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of the United Nations

ANALYSIS OF PUBLIC EXPENDITURE TOWARDS FOOD SECURITY AND NUTRITION

Methodology working paper

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For more information, please visit the MAFAP's website at www.fao.org/in-action/mafap

Acronyms

CFS	Committee on World Food Security
CRS	Creditor Reporting System
CSE	Consumer support Estimate
DAC	Development Assistance Committee
ECLAC	Economic Commission for Latin America and the Caribbean
FAO	Food and Agriculture Organization of the United Nations
FAPDA	Food and Agriculture Policy Decision Analysis
FNS	Food and Nutrition Security
FSN	Food Security and Nutrition
GSSE	General Services Support Estimate
IFPRI	International Food Policy Research Institute
MAFAP	Monitoring and Analysing Food and Agricultural Policies
MDG	Millennium Development Goal
ODA	Official Development Assistance
OECD	Organization for Economic Co-operation and Development
PE	Public Expenditures
PEA	Public Expenditures in Support of the Food and Agriculture Sector
PSE	Producer Support Estimate
REACH	Renewed Efforts Against Child Hunger and Undernutrition
SDG	Sustainable Development Goal
SUN	Scaling Up Nutrition
TSE	Total Support Estimate
UCFA	Updated Comprehensive Framework for Action
WFS	World Food Summit

1. Introduction

Food Security and Nutrition (FSN) is a major concern worldwide as one in nine people on earth is suffering from hunger. This is reflected in the substantial set of policy efforts and processes dedicated to that matter over the last decades. After the World Food Summit (WFS) in 1996, where the commitment to eliminate hunger and malnutrition was made, eight Millennium Development Goals (MDGs) were adopted in 2000 by world leaders with the objective to “reduce extreme poverty and setting out a series of time bound targets, with a deadline of 2015” (UN, 2000). Among the priorities was the reduction by half of the proportion of people suffering from hunger. The latest estimates show that 794.6 million people were still undernourished in 2014-16, against 1 010.6 million in 1990-92 (FAO, IFAD and WFP, 2015). The Food and Agriculture Organization of the United Nations (FAO), whose core commitment is to eradicate hunger, introduced five cross-cutting strategic objectives in 2013, of which the first is to eliminate hunger, food insecurity and malnutrition. During the Second International Conference on Nutrition (ICN2), held at FAO in 2014, world leaders “renewed their commitment to establish and implement national policies aimed at eradicating malnutrition and transforming food systems to make nutritious diets available to all” (FAO, 2015). In September 2015, new development goals – the Sustainable Development Goals (SDGs) – were adopted by the United Nations’ General Assembly with specific targets to be achieved by 2030. The second SDG intends to end hunger, achieve food security and improved nutrition (UN, 2015).

The importance of FSN from a policy perspective also stems from the large scale endorsement of the right to food through numerous international agreements and national decisions since its first formulation in the Universal Declaration of Human Rights in 1948. In particular, a set of Voluntary Directives, whose aim is to provide practical direction to States seeking to fully implement and realize the right to food in the context of national food security, was approved in 2004 by the FAO Council. The 12th Voluntary Guideline is concerned with national financial resources and encourages “regional and local authorities (...) to allocate resources for antihunger and food security purposes in their respective budgets” and to increase “the quality and effectiveness of social expenditures” (FAO, 2005, p. 24). Further, the literature on the economic benefits of FSN has expanded in recent years. Researchers have flagged the positive effects of higher levels of nutrition on education and economic growth (see, for instance, Fogel, 2004; Maluccio *et al.*, 2009; Phiri and Dube, 2015). Given the prevalence of FSN as a development objective, the importance of appropriately using public resources to achieve food security and/or realize the right to food and the recommendations flowing from academic work, there is a high interest in determining how to measure, track and analyse public expenditures (PE) towards FSN. However, in most cases, it is very difficult for policy analysts, policy makers or development partners to answer the question of how much is spent towards FSN in a country or what each government is allocating to FSN.

It is therefore essential to provide decision makers with reliable indicators of PE towards FSN. Such indicators should permit to track the amounts directed towards FSN over time and to verify if the level and composition of PE are consistent with national FSN objectives. Further, it should be possible to use these measures to analyse the impact of PE for FSN. Finally, the indicators should be computed in a standardized way across countries, to allow for cross-country comparisons and the exchange of lessons learned and best practices.

The current paper aims to propose a classification table and method to construct indicators of PE towards FSN, which can subsequently be used for policy analysis. The classification is not conceived

as a static tool but rather as a dynamic one that is likely to evolve as more information, knowledge, or evidence on how public resources are used towards FSN becomes available. Recognizing that any exercise of that kind needs a starting point, the proposed methodology and ensuing classification rely on the methodological framework used by the Monitoring and Analysing Food and Agricultural Policies (MAFAP) programme of FAO to measure and analyse public expenditures in support of food and agriculture (PEA). The MAFAP PEA work provides with the appropriate logical framework to develop a classification of PE towards FSN as it is conceived as a component of a policy monitoring and analysis system (MAFAP, 2015). The present methodology is to be primarily seen as an extension of the tool used to conduct PEA analysis within MAFAP.

The paper follows the following structure: in the second section, the research question is introduced and positioned with respect to related researches available in the literature. Further, the rationale of the MAFAP PEA methodology is detailed in section three, before being applied to the case of PE for FSN in the fourth section, in reference to a definition of FSN. This leads to a proposal of classification table. The last section is dedicated to the operationalization of the methodology in terms of process and use of the classification table, with classification examples. Further perspectives to expand the classification and test it are briefly discussed before concluding.

2. Research question

A number of researches, either from the academia or from the international community, have been tackling the question of how to measure PE towards FSN in developing countries. These can be divided in four main groups: first, studies aiming to determine the kind of interventions that have an impact on FSN, such as NSW (2003), Bhutta *et al.* (2008, 2013), Bokeloh *et al.* (2009), ACF (2013) or Quinn (2013). Second, studies focusing on tracking donor investments towards FSN and analysing their trends and driving factors. ACF (2012) or Di Ciommo (2013), for instance, assess and present trends in Official Development Assistance (ODA) to nutrition interventions and for specific periods. Ickes *et al.* (2015) did the same exercise, with a focus on nutrition-sensitive aid flows only. However, studies in this second group have a strong focus on nutrition and rarely adopt a broad definition of food security. Moreover, being concerned with ODA, they do not include national expenditures in their datasets. Besides, they rely on broad categories of the Organisation for Economic Co-operation and Development (OECD) Development Assistance Committee (DAC) database, such as “Basic nutrition” and “Food aid/Food security programmes”, and therefore do not give disaggregated information on more actions that are unrelated to these categories. Third, studies proposing methodologies to measure PE towards nutrition or food security or both (definitions vary across studies – see for instance Geir Sølve Sande *et al.*, 2011; UNICEF-SUN, 2014 or Picanyol *et al.*, 2015). Fourth, public expenditure reviews of the nutrition sector in selected countries, which use ad-hoc methodologies depending on the structure of national public expenditure data and on the country’s policy objective (see, among others, World Bank, 2007 or Innovex, 2013).

However, none of these contributions provide a consistent and detailed methodology on how to measure and classify PE for FSN in the perspective of policy analysis and using a broad definition of FSN. Also, few consider both national and donor expenditures. The proposed tools and methods are not directed towards the computation of time-series indicators that can be used to analyse the level, composition and performance of PE towards FSN across time and countries. The following research question is thus proposed: *how to measure and classify PE towards FSN for the sake of constructing indicators to be used for policy analysis?*

Tackling this question requires proposing a methodology allowing to systematically measure PE according to their economic characteristics, so that the measurements can subsequently be used to answer policy questions (how are governments and donors allocating resources across competing spending priorities? To which extent are expenditures addressing national development objectives? What is the impact of the funded FSN-related interventions?¹). As the MAFAP PEA methodology was conceived for this purpose (Komorowska, 2010; MAFAP, 2015), it is used in the current paper as a baseline for the proposed classification. However, the MAFAP PEA methodology is centred on agriculture. It thus needs to be adapted to the case of FSN. In this paper, a definition of FSN incorporating four dimensions is used. The mapping of expenditure amounts to the four dimensions of FSN is done by referring to the literature and to country examples.

3. Public expenditure analysis under MAFAP

3.1. MAFAP: an overview

The MAFAP programme is implemented by FAO and seeks to establish country owned and sustainable systems to monitor, analyse, and reform food and agricultural policies to enable more effective, efficient and inclusive policy frameworks in a growing number of developing and emerging economies. MAFAP was initiated in 2009 and went through a first phase until 2014, during which it successfully partnered with government institutions and research organizations in several developing countries to produce a common set of indicators permitting to measure the impact of the policy environment on agents in the agricultural sector. The second phase of MAFAP (2014-2019) focuses on building on the partnerships and evidence created to support governments to reform food and agricultural policies that are currently constraining agricultural development, especially for smallholders.

MAFAP phase II is based on four pillars: (i) collect, assemble and use reliable and up-to-date, policy-relevant data, including data on prices, market access costs and public spending (*policy data management*); (ii) consolidate and strengthen national policy monitoring systems to measure policy effects and identify value chain-specific and/or sector-wide policy ‘issues’ that constrain agricultural development (*“ex-post” policy monitoring and analysis*); (iii) articulate policy options and assess their costs and benefits to support governments’ decisions about suitable reforms (*“ex-ante” evaluation of policy reform options*); and (iv) engage national stakeholders in policy dialogue and analysis translation as part of more inclusive policy reform processes (*advocacy*).

3.2. Rationale of the MAFAP work on public expenditure

For its second pillar, MAFAP uses a methodology that was developed together with the OECD. It is centred on two types of analyses: first, analyses of price incentives and disincentives perceived by agents within commodity value chains, and second, analyses of PEA. These two streams of work can be brought together to undertake policy coherence analyses. Analyses of price incentives and disincentives permit to capture the impact of the policy environment on prices, while PEA analyses allow understanding the type of support provided to the agricultural sector through the provision of

¹ As for that latter question, it should be noted that the indicators of PE towards FSN proposed here do not allow to assess the impact of these expenditures. Indeed, they mainly inform about the level and composition of these expenditures. Hence, preliminary assessments of these expenditures in a given country should be done in regards of stated objectives in regards to PE composition, be they national or international. Further, the generated indicators of PE towards FSN could be looked at jointly with indicators of FSN as the ones provided on FAOSTAT, 2015a.

services funded by the taxpayers' money.² Both are necessary to get a detailed and complete picture of the policy environment in which agricultural agents are located.

