

Volume I

Nutrition-sensitive value chains

A guide for project design

Isabel de la Peña, IFAD
James Garrett, Bioversity International

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Acronyms

A4NH	CGIAR Research Program on Agriculture for Nutrition and Health
BCC	behaviour change communication
CASP	Climate Change Adaption and Agribusiness Support Programme
CFSVA	Comprehensive Food Security and Vulnerability Assessment
CIAT	International Center for Tropical Agriculture
CSI	Coping Strategies Index
DHS	Demographic and Health Survey
FAO	Food and Agriculture Organization of the United Nations
FBDG	food-based dietary guideline
FBFI	Food Basket Foundation International
FCA	Four-cell Analysis
FCS	Food Consumption Score
FGD	focus group discussion
FIES	Food Insecurity Experience Scale
GALS	Gender Action Learning System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (Germany Agency for International Cooperation)
HACCP	hazard analysis and critical control points
HDDS	Household Dietary Diversity Score
HLPE	High-Level Panel of Experts on Food Security and Nutrition
IEC	information, education and communication
IFAD	International Fund for Agricultural Development
IFPRI	International Food Policy Research Institute
INFOODS	International Network of Food Data Systems
IYCF	infant and young child feeding
KAP	knowledge, attitudes and practices
KII	key informant interview
KIT	Koninklijk Instituut voor de Tropen (Royal Tropical Institute)
MAD	Minimum Acceptable Diet
MDD	Minimum Dietary Diversity
MDD-W	Minimum Dietary Diversity for Women
MIC	Multiple Indicator Cluster Survey
M&E	monitoring and evaluation
NHS	nutrition and health surveys

NRM	natural resource management
NSVC	nutrition-sensitive value chain
R&D	research and development
RDA	recommended daily allowance
SECAP	Social, Environmental and Climate Assessment Procedures
SMART	Standardized Monitoring and Assessment of Relief Transitions
SNV	Netherlands Development Organisation
SOLID	Smallholder Development Project in Eastern Indonesia
SUN	Scaling Up Nutrition
SWOT	strengths, weaknesses, opportunities and threats analysis
UNICEF	United Nations Children's Fund
VC	value chain
VCD	value chain development
WASH	water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization

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Foreword

Nutrition plays an important role in achieving the Sustainable Development Goals. This is because good nutrition is not just a desirable outcome of development, it is also a vital input into economic and social development. At the individual level, undernutrition impairs a child's cognitive and physical development, reducing school performance, productive capacity and lifetime ability to earn. The impact is multi-generational, as undernourished mothers have a higher chance of giving birth to undernourished, low birthweight babies. At the aggregate level, undernutrition can lead to economic losses that have a significant impact on GDP.

With development, the structures of economies transform as industry and services become relatively more important in the economy, leading to greater urbanization. Rural transformation occurs as agriculture becomes less of a direct employer of labour and more of a driver of growth, in which case agriculture diversifies and agro-industry gains importance. With urbanization and a transformed agricultural sector, many low- and middle-income countries are experiencing a dietary transition. With more sedentary lifestyles and diets shifting – becoming higher in fats, salt, added sugars and processed foods – problems of overweight and obesity and non-communicable diseases increase. This puts countries in the complex position of simultaneously dealing with undernutrition and micronutrient deficiencies, and also overweight and obesity.

Investments in agriculture and food systems have been globally recognized for playing a unique role in improving nutrition by ensuring that nutritious and diverse foods are available and affordable for all people at all times so they can enjoy a healthy diet. But the food systems that shape these diets are changing worldwide. Even in rural areas, households rely on markets rather than just on their own production to feed their families, and the rising consumption of processed and packaged foods is worrying. In this context, it is clear that to achieve good nutritional outcomes, one must consider not only the way food is produced, but also how it is processed, distributed, marketed and consumed. This has led to a growing interest in leveraging the potential of value chains for nutrition.

