - Scaling-Up Nutrition Movement countries own monitoring efforts. For example National Information Platforms for Nutrition (NIPN) are being developed to monitor nutritional outcomes as well as their causes; food environments and diets would be important elements there.

³⁶ The NCD Country Capacity Survey conducted in 2014 had an indicator on country implementation of the WHO recommendations on marketing to children (WHO 2010). Data were self-reported by countries. The GNR describes it this way: "24% of the 193 countries say they have implemented the WHO Set of Recommendations on Marketing to Children. However, the criteria for assessing whether a country has implemented the Recommendations are not clear. It could mean, for example, that there is a voluntary agreement on some aspect of marketing, a policy statement about why the issue is important, or a comprehensive action plan, or a specific implemented action which achieves the objective set by the Recommendations: to reduce the exposure of children to, and power of, marketing. The WCRF International database, NOURISHING, which includes policies with confirmed information on implementation, reports that just 16 countries have implemented restrictions on marketing to children which aim to achieve these objectives. This represents just 8% of 193 countries. More work is needed to clarify how to monitor the WHO Set of Recommendations."

³⁷ GNR 2015 proposed a set of indicators to reflect a healthy and sustainable food system, but these depended on currently available data which, as discussed, are limited in the degree to which they capture the actual constructs of interest.

³⁸ The Framework acknowledges, "although the set of indicators includes some dietary and food indicators (e.g. minimum acceptable diet, food fortification and micronutrient powders), they do not consider other food-based indicators such as sustainable consumption and agriculture supply/consumption patterns... Further work is required to evaluate indicators to better track processes leading to the achievement of global nutrition targets; and to develop research around existing and new indicators."

5

Conclusions and recommended actions

The vision of a healthy food system is inherent to the ICN2 outcomes and commitments and to the 2030 Agenda for Sustainable Development, and should be driven forward under the UN Decade of Action on Nutrition 2016-2025. To transform this vision into reality, it would be helpful to monitor food environments and diets, and to conduct impact assessment of the food system policies that most strongly affect those outcomes.

Recommended actions toward these steps include:

1. Develop and monitor feasible, valid metrics that reflect desired outcomes of healthy food environments and diets.
 - Use / harmonize existing indicators across countries:
 - Scale up the use of MDD-W so that it is monitored across countries as an indicator of diet quality/micronutrient adequacy.
 - Continue monitoring per capita availability of fruits and vegetables to track whether availability supports WHO recommended daily intakes.
 - Develop indicators that are missing, where the missing information precludes adequate understanding of food environment and dietary outcomes. These include:
 - Indicators of the availability and affordability of diverse food groups, and the price of a food basket that reflects the needs for a healthy diet.³⁹ These additional indicators need to supplement the indicator of calorie supply from non-staples, to ensure that the non-staples available can provide healthy diets.
 - Indicators of diet quality as a whole, encompassing in particular the existing WHO recommendations: consumption of fruits and vegetables, of salt, of dietary energy from free sugar and trans-fats.
 - Indicators of consumption of ultra-processed food, which are important but have not yet been defined and agreed upon. This needs further work.
 - Develop information systems to enable collection and reporting of these outcomes. As much as possible, existing surveillance information systems should be used.
 - Develop global food-based dietary guidelines to support the creation of cross-culturally valid metrics of diet quality.
2. FAO and WHO work toward aligning their global databases and flagship publications to cover food environment and diet information, and agriculture and food system policies, in view of enabling tracking of the 60 recommendations of the ICN2 Framework for Action and ensuring easy accessibility to the information by countries.
3. Build capacity to do impact assessments on FED, whether within a broader HIA or SIA, or as an independent effort. The process needs to adhere to the principles of IA of being participatory and inclusive, as well as timely and meeting the policy-makers' needs for information. Advocacy for HIA in general, such as the WHO "Health in all policies" initiative, should include food environment and diet in the HIAs advocated.

³⁹ Currently the Indicators of Affordability of Nutritious Diets in Africa (IANDA) Project is working to develop and test these indicators; more information available at: <http://immana.lcirah.ac.uk/node/367>

4. Continue building capacity and political priority for nutrition in country, including priority for transformation into healthy food systems, healthy food environments, and healthy diets, so that FED IAs would be demanded by countries and citizens and used in the policy process.