The methodology for calculating MAFAP indicators of the incentives and disincentives perceived through output prices stems from the OECD proposal to compute the market price differential component of the Producer Support Estimate indicator (PSE) (OECD, 2010), whose purpose is to measure policy transfers perceived by producers. The methodology for calculating the MAFAP indicators of PEA also builds on the framework used by the OECD to determine indicators of agricultural support. In that regard, a core indicator proposed by the OECD is the Total Support Estimate (TSE), which is computed by taking the sum of the PSE, the General Services Support Estimate (GSSE) and the Consumer Support Estimate (CSE).³ These two latter indicators measure policy transfers directed towards all agricultural agents indistinctively and consumers, respectively. Making this distinction allows interpreting the value of the TSE for a given country in an economically meaningful way.⁴ Policy transfers in the form of budgetary transfers enter into the computation of the PSE, the GSSE and the CSE. Budgetary transfers are therefore disaggregated in function of the agents that are targeted for the purpose of computing the TSE.

The MAFAP PEA methodology follows this approach, in the sense that it also classifies expenditure measures depending on their economic characteristics, that is, in function of the way in which they are implemented. Accordingly, it distinguishes between “policy transfers”, that are monetary transfers to agents in the rural environment resulting from policies, and “administrative costs”, that are the costs incurred by policy design and monitoring. Policy transfers constitute the bulk of PEA under MAFAP. The MAFAP PEA methodology however contains several adjustments with respect to the OECD framework. First, instead of considering “all budgetary expenditures underlying policies which support agricultural production” (OECD, 2012), MAFAP considers agriculture-specific and agriculture-supportive expenditures. The former category contains expenditure measures that provide *direct* support to agriculture (input subsidies, agricultural research, extension, irrigation infrastructure, etc.), while the latter contains expenditure measures that provide *indirect* support to the sector and affect rural development at large (rural education, rural health and rural infrastructures). Second, MAFAP considers, in addition to expenditures targeting producers, consumers or all agents indistinctively, those directed towards other categories of agents (input suppliers, processors, traders and transporters). The distinction between expenditures targeting specific categories of agents and those targeting all agents indistinctively is central to the MAFAP PEA classification table, as it permits to make the difference between PEA dedicated to the provision of private and public goods, respectively, which have different economic effects (Komorowska, 2010). The MAFAP PEA classification table follows a tree structure, permitting to aggregate agriculture-specific and agriculture-supportive expenditures, or spending on private and public goods. Among other possibilities, the classification also allows to make the difference between expenditures

² For example, a policy coherence analysis could permit to see whether expenditures aiming at increasing the production level of a given crop are being hampered by a market structure that results in producers of that crop facing substantial disincentives to production through prices.

³ See OECD, 2010, p. 17-18 for definitions of the TSE, PSE, GSSE and CSE.

⁴ For example, looking at the share of the GSSE within the TSE shows “the importance of transfers that are not received by individual farmers within overall support” and, hence, that “do not depend on any individual farmers’ decisions to produce goods or services, or use factors of production [and] (...) do not affect farm receipts directly” (OECD, 2010, p. 156). Being able to assess whether policies are resulting in transfers being provided to specific categories of agents (private goods) or to all agents indistinctively (public goods) is crucial to determine the type of support that is provided to the agricultural sector by the policy maker. For instance, transfers towards private goods could be seen as less conducive than public goods to long-term development and economic growth.

originating from donor or national sources, recurrent or investment expenditures and budgeted or actual expenditures. It is strongly disaggregated and contains 33 base categories. The MAFAP PEA classification, which has been implemented in several countries,⁵ can be found in Annex 1.

4. Analysis of public expenditure towards food security and nutrition

4.1. Selected definition of food security and nutrition

Giving a practical definition of FSN for the purpose of policy analysis is not straightforward. Some studies or policy documents refer solely to food security. Food security is then defined as “a situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life” (FAO, 2001). This is the definition agreed upon during the WFS of 1996 (FAO, 1996), to which the idea of “social access” has been added. Availability, access, utilization and stability are the main aspects that emerge from this definition and constitute the commonly recognized dimensions of food security. These four dimensions can be detailed as follows (FAO, 2006):

- **Availability:** availability of sufficient quantities of food of appropriate quality, supplied through domestic production or imports (including food aid).
- **Access:** access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet. Entitlements are defined as the set of all commodity bundles over which a person can establish command given the legal, political, economic and social arrangements of the community in which they live (including traditional rights such as access to common resources).
- **Utilization:** utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all physiological needs are met. This brings out the importance of non-food inputs in food security.
- **Stability:** to be food secure, a population, household or individual must have access to adequate food at all times. They should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis) or cyclical events (e.g. seasonal food insecurity). The concept of stability can therefore refer to both the availability and access dimensions of food security.

According to the Committee on World Food Security (CFS, 2012), the definition of food security and its four pillars include the nutritional dimension. In this vein, nutrition is associated to “food security”. However, the term “food security and nutrition” is commonly used to combine the concept of food security and nutrition security. According to FAO (2011a), “nutrition security is achieved when secure access to an appropriately nutritious diet is coupled with a sanitary environment, adequate health services and care, to ensure a healthy and active life for all household members”. Food security and nutrition is therefore “commonly used in the socio-economic and the food and agricultural communities of practice in recognition of the traditional emphasis on the food availability, access and stability dimensions of food security. In addition, it acknowledges the importance of key nutrition concerns such as care and feeding practices, public health and sanitation issues. This terminology is also used when practitioners want to make it clear that food security is a precondition to adequate nutrition and that different, but complementary actions are needed to achieve food security and nutrition objectives. In other words, food security actions should ensure

⁵ As of the end of 2015, MAFAP PEA indicators are available for nine African countries (Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali, Mozambique, Tanzania and Uganda). In addition, seven public expenditure analyses based on the MAFAP indicators for the 2006-2013 period are available online (for Burkina Faso, Ethiopia, Ghana, Kenya, Malawi, Mali and Uganda – see <http://www.fao.org/in-action/mafap/products/publications-archive/technical-notes/en/>).

that food systems provide all households with stable access to sufficient, appropriate and safe food, while nutrition-oriented actions should ensure that households and individuals have the knowledge and supportive health and environmental conditions necessary to obtain adequate nutritional benefit from the food” (CFS, 2012, p. 6). In the present note, this interpretation of food security and nutrition, with the four dimensions described above, is endorsed.

4.2. Proposed classification and theoretical background

Structure of the proposed classification

Following the distinction used in the MAFAP PEA classification between agriculture-specific and agriculture-supportive expenditures, we differentiate between expenditures aimed at providing direct support to FSN (FSN-specific expenditures) and expenditures that indirectly support FSN (FSN-supportive). A similar distinction can be found back in the literature dedicated to the analysis of interventions towards nutrition, which distinguishes nutrition-specific and nutrition-sensitive interventions. Nutrition-specific interventions “refer to actions that aim to reduce under-nutrition directly while nutrition-sensitive interventions refer to initiatives that aim to create a better environment for improvements in nutrition” (Di Ciommo, 2013, p.7). However, identifying expenditure measures that should count as FSN-specific and FSN-supportive might be more difficult than in the case of nutrition. Indeed, FSN is a broad concept which encompasses different policy spheres, such as agriculture, nutrition, health, trade, social protection, etc. As pointed out by Pangaribowo *et al.* (2013, p.10), “the broad and multidimensional concept of Food and Nutrition Security⁶ (FNS) might be one of the underlying reasons for the lack of theoretical model framework of FNS. (...) As FNS covers a complex set of concepts and dynamics, it is unavoidable that the data required for a FNS assessment captures the multidimensional aspects of FNS”. Despite these difficulties, the classification proposed here maintains the analytical distinction between FSN-supportive and FSN-specific expenditures. It also distinguishes between policy transfers and administrative costs, and between PE on private and public goods, as in the MAFAP PEA classification.

It is also important to underline the hierarchy across FSN dimensions. Indeed, according to Barrett (2010, p.825), “availability is necessary but not sufficient to ensure access, which is, in turn, necessary but not sufficient for effective utilization”. Although Barrett (2010) does not refer to food stability, the classification proposed here sticks to the FAO definition of FSN presented above and therefore keeps “stability” as a FSN dimension. It is considered as the last dimension in the hierarchical chain. The fact that FSN dimensions are concatenated is taken as a reference for the structure of the classification. As a result, the availability dimension is seen as the first necessary condition to achieve FSN. All the interventions that have an impact on food production and on the other determinants of availability (Figure 1), even if they also impact other FSN dimensions, are primarily included under food availability. The access dimension therefore includes the interventions related to food access that do not fall under the availability dimension. The same logic goes for the two remaining dimensions, utilization and stability.

Even though the hierarchical aspect is central in the classification structure, it should still be kept in mind that the four dimensions of FSN are interconnected and should be considered simultaneously. Therefore, the hierarchical relationship between FSN categories exploited here cannot fully evacuate

⁶ According to CFS (2012, p.7), Food and nutrition security “is another way to combine elements of both food security and nutrition security”.

the difficulty of allocating certain categories to multiple dimensions. The proposed classification given in Annex 2 should hence be seen as a first attempt to map categories across FSN dimensions. Moreover, for subtle cases, it is suggested to add a second FSN dimension to the considered category. An additional column is included in the table given in that regard.

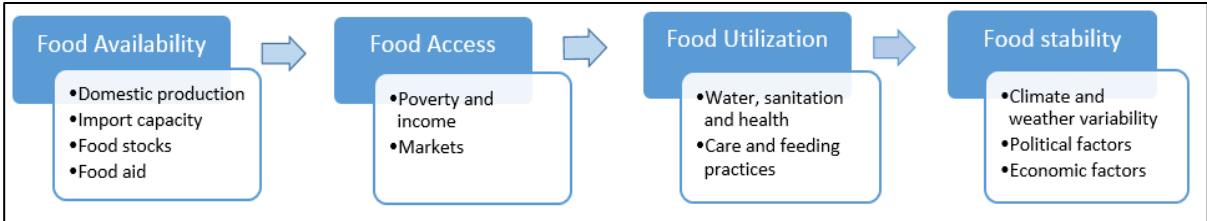
Proposed categories of public expenditure towards food security and nutrition

The classification and its different categories were constructed by starting from the selected definition of FSN and the existing MAFAP PEA classification. The MAFAP rationale to measure and analyse public expenditures was applied to come up with the list of categories. Given the aforementioned difficulty of distinguishing between FSN-specific and -supportive expenditures, it was decided to start from the FSN dimensions and, for each of them, consider its main determinants and identify the various types of policy transfers that would influence and relate to that determinant – and therefore dimension – directly or indirectly. This exercise was done starting from the “availability” dimension, as per the hierarchical relationship mentioned above. The selected PE categories are justified by referring to the literature on the relationship between PE and FSN and to country examples. This can be seen as a “top-down” approach to develop a methodology to measure PE towards FSN, as it does not start from all the interventions that could count as PE towards FSN, but rather from a selected definition of FSN which is then used as the basis of an analytical reasoning. Being conceived in this way, the classification aims to propose indicators that are as relevant as possible from a policy analysis perspective.