IFAD, an international financial institution and United Nations specialized agency in smallholder agriculture and rural development, is committed to mainstreaming nutrition-sensitive agriculture in its investments. IFAD's approach is to apply a nutrition lens to investments so they optimize the contribution that agriculture makes to improving nutrition, while at the same time empowering women and promoting sustainable and climate-resilient agriculture. Since value chains are a core element of food systems and are a prominent feature within the portfolio, IFAD has a special interest in understanding how to shape these projects to contribute to improving nutrition. But experience and evidence in this field is limited, and the knowledge gap is even more acute when it comes to smallholder producers, IFAD's main target group.

This publication, *Nutrition-sensitive value chains: A guide for project design* has been produced to fill a key knowledge gap in the emerging field of value chains for nutrition by providing guidance on how to design nutrition-sensitive value chain (NSVC) projects, with a particular focus on smallholder producers. The participatory and consultative approach taken for the development of this guide, which has been field-tested in Nigeria and Indonesia and subject to wide expert consultations at country and global levels, has been instrumental in

ensuring voices and practical experiences from the field are adequately reflected. The approach that has emerged from these experiences is one that shifts from the traditional value chain approach of focusing on demand alone, to one that starts by understanding the nutrition needs of consumers in order to identify investments that can improve diets while remaining economically viable and addressing issues of environmental sustainability and empowerment of women.

This guide provides validated step-by-step guidance for NSVC project design, relevant not only for IFAD but for development actors in general, and for organizations working in agriculture and rural development in particular. The consultations and discussions held during the development of this guide triggered interest in the topic of NSVCs from a wide range of institutions. Specifically, the Rome-based UN agencies, IFAD, FAO and WFP, along with Bioversity International and IFPRI, have adopted the NSVC framework – presented at the 43rd Session of the Committee on World Food Security in 2016 – as a common approach. This common approach to NSVCs allows for stronger collaboration, alignment and complementarity of actions, essential elements for achieving impact at scale.

IFAD considers this guide a living document and is committed to continuing investment in nutrition-sensitive agriculture and value chains, applying the approach and guidance provided in this document. We look forward to continuing to learn from our own experiences and those of our partners to improve this guidance over time, as together we work to shape agriculture and food systems in ways that improve nutrition and also make business sense and improve the lives of the rural poor.



Paul Winters
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Introduction

Origins and purpose of the guide

With principal financing from the Government of Germany, IFAD carried out a three-phase project – Support of Development of Nutrition-Sensitive Value Chains (NSVC) in Middle-Income Countries – with the goal of providing evidence-based guidance to develop NSVCs from a smallholder perspective.

- Phase 1 developed an analytical framework for NSVCs (De la Peña, Garrett and Gelli, 2018). The innovative nature and knowledge gaps related to NSVCs called for starting the project with a thorough literature review that underpinned the development of an analytical framework for design of NSVCs from a smallholder perspective.
- Phase 2 field-tested the NSVC framework and reflected on the process, specifically testing different tools and methods in order to refine and adjust each of the steps that are part of this guide. Phase 2 also had a strong component of consultation and ownership at the country level, with several workshops being held in each country to discuss, sharpen and validate the overall NSVC approach and the detailed guidance steps. The fieldwork was undertaken through two ongoing IFAD-funded value chain (VC) projects: the Smallholder Livelihood Development Project (SOLID) in Indonesia and the Climate Change Adaptation and Agribusiness Support Programme in the Savannah Belt (CASP) in Nigeria. Fieldwork was carried out in collaboration with SNV and CIAT in Indonesia, and FBFI and KIT in Nigeria.
- Phase 3 synthesized the experiences and lessons learned from the country activities into this guide for project design. A global workshop with international experts and the organizations participating in Phase 2 was held to further triangulate and validate the approach.

This publication – *Nutrition-sensitive value chains: A guide for project design* – builds on the results of the project's three phases and thus provides a field-tested and validated approach to designing NSVC projects. It also explains the changes and modifications that standard VC projects need at each step of project design to make them more nutrition sensitive.