The needs for improved metrics, and for a feasible political process for reviewing policies with a nutrition lens, are not restricted to high or low income countries; they are universal. Building global and national capacity for this work is a long-term undertaking that requires vision and sustained commitment, the benefits of which can be seen in the enormous utility and impact now attributed to the Demographic and Health Surveys, which took several decades to develop and implement.

Monitoring food environments and diets, and building a system for impact assessment of food systems policies on those outcomes, will help countries to follow through on the ICN2 commitments: to raise the profile of nutrition within relevant policies, to develop policies to provide year-round access to food that meets people's nutrition needs and to promote safe and diversified healthy diets.

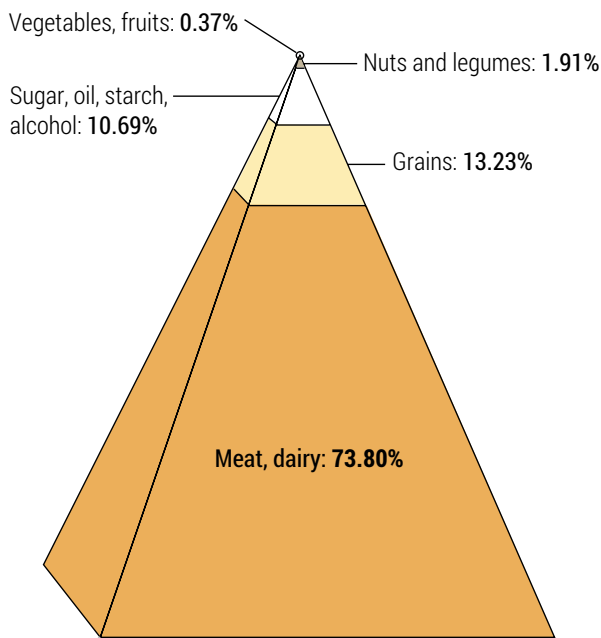


Annex 1

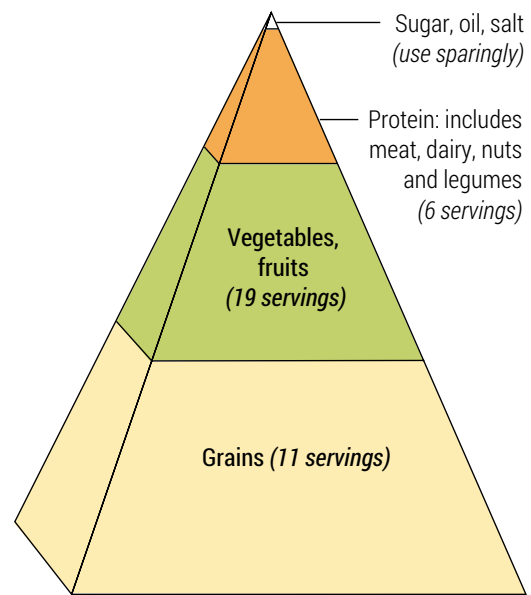
Example of a type of policy portfolio analysis

Figure 4.
Why does a salad cost more than a Big Mac?

Federal subsidies for food production, 1995-2005*



Federal nutrition recommendations



The farm bill subsidies breakdown

Meat, dairy:	\$ 51,832, 388,116	73.80%	(direct and indirect through feed)
Grains for human consumption:	\$ 9,288, 990,323	13.23%	(corn, wheat, sorghum, oats, rice, barley)
Sugar, starch, oil, alcohol:	\$ 7,507, 636,820	10.69%	(corn, sugar, beet, canola, 80% sunflower as oil)
Nuts and legumes:	\$ 1,339, 263,892	1.91%	(soy, peanuts, 20% sunflower as seeds)
Apples:	\$ 261, 540,987	0.37%	
Total agricultural subsidies	\$ 70,229, 820,137	100.00%	

* This calculation applies only to domestic food consumption. Therefore, exports and corn grown for ethanol are excluded. Also excluded is any federal support not specified in Title of the Farm Bill. Therefore, disaster payments, conservation payments, and purchases for food assistance are not included.