Each FSN dimension and its main determinants are presented in Figure 1 below. The proposed classification and its different categories and subcategories focus on PE that support and fund FSN interventions. However, some public interventions, whether related to FSN or any other policy sphere, do not necessarily and systematically require budgetary resources. The removal of an import tariff or the introduction of price ceilings for instance can have an impact on FSN, however the PE measures that accompany them are more difficult to identify or measure, or are simply non-existent.⁷ The proposed classification is not intended to be exhaustive of all types of policy interventions having an impact of FSN.

In the sections below, each FSN dimension is analysed in more detail to provide a justification of the expenditure categories that are included in it. At the end of each section devoted to a FSN dimension, the proposed categories of PE towards FSN are summarized. The categories are listed altogether in Table 1 below. The table given in Annex 2 is a more detailed version of Table 1 and is conceived as a tool to be used by analysts of PE towards FSN for classification.

Figure 1. The four dimensions of food security and nutrition and their determinants



Source: authors, based on FAO (2006, 2008)

⁷ It would be possible to argue that suppressing an import tariff (or another trade-related measure that provides income to the Government) would result in lowering Government income, therefore possibly leading to a contraction of expenditures on FSN-related categories. Such effects are captured to the extent that the amounts spent on the FSN-related categories affected by the removal of an import tariff are in any case accounted for in the proposed classification. The point here is that policy measures that do not result in recorded PE are not included in the exercise.

Availability

In its definition of food availability, FAO (2006, 2008) considers domestic production, imports, stock levels and food aid as determinant for the supply of sufficient quantities of food. In terms of food production and supply, the interventions to be considered include “the whole set of measures falling under the category of agricultural sector development” (Thomson and Metz, 1998). Indeed, as also recognised by Bokeloh *et al.* (2009) and in the third commitment of the WFS Plan of Action (FAO, 1996), agriculture plays an important role in securing food production and supply. It is therefore proposed, for this determinant category, to use categories of the MAFAP PEA classification (see Annex 1) and more specifically those that fall under agriculture-specific expenditures, e.g. expenditures that directly support the agricultural sector. Examining the MAFAP PEA classification reveals that it makes a distinction between agricultural and rural infrastructures. This distinction is maintained here, although subtle. Agricultural infrastructure refers to all infrastructure the primary effect of which is to support the agricultural sector, hence agricultural production. Including it under the availability dimension therefore seems straightforward. Where infrastructure is a collective good for the rural population, it will be considered as rural infrastructure. This includes rural roads and rural markets. The importance of transport and market infrastructure, and rural infrastructure in general, is emphasized in the literature. Bokeloh *et al.* (2009, p.134) point out that a good road network “facilitates the transport of food from surplus to deficit areas and reduces marketing costs”, which is likely to affect food availability. IFAD (2003) insists on the importance of improved market access, especially in rural areas, to make food available for the rural poor. The “Rural infrastructures” category, although being classified as agriculture-supportive expenditures in the MAFAP PEA classification, was therefore accounted for here. A category labelled “agricultural and rural infrastructures” was created to avoid confusion. Its disaggregation can be seen in the table given in Annex 2. A new category, “Regularization of land ownership”, has also been added as land constitutes an essential productive asset that contributes to the increase of food production and agricultural productivity (Bokeloh *et al.*, 2009; FAO, 2014).

In the context of FSN, direct transfers to consumers, such as cash transfers, are perceived as having a strong impact on food access as they improve agents’ purchasing power. Payments to consumers, classified under agriculture-specific expenditures in the MAFAP PEA classification, will thus be classified under food access in the proposed PE for FSN classification.

Box 1. PE towards the agricultural sector development in Uganda and Mozambique

In 2008, the government of Uganda allocated US\$ 1.7 million to the distribution of walking tractors to farmers in order to improve agriculture mechanization and production.

In 2010, the government of Mozambique provided US\$ 25 million of low interest loans to small farmers to support cereal production growth as the planting season was getting underway.

Source: FAPDA (2015)

Trade affects food availability directly and food access and stability indirectly (Magrini *et al.*, 2014). Trade policies can make substantial contributions to FSN and especially food availability as food supply can be stabilised or increased through food imports (Bokeloh *et al.*, 2009). Food imports “help to bridge structural production deficits or to mitigate supply deficits resulting from acute production shortfalls” (Thomson and Metz, 1998). However, as already mentioned, it is quite difficult to determine precisely the expenditures that arise as a consequence of trade interventions. A public intervention that can still be budgeted is the introduction of import subsidies, which are “subsidies on goods and services that become payable to resident producers when the goods cross the frontier

of the economic territory or when the services are delivered to resident institutional units” (OECD, 2015). An example of such import subsidies is given in Box 2.

Box 2. PE towards imports in Morocco

In 2014, the National Interprofessional Cereals and Pulses Board of Morocco decided to provide imports subsidies for wheat in order to ensure the supply of local markets. Imports could be subsidised up to 85 percent.

Source: FAPDA (2015)

As for food stocks or reserves, a distinction can be drawn between transfers directed towards the provision of storage facilities for the purpose of supplying markets and transfers allowing to constitute emergency stocks. Only expenditures on regular storage are accounted for under the availability dimension. Emergency storage is treated under stability.

Finally, food aid is also considered as a determining factor of food availability (FAO, 2006; Pieters *et al.*, 2013). Food aid can be defined as the “assistance in the form of food commodities, or in the form of financing that supports the centralised procurement and distribution of food to beneficiaries” (EC, 2013, p.37). Food aid is generally a response to shocks or emergency food crises (Bokeloh *et al.*, 2009; Pieters *et al.*, 2013). This category should not be confused with food assistance which refers to “any intervention designed to tackle food insecurity, its immediate causes, and its various negative consequences. Food assistance may involve the direct provision of food, but may utilize a wider range of tools, including the transfer or provision of relevant services, inputs or commodities, cash or vouchers, skills or knowledge” (EC, 2013, p.37). Food assistance is a broader concept than food aid and will be further detailed in the section on social safety nets under the access dimension. According to Harvey *et al.* (2010), food aid is *per se* internationally funded. In this vein, Murphy and McAfee (2005, p.8) explain that food aid must at least cross one international border. By contrast, “food assistance by a government or private agency to local citizens does not count as food aid”. Hence, this category should mainly be filled by donor expenditures.

In light of the above, the proposed PE categories related to food availability are the following:

- Production subsidies to producers;
- Input subsidies to producers;
- Payments to suppliers;
- Payments to processors;
- Payments to traders;
- Payments to transporters;
- Agricultural research;
- Technical assistance;
- Training;
- Extension and technology transfer;
- Agricultural and rural infrastructure;
- Marketing;
- Regularization of land ownership;
- Imports subsidies;
- Food stocks;
- Food aid.

Access

FAO's definition of food access suggests that "concerns about insufficient food access have resulted in a greater policy focus on incomes", among others (FAO, 2008). Bokeloh *et al.* (2009) describe two broad categories of interventions that improve access to food at meso and micro levels, namely "employment and income generation" and "food subsidy and transfer systems". The latter will be discussed below when referring to social safety nets. The authors consider two kinds of interventions that increase agents' disposable income and purchasing power: employment generation schemes and off-farm income and employment opportunities. Agents must have the necessary resources to allow them to acquire food, access to income-generating activities is therefore crucial (Pieters *et al.*, 2013). Besides the importance of households' income, access to food can also be achieved through the households' own food production. In this regard, different measures related to food availability and domestic food production will also affect food access.

It is important to emphasize that "at individual and household level it is difficult to distinguish *food availability* from *food access*. In regions where local markets are malfunctioning, households generally depend on food production as a means to have access to food, in which case (local) food availability and food access strongly overlap. However, even in regions where local markets are well developed it is not always straightforward to distinguish between the two. Household food production is often an important source of income in developing countries. An increase in food prices will generally raise the returns to household farm labour and may boost food production. A price increase may therefore positively affect *food access* through improved *food availability*. The resulting increase in income may further improve *food access*, although this effect can be counteracted by the higher cost of food. In any case, this example illustrates that *food availability* cannot always be easily separated from *food access*" (Pieters *et al.*, 2013, p.10). According to Pieters *et al.* (2013, p.8), "income generation and food production possibilities of the household are directly affected by individual characteristics such as the education level and health status. Education is linked to the development of cognitive skills that are likely to support income generation and food production. Enhanced cognitive skills may raise income levels and employability through better decision-making in the allocation and distribution of resources and an increased marginal productivity" (Pieters *et al.*, 2013, p. 8). In addition, household incomes can be increased and influenced by a better access to credit schemes (Bokeloh *et al.*, 2009) and the provision of financial services in general.

Box 3. PE towards employment generation programmes in Zambia

In 2013, the Government of Zambia launched its Strategy Paper on Industrialization and Job Creation which identifies key sectors having great potential to achieve the objectives of growth and employment. This resulted in funding programmes targeting all the major sectors of the economy.

Source: FAPDA (2015)

When it comes to access to food and income, poverty alleviation mechanisms also play an important role. In this respect, social safety nets programmes are relevant. The World Bank (2015, p. 7) defines social safety nets as "non-contributory measures designed to provide regular and predictable support to poor and vulnerable people". According to the literature (Bokeloh *et al.*, 2009; FAO, 2011b; HLPE, 2012a; World Bank, 2015), the following measures are considered as social safety nets: cash transfers, public works, in-kind transfers, food subsidies, food vouchers, fee waivers and school feeding programmes. Examples of PE on social safety nets are given in Box 4.

Cash transfers can be conditional or unconditional, depending on whether beneficiaries are required to comply or not with specific behavioural requirements (World Bank, 2015). “Providing cash to meet basic needs remains the primary objective of most projects using cash transfers. (...) In addition to enabling access to food, cash, like food aid, can have broader objectives, such as protecting livelihoods or preventing distress coping strategies” (Harvey *et al.*, 2010, p. 37). Public works consist in providing employment to unskilled and semi-skilled workers on labour-intensive projects (FAO, 2013). They include cash-for-work and food-for-work programmes that have proved to be effective in enabling consumption smoothing for food insecure households (HLPE, 2012a). In-kind transfers refer to the provision of in-kind support without any conditionality, such as food distribution. Food subsidies, by lowering staple food price, facilitate access to food and increase food consumption (HLPE, 2012a). Food vouchers or stamps refer to coupons distributed to selected groups of people that can be used to purchase a predetermined set of commodities on the market or in specific shops (Thomson and Metz, 1998; FAO, 2011b). Fee waivers assist households in meeting the cost of defined classes of services, such as education and housing (World Bank, 2015). In doing so, these expenditure measures contribute to food access by freeing up household income (Harvey *et al.*, 2010). As for school feeding programmes, they can be of different types: in-school prepared meals, mid-morning snacks or take-home rations are options. Such programmes usually pursue the objective of reducing hunger and providing incentives for children to attend school (HLPE, 2012a).