Of note, this guide focuses only on food value chains. While other projects that promote non-food value chains could potentially improve nutrition through, for instance, income or women's empowerment, the framework underlying this guide focuses on those value chains that are for production, marketing and consumption of food commodities.

Structure and use of the guide

The guide is composed of two volumes, produced as a package to be used in tandem.

- Volume I, which consists of Part I and Part II, provides operational guidance for how to design an NSVC project.
- Volume II presents practical resources that can be used at each step of the design process, including terms of reference for the studies, interview guides, and tools and templates for data collection.

Volume I introduces the NSVC analytical framework in Part I and then proposes an operational approach with specific steps for NSVC project design in Part II. The process of NSVC project design is envisioned as a sequence of four steps consisting of the diagnostic studies needed for a design process to identify the appropriate activities and interventions to support NSVCs.

- Step 1: Nutrition situation analysis. Identify nutrition problems faced by the project's target population.
- Step 2: Commodity selection. Identify the commodities that can address the nutrition problem while also making business sense.
- Step 3: NSVC analysis. Undertake VC analyses of the selected commodities using a nutrition lens in order to identify constraints in supply, demand and nutrition value.
- Step 4: Identification of intervention options. Identify the intervention options that respond to the nutrition problem and its context, and that the NSVC project can invest in.

Each step provides different information needed to design an NSVC project, a different piece of the puzzle. Although the preferred approach would be to carry out the steps sequentially, there are project situations where some steps may not be needed, such as when nutrition assessments are readily available or commodities have been preselected. Thus, each step is presented in this guide as a "module" that can be conducted independently and adapted to the specific situations of a given project.




Part II describes the diagnostic studies associated with each step in detail and then discusses how the different pieces of information generated by each of these steps fits into the overall design for an NSVC project (Step 5: Putting the project together).

Volume II supports the development of the four steps, compiling the tools and resources needed to conduct each of the four diagnostic studies.

Actors engaged in project design are the guide's intended audience. At IFAD, this includes country teams and, more specifically, design team members – including organizations, consultants and other technical experts – along with the project management units within the country's implementing ministry. Although the experiences reflected in this guide emerge from an IFAD context, the approach and methodology are largely relevant for use by any development partner or government interested in the promotion of NSVCs.

Use of boxes

Throughout the guide, boxes are used to highlight information. Although they stand apart from the text, they are essential to understanding the overall NSVC design process. There are three types of boxes.

Box: What do we mean by...?	Box: A deeper look	Box: Insights from the field
 <p>These boxes provide definitions or descriptions of key concepts for easy reference.</p>	 <p>These boxes provide additional detailed information or examples on a specific topic.</p>	 <p>These boxes draw on the experience of the fieldwork carried out in Nigeria and Indonesia.¹ They provide additional insights and practical examples.</p>

2. A summary of the findings from the fieldwork is available in: IFAD 2018a and IFAD 2018b.

PART I. The nutrition-sensitive value chain framework

From a development and poverty reduction perspective, a value chain approach uses an analytical framework that considers the chain as a whole and pays attention to the links among VC actors and how their interactions affect the poor. For IFAD, as well as for many other development actors who focus on smallholder producers and rural development, a VC approach is useful for understanding how post-production interventions along the VC can render important benefits, particularly in terms of the income and well-being of rural populations.

Value chains are a core element of the food system (see Box 1). They influence both the supply and the demand of foods. From the supply side, interventions meant to contribute to nutrition need to consider the way foods are produced, and also how they are processed, distributed and marketed through the chain. From the demand side, there is a need to understand what factors influence consumer demand and, consequently, food consumption, and how they do so. The VC approach is, thus, useful for navigating the complexity of food systems and identifying opportunities to shape food systems to be more nutrition sensitive by intervening at different stages of the value chain.

A *nutrition-sensitive* approach considers how development of food value chains could contribute to improving nutrition (see Box 2). Such an approach² must start by identifying the nutrition problem in the target population and its relation to the excessive or insufficient consumption of key foods that affect diet quality. Specific food commodities can then be identified as having potential to address the nutrition problem, particularly if one considers multiple commodities that can contribute to a healthier diet and, when taken as a whole, creation of a more nutrition-sensitive food system. Once the potential food commodities have been identified, their respective value chains can be analysed to identify constraints in the supply of or demand for these foods as they relate to the nutrition problem.