Source: <http://www.pcrm.org/sites/default/files/pdfs/health/perverse%20pyramid.pdf>
 See also: "Spoiled system: Eating healthier comes with a price for families." By Karen Auge, The Denver Post, 5 Sept. 2010.
http://www.denverpost.com/news/ci_15996357

Annex 2

ICN2 recommended actions to create an enabling environment for effective action

Excerpt from the ICN2 Framework for Action:

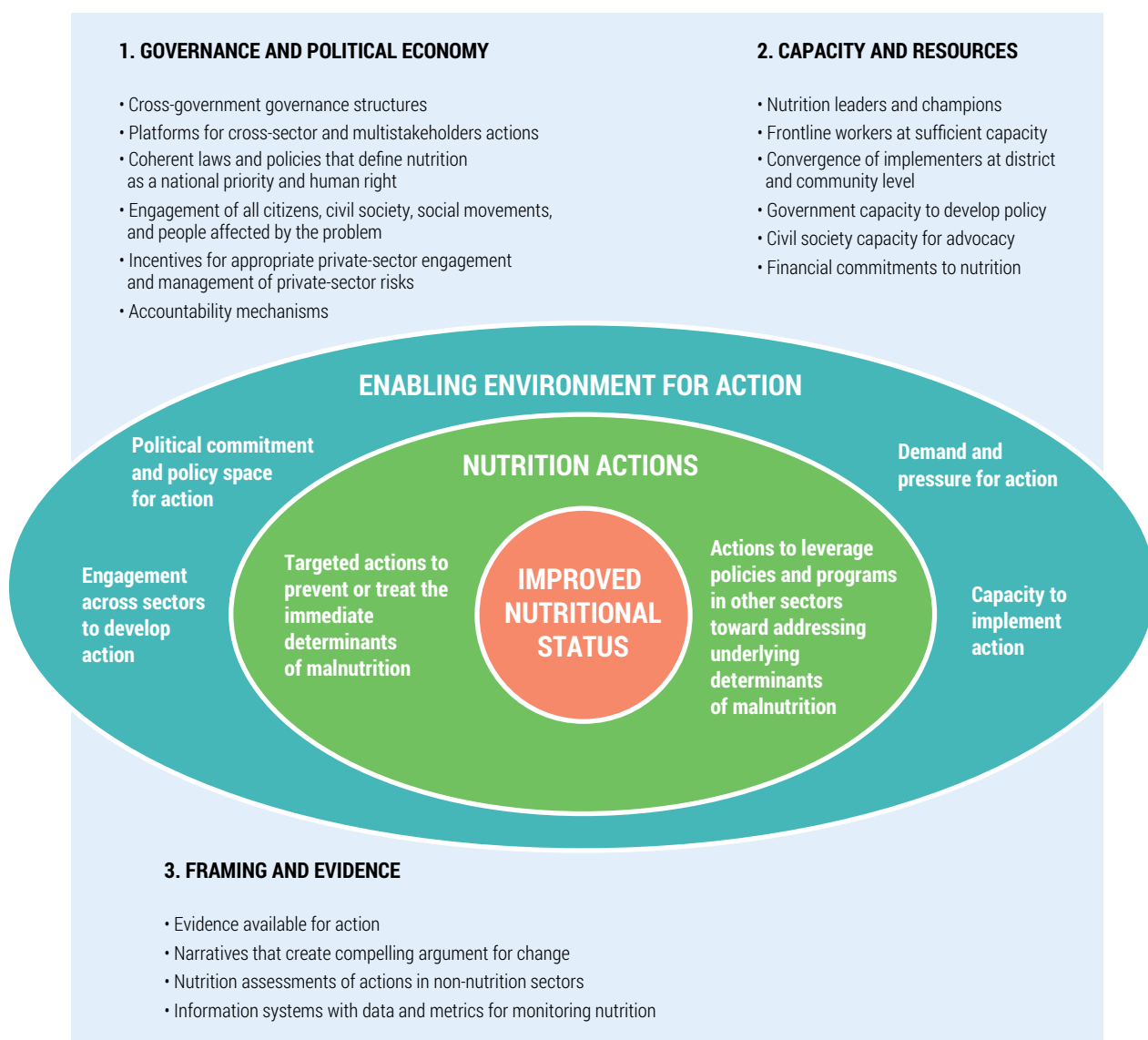
Recommended actions to create an enabling environment for effective action