Box 4. PE towards social safety nets in Africa and India

In 2012, the federal government of Nigeria committed to allocate US\$ 30.4 million to scale up the conditional cash transfer scheme ongoing in the country. A total of 24 states benefited from the scheme, compared to the 12 previously covered, and interventions targeted about 56 250 households within the year. Each of these households were entitled to a monthly grant of US\$ 31 and a lump sum of US\$ 626 at the end of one year within which they would have been trained and would be able to start a trade.

In FY 2012/2013, the government of Malawi, with financial support of international donors, allocated US\$ 93.6 million to scale up intensive public works programme.

The government of Ghana is implementing a School Feeding Programme in the country since 2005. In 2011, the government spent US\$ 29.6 million for the programme, with the objective of targeting 700 000 pupils in 10 regions.

In its 2014/2015 budget, the government of India allocated US\$ 19.1 million for food subsidies (targeting wheat and rice) to the country’s most vulnerable populations.

Source: FAPDA (2015)

In terms of access to food, the importance of transport and market infrastructure, and rural infrastructure in general, is also emphasized in the literature. Related categories are already present under the availability dimension.

To sum up, the categories that emerge for the access dimension are:

- Employment programmes;
- Off-farm income and employment opportunities;
- Education;
- Access to credit and financial services;
- Cash transfers;
- Public works;
- In-kind transfers;
- Food subsidies;
- Food vouchers or stamps;
- Fee waivers;
- School feeding programmes.

Utilization

The importance of clean water, sanitation and health for FSN is largely acknowledged. HLPE (2015) emphasizes the importance of water of appropriate quality and quantity, as it is not only crucial for sanitation but also for food preparation and food absorption. The same report states that “safe drinking water and sanitation are fundamental to the nutrition, health and dignity of all. Lack of access to safe drinking water, sanitation facilities and hygiene practices undermines the nutritional status of people through water-borne diseases and chronic intestinal infections” HLPE (2015, p.11). In the same vein, health interventions also play an essential role in supporting FSN. Indeed, “ill-health often leads to sub-optimal utilization of nutrients contained in the food actually consumed” (Bokeloh *et al.*, 2009, p.134). Any intervention aimed at improving the health status of people must therefore be taken into consideration as a determinant of FSN. Examples of such PE interventions are given in Box 5. In terms of public health, it is also worth considering food safety and quality. Indeed, “food safety refers to all those hazards, whether chronic or acute, that may make food injurious to the health of the consumer” (FAO and WHO, 2003, p.3). Food safety and quality are mainly determined by quality assurance measures, which can encompass a variety of different and complex interventions (Bokeloh *et al.*, 2009). According to FAO and WHO (2003), the following categories can be taken into account when it comes to food safety and quality: food regulations and standards, and food control and inspection services.

Box 5. PE towards drinking water, sanitation and health in Asia

In 2012, the Myanmar’s Ministry of Health officially introduced a new vaccine to protect children against five potentially life-threatening diseases and co-financed the vaccines over the next 5 years, for an amount of US\$ 5 million.

In February 2013, the Laotian government allocated US\$ 436 000 to develop water supply infrastructure including a new water treatment plant, installation of pipelines and technical assistance for operations and maintenance of the facilities and the management of the water distribution system. The main objective of this investment is to achieve 24-hours water supply for 80 percent of the population in urban areas by 2020.

In August 2013, the Department of Health of the Philippines, thanks to an allocation of US\$ 63.9 million, launched the Health Facilities Enhancement Programme aimed at upgrading the infrastructure and equipment of government health facilities across the country.

Source: FAPDA (2015)

For what concerns care and feeding practices, it is proposed to include the list of proven and effective measures given in the literature analysing nutrition-sensitive interventions. These interventions are generally divided into three broad groups: behaviour change interventions, micronutrient and deworming interventions, and complementary and therapeutic feeding interventions. The first group of interventions include breastfeeding promotion and promotion of proper hygiene behaviours. The second group of interventions comprises different supplementation interventions (vitamin A, therapeutic zinc, iron, and iodine), multiple micronutrient powders, and deworming drugs. The last group consists of therapeutic interventions aimed at preventing or treating malnutrition through the provision of vitamin and enhanced complementary foods (Horton *et al.*, 2010; ACF, 2012).

The following categories are therefore proposed for the utilization dimension of FSN:

- Clean water and sanitation;
- Health;
- Food regulations and standards;
- Food control and inspection services;
- Behaviour change interventions;
- Micronutrient and deworming interventions;
- Complementary and therapeutic feeding.

Stability

Developing countries are considered to be more vulnerable to adverse environmental and climate fluctuations. In order to reduce the negative effects of weather and climate change on FSN, the introduction of weather prediction and early warning systems is considered as one of the best solutions. Devoting special attention to flood management is also recommended (WMO, 2001, 2010). Other options have also been identified to support producers to adapt to climate change, such as the modernisation of extension services, a better information technology, innovative insurance schemes, or the development of integrated land-use and water management policies (HLPE, 2012b). Box 6 to Box 8 browse some examples of such stability-related PE measures.

Box 6. PE towards weather warning system in Nepal

In 2013, the World Bank provided funds amounting to US\$ 31 million to the government of Nepal. The government's objective was to pilot the country's first weather warning system for farmers to reduce agricultural losses during the monsoon season. In collaboration with the semi-governmental Nepal Agricultural Research Council (NARC) and the Department of Hydrology and Meteorology (DHM), the Ministry of Agricultural Development (MOAD) planned to pilot the initiative in four districts by the end 2013 and scale it up in 25 most prone districts by early 2014. The system envisaged the installation of three weather monitoring radars nationwide capable of forecasting heavy rainfall and drought and the dispatch of alerts to farmers via mobile phones.

Source: FAPDA (2015)

Box 7. PE towards water resources management in Rwanda

In 2011, the Ministry of Natural Resources of Rwanda launched the Water Resources Management Policy and its Strategic Plan. The objective is to ensure that Rwanda's waters are equitably harnessed and sustainably managed to satisfy its development needs and environmental commitments enshrined in the Economic Development and Poverty Reduction Strategy (EDPRS) targets and Vision 2020 aspirations. A total of US\$ 64.5 million were required to implement the strategic plan.

Source: FAPDA (2015)

Box 8. PE towards crop insurance in Nigeria

The Minister of Agriculture and Rural Development of Nigeria announced that the Federal Government had launched a national crop insurance programme called “Planting with Peace Programme” where more than 10 million farmers would get access to crop insurance starting from 2015. The programme will cover crop insurance and strategic grain reserves through the design and the implementation of a flood disaster payment policy that will protect farmers, communities and states from economic losses due to floods.

Source: FAPDA (2015)

Natural resources also play an important role in climate change and therefore in food stability. Global production and consumption of agricultural products increase the demand for natural resources, such as land, water and forests (Alexandratos and Bruinsma, 2012; Regúnaga, 2013). However, these resources are limited and “rapidly rising resource scarcity of water and increasingly of land will add further constraints on food production growth” (Rosegrant *et al.*, 2014, p.2). The deterioration of natural resources, which also threatens the viability and the resilience of agricultural production, adds to this scarcity problem (Peters *et al.*, 2013). It is therefore crucial to implement measures that conserve and restore natural resources in order to stabilize food production and consumption.

Regarding price volatility and fluctuations, they are considered as economic factors which may have a negative influence on FSN. According to HLPE (2011), policy options to cope with price volatility include market-based risk management instruments, social safety nets and food stocks and reserves. Kalkuhl *et al.* (2013) recommend emergency grain reserves and information systems on market fundamentals to reduce price volatility, as well as short-term solutions targeting consumers (income tax reduction, minimum wage increases, etc.). FAO *et al.* (2011) propose policy instruments both to reduce price volatility and to deal with the consequences of price volatility. First-hand instruments are food stocks, trade policies, the reduction of post-harvest and post-production losses and the creation of an agricultural market information system to have access to up-to-date information on crop supply, demand, stocks and export availability. Emergency food stocks and safety nets should allow to deal with the consequences of price volatility in the short run, while risk management mechanisms are advised in the long run. It should be noted that some measures presented here, such as trade policies, regular food storage⁸ and safety nets, have already been mentioned under previous dimensions. It is thus suggested to keep the following categories as regard to price volatility and fluctuations: risk management instruments, market information systems (see example in Box 9) and emergency stocks. Regarding the latter category, its importance for FSN stability is also flagged in Bokeloh *et al.*, 2009, p. 139: they “guarantee and bridge food supply during a defined period of scarcity until food will again become available from other sources, e.g. new harvests, food imports and/or food aid deliveries”. Examples of expenditure measures on emergency stocks are given in Box 10.

Box 9. PE towards a market information system in Cambodia

In 2008, the government of Cambodia announced the launch of a national agricultural data system to give farmers access to information on commodity prices, trends and market conditions.

Source: FAPDA (2015)

⁸ It is assumed that the “food stocks” referred to in FAO *et al.* (2011) encompass both regular storage facilities and emergency stocks.

Box 10. PE towards the establishment of food stocks in Mali and Senegal

In the context of its 2011-2015 National Investment Plan for the Agricultural Sector, the government of Mali dedicated an amount of US\$ 14 million to replenish the national food security stock.

In 2013, the government of Senegal decided to allocate US\$ 2 million for the replenishment of the food security stock.

Source: FAPDA (2015)

Finally, political stability has an important influence on FSN, as pointed out by Blandford and Viatte (1996, p.8): “political instability often contributes to food insecurity. Participatory and pluralistic political systems, with governments responsive and responsible to their peoples, are thus most conducive to food security. The disruption of food supplies through wars and civil strife has been a major factor in causing malnutrition and famine”. Indeed, conflicts have a negative impact on production, flows of food, public and private investments towards production and food and food-producing assets. They also negatively impact populations’ physical and economic access to food, as well as their utilization (Simmons, 2013). Therefore, any expenditure measure dedicated to the maintenance of national peace and security or to the prevention of political crises will contribute to FSN stability.

In summary, the following categories are suggested to analyse PE related to food stability:

- Weather and climate forecasts and early warning system;
- Knowledge sharing on climate change adaptation;
- Insurance schemes to manage weather and climate risks;
- Good land use practices;
- Water and flood management;
- Forests and forest fires;
- Biodiversity and landscape;
- Market-based instruments for agricultural price risk management;
- Agricultural market information system;
- Emergency stocks;
- Political factors.

Based on this initial analysis, Table 1 below gives an overview of the four FSN dimensions and their proposed related PE categories.