The NSVC framework focuses on the link between nutrition problems in target populations and the constraints in supply and demand of specific foods (see Figure 1). It calls for identifying and leveraging opportunities to enhance supply and demand of specific foods as a way to address the target population's nutrition problems, mainly in terms of the food gaps that affect diet quality. Demand here refers to market demand, but also – and more specifically – to demand from the project's target population, paying special attention to the barriers constraining demand – and therefore consumption – such as availability, affordability or acceptability of specific foods.

Applying a nutrition lens to considering how to develop the value chain allows for identification of specific investments and interventions at each stage that can contribute to improving nutrition by enhancing the availability, affordability, diversity, nutritional quality, safety and acceptability of nutritious foods (see Box 3).

2. For more information on the NSVC framework and a detailed discussion of entry points for nutrition at different stages of the VC, see De la Peña, Garrett and Gelli, 2018; Gelli, et al., 2015; and CFS, 2016.

FIGURE 1. Linking the nutrition problem to food supply and demand



BOX 1. What do we mean by...?

Value chains

A value chain is a vertical alliance of enterprises along the range of activities required to bring a product from the initial input supply stage, through the various phases of production, to its final market destination (IFAD, 2014a). For food, describing a value chain would begin with how inputs arrive and how the food is produced, and then proceed to how the product is gathered, stored, processed, transported, distributed, marketed and delivered to consumers. The expressions “farm-to-fork” or “farm-to-plate” are often used to describe food value chains.

Food systems

A food system comprises all the activities and elements – including environment, people, inputs, processes, infrastructure and institutions – that relate to the production, processing, distribution, preparation and consumption of food, and the outputs of those activities, including any socio-economic and environmental aspects (HLPE, 2014).

Nutrition

Nutrition is the intake of food, considered in relation to the body’s dietary needs. Good nutrition – an adequate well-balanced diet combined with regular physical activity – is a cornerstone of good health. *Malnutrition* can result from a host of dietary situations, including undernourishment due to inadequate levels of calorie and protein intake; micronutrient deficiencies, especially of iron, zinc and vitamin A; and diets that lead to overweight and obesity (WHO, 2018).

There are multiple causes of malnutrition. The well-known UNICEF conceptual framework of causes of child malnutrition differentiates between immediate and underlying causes (UNICEF, 1990). Immediate causes are food and nutrient intake and health status, while underlying causes include access to food, maternal and childcare practices, water and sanitation, and access to health services. Interventions may be categorized as:

- *Nutrition-specific interventions* that address the immediate causes of malnutrition and entail, for example, promotion of breastfeeding, vitamin supplementation and treatment of acute malnutrition.
- *Nutrition-sensitive interventions* that address the underlying causes of malnutrition, such as agriculture and food security programmes, women’s empowerment, water, sanitation and hygiene, and food and nutrition education (Ruel and Alderman, 2013).

Nutrition awareness

Nutrition awareness refers to the knowledge and understanding of food and nutrition information that, when adopted and put into practice, can lead to improvements in nutrition outcomes. In this guide, the main focus is on knowledge of dietary diversity and diet requirements for different age groups across the life cycle, ranging from pregnant and lactating women and children under two to adolescents to seniors. It also encompasses issues of hygiene and gender as they relate to nutrition and diets.



BOX 2. A deeper look

A framework to make food value chains nutrition sensitive

The NSVC framework described here is designed for food value chains, not for projects that focus on non-food agricultural value chains such as cotton or rubber. Of course, nutrition can be mainstreamed into non-food VC projects and, more broadly, into any agricultural investment, and there are several tools and guides available for doing so (see FAO, 2015).