- **Recommendation 1:** Enhance political commitment and social participation for improving nutrition at the country level through political dialogue and advocacy.
- **Recommendation 2:** Develop – or revise, as appropriate – and cost National Nutrition Plans, align policies that impact nutrition across different ministries and agencies, and strengthen legal frameworks and strategic capacities for nutrition.
- **Recommendation 3:** Strengthen and establish, as appropriate, national cross-government, inter-sector, multi-stakeholder mechanisms for food security and nutrition to oversee implementation of policies, strategies, programmes and other investments in nutrition. Such platforms may be needed at various levels, with robust safeguards against abuse and conflicts of interest.
- **Recommendation 4:** Increase responsible and sustainable investment in nutrition, especially at country level with domestic finance; generate additional resources through innovative financing tools; engage development partners to increase Official Development Assistance in nutrition and foster private investments as appropriate.
- **Recommendation 5:** Improve the availability, quality, quantity, coverage and management of multisectoral information systems related to food and nutrition for improved policy development and accountability.
- **Recommendation 6:** Promote inter-country collaboration, such as North-South, South-South and triangular cooperation, and information exchange on nutrition, food, technology, research, policies and programmes.
- **Recommendation 7:** Strengthen nutrition governance and coordinate policies, strategies and programmes of United Nations system agencies, programmes and funds within their respective mandates.

Annex 3

GNR recommended actions to create an enabling political environment for nutrition

Figure 5.
Actions to create an enabling political environment for promoting nutrition



Source: Global Nutrition Report 2015, page 40.

Annex 4

Examples of policies important for food environments and diets

Table 3.
Policies and network within Leveraging Agriculture for Nutrition in East Africa (LANEA) study countries with potential to impact agriculture-nutrition linkages

Policies	Growth and Transformation Plan II (GTP II)	Vision 2030	Vision 20140 (2010)
	National Nutrition Program (NNP)	Food and Nutrition Security Policy	National Development Plan (2010)
	National Nutrition Strategy	Food and Nutrition Security Strategy	National Agriculture Policy (2011)
	Agricultural Sector Policy and Investment Framework (PIF)	National Nutrition Action Plan	Agriculture Sector Development Strategy & Investment Plan (DSIP) (2010)
	Productive Safety Net Program (PSNP)	Agricultural Sector Development Strategy (2010-2020)	Uganda Food and Nutrition Policy (2003) Uganda Food and Nutrition Strategy (2010) Uganda Nutrition Action Plan (2011)
Networks	Nutrition Development Partners Forum	Nutrition Technical Forum (national and country level)	Multi-sectoral Technical Coordination Committee (government ministries)
	Nutrition Technical Working Group	Nutrition Interagency Coordinating Committee	Uganda Civil Society Coalition on Scaling Up Nutrition (UCCO-SUN)
	Agriculture Task Force	SUN Coordination Team	United Nation's Technical Working Group (TWG) on Nutrition
	Comprehensive Africa Agriculture Development Program (CAADP)	Agricultural Sector Coordination Unit (current role unclear)	Private Sector Foundation Uganda (PSFU)
	Agricultural Growth Program National Steering Committee		

Source: Hodge et al. 2015.

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List of Abbreviations

CAADP	Comprehensive Africa Agriculture Development Programme
CPI	Consumer Price Index
CSOs	Civil Society Organizations
DALYs	Disability-adjusted life-years
DES	Dietary Energy Supply
DHS	Demographic and Health Surveys
EIA	Environmental Impact Assessment
FAO	Food and Agriculture Organization
FAPDA	Food and Agriculture Policy Decision Analysis
FED	Food Environment and Diet
FFA	Framework for Action (of the ICN2)
GIFT	Global Individual Food Consumption Data Tool
GINA	Global Database on the Implementation of Nutrition Action
GIS	Geographic Information System
GNR	Global Nutrition Report
HIA	Health Impact Assessment
HIC	High-income countries
IA	Impact Assessment
ICN1	First International Conference on Nutrition
ICN2	Second International Conference on Nutrition
INFORMAS	International Network for Food and Obesity/NCDs Research, Monitoring and Action Support
LIC	Low-income countries
LMIC	Low- and middle-income countries
MAD	Minimum acceptable diet for children age 6-24 months

MDD-W	Minimum dietary diversity for Women
MICS UNICEF	Multiple Indicator Cluster Surveys
NBS	National Bureaus of Statistics
NCDs	Noncommunicable diseases
R&D	Research and development
SIA	Social Impact Assessment
SDGs	Sustainable Development Goals
SOFI	State of Food Insecurity in the World report
UN	United Nations
UNSCN	United Nations Standing Committee on Nutrition
VAM	Vulnerability Assessment Mapping
WFP	World Food Programme
WHA	World Health Assembly
WHO	World Health Organization

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UNSCN vision

A world free from hunger and all forms of malnutrition is attainable in this generation

UNSCN Secretariat

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