Table 1. Food security and nutrition dimensions and considered public expenditures categories

<p>AVAILABILITY of food</p>	<p>Domestic food production</p> <ul style="list-style-type: none"> ○ Production subsidies to producers ○ Inputs subsidies to producers ○ Payments to suppliers ○ Payments to processors ○ Payments to traders ○ Payments to transporters ○ Agricultural research ○ Technical assistance ○ Training ○ Extension and technology transfer ○ Agricultural and rural infrastructure ○ Marketing ○ Regularization of land ownership <p>Import capacity</p> <ul style="list-style-type: none"> ○ Imports subsidies <p>Food storage</p> <p>Food aid</p>
<p>ACCESS to food</p>	<p>Income and purchasing power</p> <ul style="list-style-type: none"> ○ Employment programmes ○ Off-farm income and employment opportunities ○ Education ○ Access to credit and financial services <p>Social safety nets</p> <ul style="list-style-type: none"> ○ Cash transfers ○ Public works ○ In-kind transfers ○ Food subsidies ○ Food vouchers or stamps ○ Fee waivers ○ School feeding programmes
<p>Food UTILIZATION</p>	<p>Clean water, sanitation and health</p> <p>Food safety and quality</p> <ul style="list-style-type: none"> ○ Food regulations and standards ○ Food control and inspection services <p>Nutrition assistance</p> <ul style="list-style-type: none"> ○ Behaviour change interventions ○ Micronutrient and deworming interventions ○ Complementary and therapeutic feeding
<p>STABILITY of food security and nutrition</p>	<p>Weather variability and climate change</p> <ul style="list-style-type: none"> ○ Weather and climate forecasts and early warning system ○ Knowledge sharing on climate change adaptation ○ Insurance schemes to manage weather and climate risks ○ Good land use practices ○ Water and flood management <p>Conservation and restoration of natural resources</p> <ul style="list-style-type: none"> ○ Forests and forest fires ○ Biodiversity and landscape <p>Price volatility and fluctuations</p> <ul style="list-style-type: none"> ○ Market-based instruments for agricultural price risk management ○ Agricultural market information system <p>Emergency stocks</p> <p>Political factors</p>

Source: Authors

As Table 1 only provides with a summary of the categories of PE towards FSN identified in the present paper, a more detailed table to be used for classification is given in Annex 2. The latter table contains category codes and definitions and is organized following a tree structure. It presents PE categories by distinguishing between FSN-specific and -supportive expenditures. However, the table can be organized in other ways, depending on the dimension that is used for disaggregation (FSN dimensions, private or public goods, short term or long term, etc.). Additional information on how to use the table in Annex 2 is provided in the next section.

5. Operationalization

5.1. Process

The afore-mentioned methodology to measure and analyse PE towards FSN can be used for one-off studies covering a certain country or set of countries, and period. In that case, analysts will need to collect the relevant data in national institutions and from donors, before integrating the expenditures in a database, classifying and computing the indicators. However, monitoring and analysing PE for FSN, as the MAFAP experience has shown, will be mostly effective if institutionalized and considered as a component of a policy monitoring and analysis system that is regularly and systematically used by national authorities to track and reform policies. In this line, implementing the methodology to measure and analyse PE towards FSN in developing countries will typically involve going through the following process:

1. Endorsement of the proposed methodology and indicators by the relevant national institutions;
2. Establishment of an institutional anchoring point with a team responsible for curating the PE towards FSN database and undertaking the analysis;
3. Data collection and introduction of the expenditure data in a single database for classification and computation of the indicators;
4. Analysis of the indicators produced (trends, composition, levels) and production of technical notes containing preliminary policy coherence recommendations;
5. Use of the evidence generated for PE impact analysis, policy design, planning and formulation, and for advocacy on selected policy issues in relevant policy fora.

Depending on the country situation and the selected institution, capacity building and technical support will have to be provided to the team throughout the process, with the objective of attaining full institutionalization of the methodology and indicators in the long run. Examples of the different steps of the process are given in Box 11 below.

Box 11. Implementing the proposed methodology for monitoring and analysing PE towards FSN

Institutionalization of the proposed indicators of PE towards FSN and their use for policy analysis and advocacy in a developing country can only occur if the concerned national institutions are fully supportive of the methodology and envisioned process. In that regard, it will be crucial to ensure that the Ministry of Finance and the national statistical institute support the exercise, as the reference point for expenditure data management. Other institutions dealing with FSN should also be involved at this early stage. An example of such an institution, in the case of Burundi, is a platform dedicated to the coordination of policy efforts towards FSN placed under the responsibility of the 2nd Vice-Presidency. The platform is itself associated to the Renewed Efforts Against Child Hunger and Undernutrition (REACH) and Scaling Up Nutrition (SUN) initiatives.

The selection of the anchoring point will depend on available capacities, data accessibility and the potential visibility of the produced policy analyses. Planning unit in line ministries may be selected, as well as research institutions. For instance, Ethiopia's Ethiopian Development Research Institute

(EDRI) is a semi-autonomous, publicly funded think tank that conducts economic and policy across a wide range of sectors, in a need-based perspective and in close collaboration with national institutions.

Collection of expenditure data across a wide range of sectors always proves to be a challenging exercise. The selection of the anchoring point will be crucial in that regard. It should be located at sufficiently high level to ease data access in other institutions. Specific attention should also be dedicated to the format of the collected data. In Ghana, for example, MAFAP collected PE data from donor and national sources. While national sources used an economic PE classification,⁹ donors often reported their expenditures using the OECD's Donor Assistance Committee Creditor Reporting System (CRS) classification (OECD, 2012). In that case, disaggregation of the data before transfer to the database is required, a task which is technically demanding.

The understanding that the value the data produced and analyses generated lies in the capacity of the system to support policy reforms by evidence is central in the process and should also be seen as a condition to ensure that the indicators of PE towards FSN are regularly updated. Depending on the anchoring point, dissemination of the results to relevant stakeholders can be done through sectoral or national policy platforms, when no specific FSN platform exists. In Rwanda, for instance, the Ministry of Agriculture and Animal Resources (MINAGRI) is at the heart of the national efforts on food security. Policy discussions are typically conducted within an Agriculture Sector Working Group or through regular Joint Sector Reviews.

Source: Authors

5.2. Compiling a database of PE towards FSN

Creating a database of PE towards FSN may require data collection from different sources. The MAFAP experience on PEA data collection has shown that an appropriate way to initiate such an exercise is to start from the classification table. For each FSN dimension and each category, institutions or donors that may hold the necessary PE data should be identified. This can lead to a large list of potential data sources. An example for the case of Ghana is given in Table 2 (only public sources of expenditure data are included).

Table 2. Relevant line ministries for data collection in Ghana for the purpose of computing PE towards FSN indicators¹⁰

	Availability	Access	Utilization	Stability
Ministry of Agriculture and Animal Resources	x	x	x	x
Ministry of Finance	x	x	x	x
Ministry of Trade and Industry	x	x	x	x
Ministry of Local Government and Rural Development	x	x	x	x
Ministry of Fisheries and Aquaculture Development			x	x
Ministry of Lands and Natural Resources			x	x
Ministry of Water Resources, Works, and Housing			x	x
Ministry of Roads and Highways	x	x		
Ministry of Transport	x	x		
Ministry of Health			x	
Ministry of Gender, Children, and Social Protection		x	x	
Ministry of Environment, Science, Technology, and Innovation	x			x

Source: Authors

⁹ For the distinction between economic and functional classification, see IMF, 2014, p. 114.

¹⁰ The list was established on the basis of the identification of data sources for the purpose of the MAFAP analysis of PEA in Ghana (FAO, 2014), which was expanded to cover the categories listed in 0. The list is not exhaustive and will have to be completed by going through the process given in section 5.1 if aiming to undertake an analysis of PE towards FSN in Ghana. For instance, donors and other institutions (not only line ministries) will have to be included in the list, like the Ghana Cocoa Board (payments to producers) or the Council for Scientific and Industrial Research (agricultural research and market information systems), to name but a few.

It will often not be possible to contact such a large number of institutions. Hence, for sake of practicality, it is advised that analysts first focus on the ministries of agriculture and finance as primary data sources. This approach is consistent with the fact that the present methodology is conceived as an extension of the MAFAP methodology to measure PEA. In addition, the proposed classification of PE towards FSN is based on the existing hierarchy between FSN dimensions – the availability dimension therefore acts as its foundation. With this typology, it is expected that at least the half of the collected expenditures towards food security and nutrition will be equivalent to agriculture-specific or agriculture-supportive expenditures (see section 3.2). Once a first database of PE towards FSN is constituted, it will be possible to add to that information by gradually incorporating additional figures from other data sources to the file.

The expenditure data should be collected in the form of yearly expenditures on projects or programmes that can be related to one of the categories listed in Annex 2 preferably disaggregated down to the activity level, for a given reference period (for example, 2005-2014). Also, detailed information on the projects, programmes and activities should be collected, to allow for a precise classification of expenditures. Once the datasets have been collected from a realistic number of data sources, the expenditure amounts and the information on each project, programme and activity have to be introduced in a data template so as to organize the data and prepare the classification.

In line with the principle of classifying expenditure measures according to their economic characteristics, the classification should proceed as follows: first, one needs to establish whether the expenditure measure is a policy transfer or if it can be considered as an administrative cost. Second, if it is a policy transfer, a base category of Annex 2 should be attributed to it. Categories are attributed depending on the way in which the expenditure measure has been implemented, and not on intended objectives or impacts. The purpose is to be able to see which type of support is provided to FSN. As an example, consider the case of an expenditure measure aiming to compensate grain producers for an increase in the costs of agricultural inputs (fertilizers, phytosanitary products or energy) but implemented as a payment per unit of land. Although the expenditure measure might be labelled as “input subsidies”, it should be classified as “F.1. - Cash transfers” since it results in direct cash payments to producers (which can possibly be used to buy other goods than only inputs).

Box 12. Classifying expenditure interventions using the proposed methodology to measure and analyse PE towards FSN: examples from Rwanda

The Vision 2020 Umurenge Program (VUP) was the main social protection program in Rwanda for the period 2008-2012.¹¹ It was led by the Ministry of Local Government (MINALOC) and jointly funded by the Government of Rwanda and development partners. It primarily aimed to address extreme poverty in targeted sectors of Rwanda. The program had three core pillars: (i) public works, (ii) direct support and (iii) financial services. The “public works” pillar consisted in offering temporary work on community infrastructures (like terracing, anti-erosion ditches or rehabilitation of roads) to one member of very poor households. The “direct support” pillar was dedicated to the provision of unconditional cash transfers to very poor households that have no adult capacity for work. The “financial services” had three sub-components: (i) access to credit, (ii) beneficiary training and (iii) a “matching grant” service, by which capital costs of a project raised by local communities can be completed by VUP. Although the “public works” pillar resulted in infrastructures being built, it was implemented through monetary transfers to specific agents in return for the provision of labour. Therefore, it would be associated to category “F.2.1. – Cash for work”. The “direct support” pillar would fall rather straightforwardly under “F.1. – Cash transfers”.