However, the NSVC framework aims to make the value chains themselves more nutrition sensitive – that is, to leverage the potential of VCs and markets to improve nutrition. By alleviating constraints in supply and demand of specific foods, NSVCs not only contribute to increasing incomes or production, they can also achieve changes in food systems by making diverse and nutritious foods more affordable, available, safe and acceptable. The development of multiple NSVCs and the strengthening of marketing networks across a project area could further support the development of a more robust local and nutritious food system.

Currently, there is no consensus on what a nutritious food is. In the NSVC framework, the specific food VC to be promoted will depend on the nutrition problem to be addressed. However, in the context of NSVCs, commodities with high nutritional value and good market potential – such as animal-source foods, legumes, fruits, vegetables and biofortified crops – are of special relevance.



BOX 3. What do we mean by...?

Nutrition-sensitive value chain

A nutrition-sensitive value chain is a food value chain that has been shaped to alleviate constraints in supply or demand of food as they relate to nutrition problems.

- *Nutrition-sensitive* because NSVCs aim to address a nutrition problem, primarily in terms of diet quality.
- *Value* because NSVCs consider economic value but also value that is relevant from a nutrition point of view.
- *Chain* because NSVCs encompass investments at different stages along the value chain from production to consumption.

Strategies to make a value chain nutrition sensitive

An NSVC project aims to alleviate the constraints identified in the supply and demand of specific foods in order to address the nutrition problem of the target beneficiaries. Based on the constraints to be alleviated, there are three strategies that a project can adopt.

1. **Strategies to increase the supply of food.** If the constraint that needs to be alleviated is related to food supply, then standard VC upgrading strategies can be used (IFAD, 2014a).
 - *Product and process upgrading strategies* include investments that can improve aspects of a VC, such as product quality, and the efficiency and consistency of the production process.
 - *Functional upgrading strategies* include investments that can move producers towards performing higher value-added activities, such as processing or packaging, which will increase their share of the final price.
 - *Coordination and business model upgrading strategies* require interventions that strengthen linkages among VC actors. These can be horizontal relationships in the same VC segment, such as linking farmers to cooperatives, or vertical relationships, such as establishing contract schemes that link farmers, processors and buyers.

These VC upgrading strategies can increase the supply of food in the system thanks to more efficient production and transformation processes or to improved VC linkages. In doing so, they also will improve dimensions relevant for nutrition such as increased availability of food in the market, potentially year-round, and improved affordability.

2. **Strategies to add nutrition value along the chain.** In cases where the constraints relate to the actual nutritional value of individual products (in terms of nutrients) or to value that arises from issues of food safety or food loss and waste, interventions can seek to add or preserve nutritional value and to minimize food contamination and loss and waste. In the NSVC framework, the term “nutrition value” encompasses these elements (see Box 4). Specific entry points within the strategy to add nutrition value along the chain include biofortification, nutrient-preserving processing and packaging, food-safe storage and transport, and nutrition labelling.
3. **Strategies to increase the demand for food.** If low demand for specific foods that would be beneficial for nutrition has been identified as the key constraint, interventions can focus on enhancing or creating demand. Generally, VC projects do not consider the need for creating demand, but rather consider how to meet demand that already exists. Investing to enhance demand, an innovative and unique feature of the NSVC framework, goes beyond simply meeting consumer demand. It systematically considers how to address the nutrition problems identified in the target population. Interventions under this strategy seek to increase consumption and, therefore, focus on the downstream stages of the chain. This can include promotion of demand, which can be done through social marketing campaigns, nutrition awareness raising and behaviour change communications, and promotion of hygienic and nutritious food preparation, which can include cooking classes and recipe development.



BOX 4. What do we mean by...?