¹¹ Information on this program was taken from WFP, 2012, p. 98.

Finally, the “financial services” pillar would be allocated to category “E.4. – Access to credit and financial services”.

Another program of interest from an FSN perspective in Rwanda is the One Cow per Poor Family “Girinka” Program.¹² The principle is to provide a heifer to poor households, which provides direct nutrition through milk and soil nutrients through manure. The program was introduced in 2006 and will pursue its activities up to 2017 and beyond in function of the phase out strategy. As of the end of 2010/11, about 3.9 % of the Rwandan households had received a cow from the programme (National Institute of Statistics of Rwanda, 2011). As of 2014, about 200,000 beneficiaries (about 8 percent of Rwandan households) had received a cow and the 2017 target is 350,000 (this would amount to about 14 % of Rwandan households).¹³ It is thus a substantial effort. The program implementation is led by the Rwanda Agricultural Board (RAB) with guidance from the Ministry of Agriculture and Animal Resources (MINAGRIE) and the Ministry of Local Government (MINALOC). Cows are given after a selection process and the training and preparation of beneficiaries by RAB. There are two means by which a trained beneficiary can receive a cow. The first one is by donation of a heifer. As the cow gives birth, the calf can be given to another household of the community. The second one is through loans that are to be used to buy a cow. From this information, the analyst of PE towards FSN could differentiate between three major activities: (i) training, (ii) credit provision and (iii) livestock asset provision. In this case, the allocated categories would be “N - Training”, “B.1 – variable inputs” and “B.2 – capital”, respectively. Although the manure produced by cows will result in farmers disposing in additional fertilizers, no distinct category should be created for that matter, as the classification of PE towards FSN does not take externalities or impacts into account.

Source: Authors

Box 13. Classifying expenditure interventions using the proposed methodology to measure and analyse PE towards FSN: examples from Kenya

Another example of FSN-related initiative is the Kenya Cash Transfer for Orphans and Vulnerable Children (CT-OCV) program, currently ongoing. The objective of the program is “to strengthen the capacity of the poor to care for and protect OVC, to encourage their fostering and retention within their families and communities, and to promote their human capital development” (Kenya CT-OVC Evaluation Team, 2012, p. 4). Ultra-poor households are the targeted population. It is nation-wide and covers 47 districts. Usually, women – as heads of the households – are the transfer recipients (Ward, P. et al., 2010). From this information, the analyst of PE towards FSN would map the program expenditures to category “F.1. – Cash transfers”. It is thus associated to the “access” dimension of FSN and targets specific agents.

Source: Authors

5.3. Further perspectives

In order to further refine the classification and the implementation modalities, case studies must be performed in selected countries. Burkina Faso, Ethiopia, Ghana or Malawi would be possible candidates for such an exercise, as a robust PEA database has been created in these countries on the basis of the MAFAP PEA methodology, and good anchoring points have already been established in national institutions. Another possible country would be Bangladesh, which is currently in the process of establishing the MAFAP system for policy analysis. Doing so would permit to go through the full process of creating a database and computing indicators of PE towards FSN. The testing phase of the methodology proposed here is scheduled to start across the spring of 2016.

¹² Information on this program was taken from MINAGRI, 2015 and Rwandapedia, 2014.

¹³ These percentages were obtained by using the number of households in Rwanda in 2012 given in National Institute of Statistics of Rwanda, 2014.

- In the testing process, analysts involved in data collection, compilation and analysis should dedicate substantial attention to the following questions, among others: Practicality: how difficult is it to disaggregate expenditures across the proposed 33 base categories? Does the classification cover a too large/too narrow domain of expenditures? How many data sources were considered to create the database, and how to assess costs and benefits associated to the integration of additional data sources?
- Relevance in the national context: is it possible to undertake meaningful analyses of the indicators with respect to stated national FSN objectives?
- Complementarity with other PE initiatives: is it possible to look jointly at the produced indicators with figures generated by other initiatives working on public expenditure analyses, like the World Bank-supported Agriculture Public Expenditure Reviews (AgPERs)?

A brief lessons learned report should be produced after each country exercise so as to refine the process and approach and come up with a reference timeline and costing for the implementation of the methodology.

Furthermore, as stated in section 4.2 above, the proposed classification may not be exhaustive at this stage. New categories could be added to enhance the quality of the classification. The methodology could also be expanded in order to include not only national and donor expenditures, but also NGO or private sector expenditures, at a higher frequency than year by year. Additional dimensions could be covered in a more detailed classification table. These include:

- Disaggregating across additional groups of agents. In addition to the groups used in the classification table given in Annex 2, other standardized categories could be used in order to allow for in-depth analyses of targeted FSN interventions, knowing that the effectiveness and economic effect of certain interventions can vary according to the targeted groups. Indeed, “food-security interventions are more often based on the expertise of the intervening organizations than on the actual needs of the target group, which only leads to general solutions for the fight against food insecurity. This approach is based on the entirely false idea that all people in one country or region are food insecure. (...) Targeting in a very selective way has become increasingly important because of the ever shrinking budgets. Good targeting can substantially improve the impact of actions on the target groups and can lead to a more efficacious allocation of the means to the target group” (Beerlandt and Huysman, 1999, p. 6). Additional disaggregation across groups of agents could be reached by mapping the categories given in Annex 2 to standardized target groups, for example individuals, households or everyone (Pangaribowo *et al.*, 2013). Also, a gender disaggregation could be introduced. This could be particularly relevant from an analytical perspective as, while women play an important role in ensuring households’ food security, dietary diversity and health, they “often continue to have limited access to land, education, credit, information, technology and decision making bodies. Women are thus impaired in fulfilling their socio-economic roles in food and nutrition security and in ensuring care, health and hygiene for themselves and their families. This is aggravated by the fact that women themselves are often more vulnerable or more affected by hunger and malnutrition than men, especially by iron deficiency and undernourishment during pregnancy and lactation” (Bokeloh *et al.*, 2009, p.17).
- Capturing the implications of implementation modalities. For example, cash transfers targeting men would be seen as FSN-supportive transfers, while those targeting women as FSN-specific.
- Differentiating between policy transfers that are expected to impact FSN in the short run and those which are intended to have long term impacts (a similar distinction is done in Pangaribowo

et al., 2013). To do so, the approach of the Updated Comprehensive Framework for Action (UCFA) could be taken as a reference point. The ambition of UCFA's framework is to "better reflect ways in which UN System bodies advise the national authorities and numerous other stakeholders engaged in promoting food and nutrition security" (United Nations High Level Task Force on the Global Food Security Crisis, 2010, p.xii). The UCFA proposes a twin-track approach, according to which actions towards FSN need to follow and focus on two complementary tracks: (a) meeting the immediate food and nutritional needs of vulnerable people and (b) building longer-term resilience and contributing to global FSN. In other words, the approach combines short-term (immediate) hunger relief interventions with longer-term actions to address the root causes of hunger. It is important to note, though, that "both kinds of interventions, or tracks, need to be undertaken simultaneously and in a coordinated manner in order to successfully fight hunger" (CFS, 2013, p.15). The outcomes and actions listed in the twin-track approach may be found in Annex 3. Starting from this list of actions, it is possible to analyse the trends in PE towards the two types of FSN interventions (short-term and long-term).

- Disaggregating FSN-specific interventions across single commodities or groups of commodities (e.g. food crops) using the FAOSTAT classification of production (FAOSTAT, 2015b), as is proposed in the MAFAP classification (MAFAP, 2015). This would allow assessing the composition of expenditures on given commodities and to which dimensions of FSN they relate.
- Disaggregating FSN interventions geographically in a given country. Indeed, food insecurity and/or malnutrition may be concentrated in some regions or zones.

These add-ons and refinements to the existing methodology are to be progressively integrated as the proposed classification will be implemented in developing countries.

6. Conclusion

Food security and nutrition currently stands out as a core development objective, especially in the context of the new SDGs to be achieved by 2030 and of the policy efforts aiming to realize the right to food at the national, regional and global levels. It is hence crucial for policy makers to dispose of reliable indicators permitting to measure and analyse PE towards FSN, in order to determine how the level and composition of these expenditures evolve over time and across countries. Such indicators are to be based on an analytical classification of PE towards FSN, suitable for policy analysis. Surprisingly, no fully-fledged classification conceived for that specific purpose seems to be available in the literature. Existing studies have mostly focused on determining which interventions have the biggest impact on FSN or on tracking ODA flows related to nutrition. The present paper aimed to fill a gap by using a broad definition of FSN, considering national and donor expenditures and proposing indicators that are meaningful for policy analysis.

As such an effort requires a starting point, it was decided to build on the framework used by the MAFAP programme for monitoring and analysing PEA. Within MAFAP, PEA analysis is conceived as a component of a policy analysis system which was developed together with the OECD. The MAFAP system can be seen as an adaptation of the PSE framework for the case of developing economies. The same reasoning as in MAFAP was used to conceive the classification of PE towards FSN, which is therefore first and foremost a policy – and not a reporting, although the distinction is subtle – tool, and a simple extension of the MAFAP PEA methodology. Starting from a definition of FSN and differentiating between FSN-specific and -supportive expenditures permitted to come up with a list of categories, by referring to the literature on the link between PE interventions and FSN outcomes. In addition to being qualified as either FSN-specific or -supportive, the proposed categories are associated to one or two dimensions of FSN and considered as dedicated to the provision of either private or public goods.

The classification aims to be as comprehensive as possible. In terms of the four dimensions of FSN, it considers “domestic food production”, “import capacity”, “food stocks and food aid” for *food availability*, “income and purchasing power”, “social safety nets”, “food assistance” and “rural infrastructure” for *food access*, “food safety and quality”, “clean water, sanitation and health” and “nutrition assistance” for *food utilization* and “weather variability and climate change”, “conservation and restoration of natural resources”, “price volatility and fluctuations” and “political factors” for *stability of FSN*. The classification could be refined by disaggregating further across targeted groups (for example, gender) or by differentiating between interventions having a short term or long term effect on FSN, among other options.

The classification needs now to be tested and refined to become fully operational. The testing phase will start in spring 2016 and will be based on two components: first, the application of the methodology to measure and analyse PE towards FSN in a developing country and, second, the validation of the classification by qualified experts and related institutions (WB, IMF, IFPRI, OECD, ECLAC, etc.). The testing phase will also permit to address some of the challenges pointed out during the preliminary review of the document, for instance relating to the practicality of the methodology. As for the country that could be considered for a first test, Bangladesh stands out as an interesting candidate as it is in the process of establishing the MAFAP system for policy analysis. The application of the methodology proposed here could therefore be embedded in that effort.

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Annex 1. MAFAP classification of public expenditures in support of the food and agricultural sector

- 1. Agriculture-specific expenditure** – monetary transfers that are specific to the agricultural sector, i.e. agriculture is the only, or principal, beneficiary of a given expenditure measure
- 1.1 Payments to agents in the food and agriculture sector** – monetary transfers to **individual** agents in the food and agriculture sector
- 1.1.1 Payments to producers** – monetary transfers to individual agricultural producers (farmers)
- A. Production subsidies based on outputs** – monetary transfers to agricultural producers that are based on current output of a specific agricultural commodity
- B. Input subsidies** – monetary transfers to agricultural producers that are based on on-farm use of inputs:
- B1 - Variable inputs** (seeds, fertiliser, energy, credit, other) – monetary transfers reducing the on-farm cost of a specific variable input or a mix of variable inputs
- B2 - Capital** (machinery and equipment, on-farm irrigation, other basic on-farm infrastructure) – monetary transfers reducing the on-farm investment cost of farm buildings, equipment, plantations, irrigation, drainage and soil improvements
- B3 - On-farm services** (pest and disease control/veterinary services, on-farm training, technical assistance, extension etc., other) – monetary transfers reducing the cost of technical assistance and training provided to individual farmers
- C. Income support** – monetary transfers to agricultural producers based on their level of income
- D. Other payments to producers** – monetary transfers to agricultural producers individually for which there is insufficient information to allocate them into the above listed categories
- 1.1.2 Payments to consumers** – monetary transfers to final consumers of agricultural commodities individually in the form of:
- E. Food aid** – monetary transfers to final consumers to reduce the cost of food
- F. Cash transfers** – monetary transfers to final consumers to increase their food consumption expenditure
- G. School feeding programmes** – monetary transfers to final consumers to provide free or reduced-cost food in schools
- H. Other payments to consumers** – monetary transfers to final consumers individually for which there is insufficient information to allocate them into the above listed categories
- 1.1.3 Payments to input suppliers** – monetary transfers to agricultural input suppliers individually
- 1.1.4 Payments to processors** – monetary transfers to agricultural commodities processors individually
- 1.1.5 Payments to traders** – monetary transfers to agricultural traders individually
- 1.1.6 Payments to transporters** – monetary transfers to agricultural commodities transporters individually
- 1.2 General support to the food and agriculture sector** – public expenditures generating monetary transfers to agents of the agro-food sector collectively
- I. Agricultural research** – public expenditures financing research activities improving agricultural production
- J. Technical assistance** – public expenditures financing technical assistance for agricultural sector agents collectively
- K. Training** – public expenditures financing agricultural training
- L. Extension/technology transfer** – public expenditures financing provision of extension services
- M. Inspection** (veterinary/plant) – public expenditures financing control of quality and safety of food, agricultural inputs and the environment
- N. Agricultural infrastructure** – public expenditures financing off-farm collective infrastructure
- N1. Feeder roads** – public expenditures financing feeder roads
- N2. Off-farm irrigation** – public expenditures financing off-farm irrigation
- N3. Other off-farm infrastructure** – public expenditures financing agricultural infrastructure that are not feeder roads or off-farm irrigation
- O. Storage/public stockholding** – public expenditures financing public storage of agro-food products
- P. Marketing** – public expenditures financing assistance in marketing of food and agriculture products
- Q. Other general support to the food and agriculture sector** – other transfers to the agro-food agents collectively for which there is insufficient information to allocate them into above listed categories
- 2. Agriculture-supportive expenditure** – public expenditures that are not specific to agriculture, but which have a strong influence on agricultural sector development
- R. Rural education** – public expenditures on education in rural areas
- S. Rural health** – public expenditures on health services in rural areas
- T. Rural infrastructure** – public expenditures on rural infrastructure
- T1. Rural roads** – public expenditures financing rural roads
- T2. Rural water and sanitation** – public expenditures financing rural water and sanitation
- T3. Rural energy** – public expenditures financing rural energy
- T4. Other rural infrastructure** – public expenditures financing rural infrastructure that are not rural roads, rural water and sanitation, rural energy and other rural infrastructure
- U. Other support to the rural sector** – other public expenditures on rural areas benefiting agricultural sector development for which there is insufficient information to allocate them into above listed categories
- Total expenditure in support of the food and agriculture sector (excluding administrative costs) (policy transfers, PEAPT):** sum of agriculture-specific and agriculture-supportive expenditure (1+2)
- Identifiable administrative costs for the food and agriculture sector:** administrative costs include costs of formulation, implementation and evaluation of agricultural policies
- Total expenditure in support of the food and agriculture sector (including administrative costs) (PEA):** sum of agriculture-specific expenditure, agriculture supportive expenditure and identifiable administrative costs for the food and agriculture sector (1+2+identifiable administrative costs for the food and agriculture sector).

Source: MAFAP (2015)

Annex 2. Proposed classification of public expenditure towards food security and nutrition

PE categories	Definitions	FSN dimension 1	FSN dimension 2	Private or public goods	Short term or long term
1. Food Security and Nutrition - specific expenditures					
1.1. Payments to specific agents					
1.1.1. Payments to producers	Monetary transfers to individual agricultural producers (farmers).	Availability	Access	Specific agents	
A. Production subsidies based on outputs	Monetary transfers to agricultural producers that are based on current output of a specific agricultural commodity.	Availability	Access	Specific agents	
B. Input subsidies	Monetary transfers to agricultural producers that are based on on-farm use of inputs.	Availability	Access	Specific agents	
B.1. Variable inputs (seeds, fertilizer, energy, credit, other)	Monetary transfers reducing the on-farm cost of a specific variable input or a mix of variable inputs.	Availability	Access	Specific agents	
B.2. Capital (machinery and equipment, on-farm irrigation, other basic on-farm infrastructure)	Monetary transfers reducing the on-farm investment cost of farm buildings, equipment, plantations, irrigation, drainage and soil improvements.	Availability	Access	Specific agents	
B.3. On-farm services (pest and disease control/veterinary services, on-farm training, technical assistance, extension etc., other)	Monetary transfers reducing the cost of technical assistance and training provided to individual farmers.	Availability	Access	Specific agents	
C. Import subsidies	Monetary transfers to producers to make goods and services imported payable by them.	Availability		Specific agents	
D. Other payments to producers	Monetary transfers to agricultural producers individually for which there is insufficient information to allocate them into the above listed categories.	Availability		Specific agents	
1.1.2. Payments to consumers					
E. Income and purchasing power support	Monetary transfers to consumers to improve their disposable income and increase their purchasing power.	Access		Specific agents	
E.1. Employment programmes	Public expenditures generating monetary transfers to specific agents through employment programmes.	Access		Specific agents	
E.2. Off-farm income and employment opportunities	Public expenditures financing programmes or measures aimed at promoting off-farm income and employment opportunities.	Access		Specific agents	
E.3. Education	Public expenditures financing programmes or measures in support of education.	Access			

E.4. Access to credit and financial services	Public expenditures financing programmes or measures in support of microcredit schemes or the provision of financial services (e.g. grant matching).	Access			
E.5. Other measures in support of agents' disposable income	Other public expenditures aimed at improving agents' income and purchasing power.	Access		Specific agents	
F. Social safety nets	Non contributory monetary transfers to provide regular and predictable support to vulnerable people.	Access		Specific agents	
F.1. Cash transfers	Periodic monetary transfers to poor households that require beneficiaries to comply with specific behavioural requirements (conditional cash transfer) or not (unconditional cash transfer).	Access		Specific agents	
F.2. Public works	Public expenditures financing public works.	Access			
F.2.1. Cash for work	Monetary transfers to specific agents in return for the provision of labour.	Access		Specific agents	
F.2.2. Food for work	Public expenditures financing programmes or measures aimed at providing specific agents with food transfers in return for the provision of labour.	Access		Specific agents	
F.3. In-kind transfers	Public expenditures financing programmes or measures aimed at providing specific agents with in-kind transfers, such as food distribution.	Access		Specific agents	
F.4. Food subsidies	Monetary transfers to specific agents to improve their food access and consumption	Access		Specific agents	
F.5. Food vouchers or stamps	Public expenditure financing programmes or measures aimed at distributing vouchers/stamps that beneficiaries can use to purchase food on the market or in dedicated shops.	Access		Specific agents	
F.6. Fee waivers	Public expenditures financing programmes or measures aimed at assisting households in meeting the cost for a defined class of services.	Access		Specific agents	
F.7. School feeding programmes	Public expenditure financing programmes or measures aimed at providing children with food at school or with take-home rations.	Access		Specific agents	
F.8. Other social safety nets	Public expenditures financing other social safety nets programmes.	Access		Specific agents	
G. Nutrition assistance	Public expenditures financing interventions in support of nutrition.	Utilization		Specific agents	
G.1. Behaviour change interventions	Public expenditures financing programmes or measures aimed at promoting better nutrition behaviours.	Utilization		Specific agents	
G.1.1. Breastfeeding promotion	Public expenditures financing programmes or measures that promote breastfeeding.	Utilization		Specific agents	
G.1.2. Promotion of proper hygiene behaviours	Public expenditures financing programmes or measures that promote proper hygiene behaviours.	Utilization		Specific agents	

G.2. Micronutrient and deworming interventions	Public expenditure financing programmes and measures that provide nutritional supplements, such as vitamin A supplements, multiple micronutrient powders, deworming drugs, iron-folic acid supplements, etc..	Utilization		Collectivity	
G.3. Complementary and therapeutic feeding	Public expenditures financing interventions aimed at preventing or treating malnutrition through the provision of vitamin and enhanced complementary foods.	Utilization		Collectivity	
G.4. Other nutrition support	Other public expenditures in support of nutrition.	Utilization			
H. Other payments to consumers					
1.1.3. Payments to suppliers	Monetary transfers to agricultural input suppliers individually.	Availability		Specific agents	
1.1.4. Payments to processors	Monetary transfers to agricultural commodities processors individually.	Availability		Specific agents	
1.1.5. Payments to traders	Monetary transfers to agricultural traders individually.	Availability		Specific agents	
1.1.6. Payments to transporters	Monetary transfers to agricultural commodities transporters individually.	Availability		Specific agents	
1.2. General support to FSN					
I. Food aid	Public expenditures financing the centralised procurement and distribution of food.	Availability		Collectivity	
J. Regularization of land ownership	Public expenditures financing activities dedicated to the regularization of land ownership in rural areas.	Availability			
K. Agricultural research	Public expenditures financing research activities improving agricultural production.	Availability		Collectivity	
L. Technical assistance	Public expenditures financing technical assistance for agricultural sector agents collectively.	Availability		Collectivity	
M. Training	Public expenditures financing agricultural training.	Availability		Collectivity	
N. Extension/technology transfer	Public expenditures financing provision of extension services.	Availability		Collectivity	
O. Inspection/Food safety and quality	Public expenditures financing control and assurance mechanisms to insure the quality and safety of food.	Utilization		Collectivity	
O.1. Veterinary and plant inspection		Utilization		Collectivity	
O.2. Food regulations and standards	Public expenditures financing programmes or measures aimed at implementing food regulations and standards to improve food safety and quality.	Utilization		Collectivity	
O.3. Food control and inspection services	Public expenditures financing programmes or measures aimed at establishing food control procedures and inspection services.	Utilization		Collectivity	
O.4. Other measures in support to food safety and quality	Other public expenditures in support of food safety and quality.	Utilization		Collectivity	