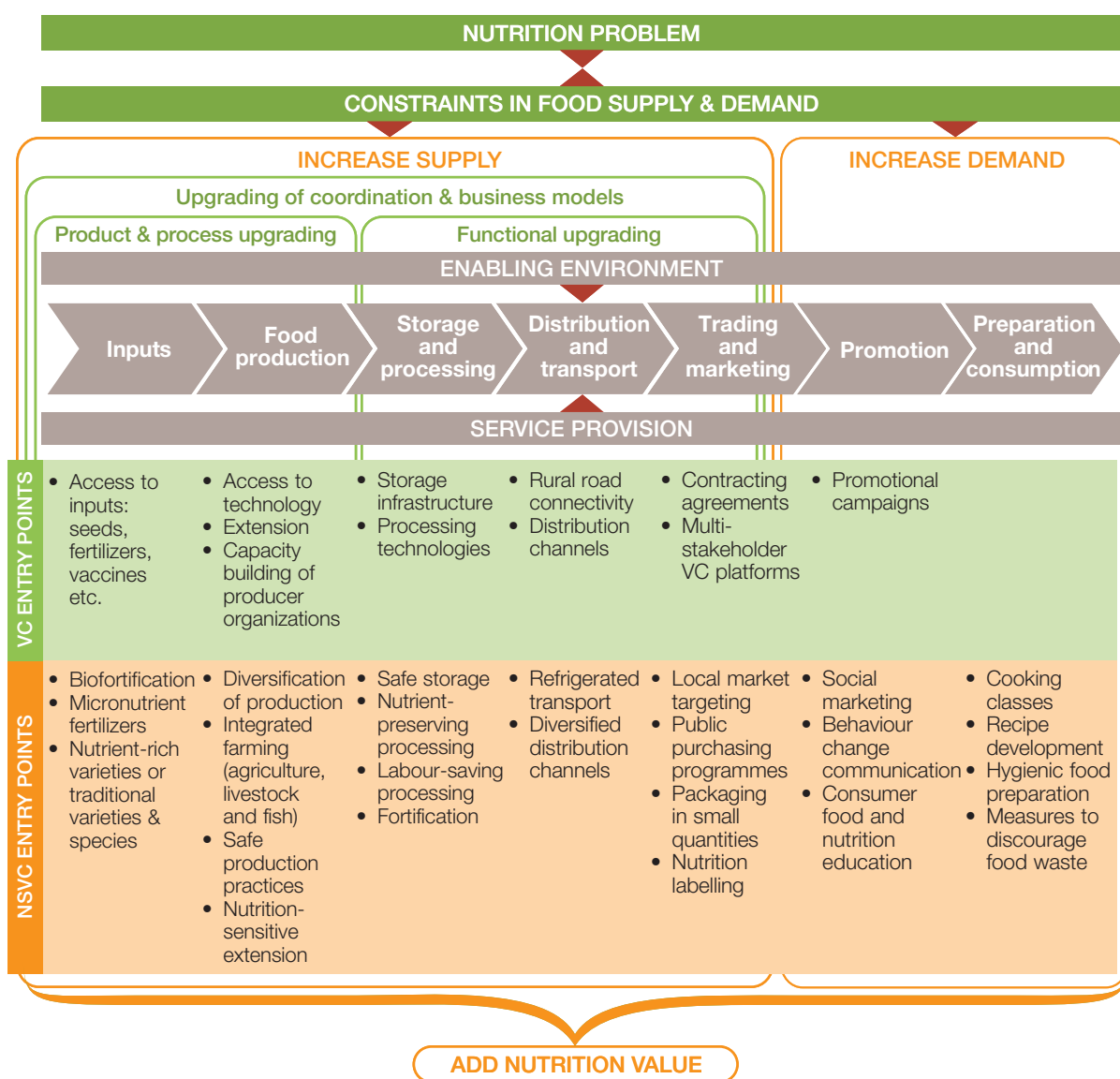
Nutrition value

In a standard VC, the term “value” refers specifically to economic value. However, in the NSVC framework, the term “nutrition value” refers to value that is relevant for nutrition, such as nutritional value, or value that arises from issues of food safety or food loss and waste. These are factors that affect the economic value of the final product and also its quantity, quality and safety, which are essential aspects of shaping nutrition-sensitive food systems. Adding nutrition value is a key and unique element of the NSVC framework, and it should be understood as including the following.