P. Agricultural infrastructure	Public expenditures financing off-farm collective infrastructure.	Availability		Collectivity	
P.1. Feeder roads	Public expenditures financing feeder roads.	Availability		Collectivity	
P.2. Off-farm irrigation	Public expenditures financing off-farm irrigation.	Availability		Collectivity	
P.3. Other off-farm infrastructure	Public expenditures financing agricultural infrastructure that are not feeder roads or off-farm irrigation.	Availability		Collectivity	
Q. Rural infrastructure	Public expenditures financing rural infrastructure.	Availability	Access	Collectivity	
Q.1. Rural roads	Public expenditures financing rural roads.	Availability	Access	Collectivity	
Q.2. Rural markets	Public expenditures financing markets infrastructure in rural areas.	Availability	Access	Collectivity	
Q.3. Other support to rural infrastructure	Public expenditures financing other rural infrastructure.	Availability	Access	Collectivity	
R. Food stocks					
R.1. Food storage	Public expenditures financing storage of agro-food products.	Availability		Collectivity	
R.2.. Emergency stocks	Public expenditures financing the constitution and maintenance of emergency storage	Stability		Collectivity	
S. Marketing	Public expenditures financing assistance in marketing of food and agriculture products.	Availability		Collectivity	
T. Other general support to food security and nutrition	Other transfers to agents collectively for which there is insufficient information to allocate them into above listed categories.	Availability		Collectivity	
2. Food Security and Nutrition - supportive expenditures					
U. Clean water, sanitation and health	Public expenditures financing programmes or measures aimed at ensuring rural access to clean water, adequate sanitation and health services.	Utilization		Collectivity	
V. Weather variability and climate change	Public expenditures financing programmes or measures aimed at mitigating or adapting to weather variability and climate change.	Stability		Collectivity	
V.1. Weather and climate forecasts and early warning system	Public expenditures financing programmes or measures aimed at introducing or improving weather forecasts and early warning system with good lead-time information on weather and climate.	Stability		Collectivity	
V.2. Knowledge sharing on climate change adaptation	Public expenditure financing programmes or measures aimed at improving climate change adaptation knowledge and best practices, taking into account the special needs of women or disadvantaged groups.	Stability		Collectivity	
V.3. Insurance schemes to manage weather and climate risks	Monetary transfers to producers to have adequate risk-coping instruments against risks and hazards of weather and climate change or damages.	Stability		Specific agents	

V.4. Good land use practices	Public expenditures financing programmes or measures aimed at promoting and improving integrated and good land-use practices.	Stability		Collectivity	
V.5. Water and flood management	Public expenditures financing programmes or measures aimed at improving water and flood management.	Stability		Collectivity	
V.6. Other support to weather variability and climate change mitigation	Public expenditures financing any other measures aimed at mitigating or adapting to weather variability and climate change.	Stability		Collectivity	
W. Conservation and restoration of natural resources	Public expenditures financing programmes or measures aimed at preserving and restoring natural resources.	Stability			
W.1. Forests and forest fires	Public expenditures financing any other measures aimed at maintaining forests and mitigating occurrence and effects of forest fires.	Stability		Collectivity	
W.2. Biodiversity and landscape	Public expenditures financing any other measures aimed at preserving biodiversity and landscapes.	Stability		Collectivity	
W.3. Other programmes related to natural resources	Public expenditures financing any other measures aimed at preserving and restoring natural resources.	Stability		Collectivity	
X. Price volatility and fluctuations	Public expenditures financing programmes or measures aimed at coping with the negative effects of price volatility and fluctuations.	Stability		Collectivity	
X.1. Market-based instruments for agricultural price risk management	Monetary transfers to producers to reduce the risks they are facing with market prices.	Stability		Specific agents	
X.2. Agricultural market information system	Public expenditures financing programmes or measures aimed at improving reliable and up-to-date information on crop supply, demand, stocks and export availability.	Stability		Collectivity	
X.3. Other support to cope with price volatility and fluctuations	Other public expenditures financing programmes or measures to cope with price volatility and fluctuations.	Stability			
Y. Political factors	Public expenditure financing programmes or measures aimed at maintaining peace and security and at preventing political crises.	Stability		Collectivity	
Identifiable administrative costs for PE in support of FSN	Administrative costs include costs of formulation, implementation and evaluation of policies in support of FSN				
Total PE in support of FSN	Sum of all the above categories and identifiable administrative costs for PE in support of FSN				

Note: The qualification of categories as either FSN-specific or FSN-supportive was made on the basis of the information compiled in section 4.2. It should be seen as subject to changes during the test phase. The same holds true for the other dimensions (see section 0).

Annex 3. Outcomes and actions of the twin-track approach

1. MEETING IMMEDIATE NEEDS OF VULNERABLE POPULATIONS

Objective: Improve access to food and nutrition support and take immediate steps to increase food availability

Outcomes and Actions

1.1 Emergency food assistance, nutrition interventions and safety nets enhanced and made more accessible

- ✓ Ensure that emergency food needs are fully met
- ✓ Protect basic consumption needs of vulnerable populations
- ✓ Scale up nutritional support
- ✓ Support management and prevention of undernutrition
- ✓ Promote school feeding
- ✓ Adjust social protection programmes for food prices
- ✓ Allow free and predictable flow of food assistance
- ✓ Ensure that local purchases of food and food components for humanitarian purposes are exempt from restrictions
- ✓ Explore the establishment of efficient and effective humanitarian food reserves
- ✓ Reach all households with pertinent public information on food assistance, nutrition and hardship alleviation programmes

1.2 Urgent increases in food availability from smallholder farmer food production

- ✓ Provide productivity-enhancing safety nets
- ✓ Reduce post-harvest crop losses and improve food stocks along the value chain
- ✓ Remove artificial constraints to domestic trade throughout the food chain in order to link smallholder farmers to markets
- ✓ Address basic energy needs of smallholders and rural households

1.3 Adjustments to trade and tax policies

- ✓ Encourage better functioning food markets through improved regional political and economic integration and better functioning environments for trade in food
- ✓ Immediately review trade and taxation policy options and their likely impacts
- ✓ Use limited strategic grain reserves
- ✓ Avoid generalized subsidies for food consumers
- ✓ Minimize use of export restrictions
- ✓ Reduce restrictions on use of stocks
- ✓ Reduce import tariffs and other restrictions
- ✓ Improve efficiency of trade facilitation
- ✓ Temporarily reduce VAT and other taxes

1.4 Management of macroeconomic implications

- ✓ Hold down core inflation and inflation expectations
- ✓ Assess the impact on the balance of payments and feasibility/sustainability of a reserve drawdown
- ✓ Mobilize external support to finance additional food imports
- ✓ Ensure adequate levels of foreign exchange reserves
- ✓ Assess and comprehensively cost all fiscal measures taken in response to the rise in food prices

2. BUILDING LONGER-TERM RESILIENCE AND CONTRIBUTING TO GLOBAL FOOD AND NUTRITION SECURITY

Objective: Strengthen food and nutrition security in the longer term by addressing the underlying factors driving the food crisis

Outcomes and Actions

2.1 Expanded social protection systems

- ✓ Strengthen capacity to design and implement social protection policies and programmes
- ✓ Ensure that special care is taken in identifying and addressing the needs of the most vulnerable
- ✓ Balance the need to ensure effective coverage of the vulnerable with the need to maintain efficient use of resources
- ✓ Improve linkages between sectors and between actors
- ✓ Improve the quality and diversity of foods
- ✓ Support the implementation of international labour standards

2.2 Sustained increases in food availability through growth in smallholder farmer food production

- ✓ Ensure that the macroeconomic, budget, trade and sector policy framework provides incentives for sustainable increases in smallholder production
- ✓ Stimulate private investment in agriculture with focus on small-scale farming
- ✓ Enhance secure and equitable access to natural resources
- ✓ Invest in agricultural research
- ✓ Improve rural infrastructure
- ✓ Ensure sustained access to competitive, transparent and private-sector-led markets for food produce and quality inputs
- ✓ Support development of, and strengthen producer organizations with the participation of women
- ✓ Strengthen access of smallholders and other food value chain actors to financial and risk management instruments
- ✓ Improve animal production services

2.3 Better-managed ecosystems for food and nutrition security

- ✓ Strengthen ecosystems monitoring and assessment
- ✓ Improve natural resource management within agricultural ecosystems
- ✓ Improve economic and institutional mechanisms to support sustainable management of agricultural ecosystems

2.4 Improved performance of international food markets

- ✓ Support development of mechanisms for improving emergency access to food through stock sharing
- ✓ Assess the feasibility of models for the establishment and operation of sustainable, strategic reserves of key grains
- ✓ Strengthen international oversight and analysis of food commodity and futures markets to improve their transparency and predictability and to limit the scope for speculation to exacerbate price volatility
- ✓ Promote increased agriculture trade and more open trading environments
- ✓ Reduce/eliminate agricultural trade distortions in higher-income countries
- ✓ Complete the Doha Round of trade negotiations
- ✓ Ensure additional resources for "Aid for Trade"
- ✓ Develop trade financing infrastructure
- ✓ Reduce constraints to enabling environment that encourages private sector involvement in food markets
- ✓ Build capacity for international financial markets to better meet needs of lower-income countries

3. SUPPORTING INFORMATION AND ACCOUNTABILITY SYSTEMS

Outcome and Actions

3.1 Strengthened information monitoring and accountability systems

- ✓ Implement systems that track and review the implementation of national policies strategies, and legislation relevant to food and nutrition security
- ✓ Improve further the coordination of information systems
- ✓ Continue to carry out comprehensive food and nutrition security assessments, monitoring and evaluation
- ✓ Undertake integrated analysis and monitoring of the impacts of shocks on food and nutrition security
- ✓ Conduct nutrition assessments
- ✓ Review contingency plans and early warning systems
- ✓ Put in place remedial mechanisms

Source: United Nations High-level Task Force on the Global Food Security Crisis (2010)