- *Nutritional value:* refers to macronutrients and micronutrients such as proteins, fats, carbohydrates, vitamins and minerals found in a specific food (FAO, 2014a).
- *Food safety:* refers to the absence, or presence in acceptable levels, of microbiological, chemical or physical hazards in food to prevent risks to the health of the final consumer (FAO, 2014a).
- *Food loss and waste:* Food loss is defined as the decrease in quantity (physical loss) or quality (nutritional value, food safety, economic value, consumer appreciation) of food. Food waste refers to loss that happens by choice or negligence, generally at the consumer level (FAO, 2014a). Although food loss and waste encompass elements of nutritional value and safety, as well as elements that cut across the three NSVC strategies (for example, food loss affects food supply), these elements are included in the “Strategies to add nutrition value along the chain” due to their relevance and contribution throughout nutrition-sensitive food systems.

Figure 2 illustrates the overall framework. It notes the three NSVC strategies – increasing supply, adding nutrition value and increasing demand – and provides examples of actions or entry points for each one at different stages of the VC. The figure also shows how standard VC strategies and actions, which generally take place on the supply side of the chain, are integrated into the framework and contribute to NSVC development through additional actions in terms of nutrition value and demand. As the figure suggests, for example, activities directed at demand, including social marketing and behaviour change communication campaigns, and information on preparation of nutritious foods, are not commonly part of a standard VC project. The figure’s colour coding – green for standard VC and orange for NSVC actions – runs throughout the guide.

FIGURE 2. The NSVC framework: Strategies and entry points



Source: De la Peña, Garrett and Gelli, 2018.

As Figure 2 illustrates, activities to increase supply generally focus on the upstream segments of the value chain, from input all the way to trading and marketing, while activities to stimulate demand – such as social marketing and promotion of specific commodities or foods, including activities that showcase their preparation and consumption – mainly take place downstream and closer to the consumer. Activities to add nutrition value – adding or preserving nutritional value, minimizing food loss and ensuring food safety – can take place at all stages of the value chain, which means they can be part of actions to stimulate supply or stimulate demand. There are multiple interconnections and interdependencies among these three strategies so they should not be considered mutually exclusive. For example, investments to reduce food loss will affect food supply, and vice versa. Developing specific NSVCs will entail determining appropriate ways to combine them in order to respond to the specific constraints identified for each project.

How nutrition-sensitive value chains contribute to nutrition

An NSVC primarily contributes to nutrition through improving diet quality. A healthy diet is essential to preventing malnutrition in all its forms, hence the NSVC focus on diets holds potential for addressing nutrition problems in a wide range of contexts. Nutritional status, of course, is the result of multiple factors – such as access to health care, water and sanitation – which projects would need to address through specific additional project activities or through coordination with relevant programmes and sectors.

Improving diet quality through NSVCs may entail filling specific gaps in the diet or intervening across a range of commodities that will provide beneficiaries with access to a diverse and healthy diet (see Box 5). That is why the NSVC approach described in this guide promotes a holistic consideration of the food system and the roles and interactions of different commodities within it, and suggests promotion of multiple value chains within the project area. In agricultural and rural development projects, it is not uncommon for a number of communities or districts to be part of the same project. Each geographic area may have different comparative advantages for certain commodities. As VCs are developed, these commodities may then be traded across the area, thus creating a more robust and also more diverse and nutritious food system.

Although NSVCs primarily contribute to diet quality, investments along the VC can also contribute to other nutrition-relevant dimensions of livelihoods, such as income generation, women’s empowerment, or health and hygiene. The development of a VC may also have impacts on other aspects of development, such as natural resources and the worsening or mitigation of the effects of climate change. It is therefore important to map the different impact pathways through which VCs are expected to lead to improved nutrition and also to consider their additional effects.



BOX 5. A deeper look

From a single VC approach to a multi-chain food system approach

The standard value chain is generally commodity specific, yet diet quality depends on intake of a variety of foods that constitute a healthy diet. Rather than looking at one value chain at a time, and in order to take a more significant step towards improving diets, the roles and interactions of different commodities within the food system must be analysed as a whole. The analysis should take into account the challenges and opportunities that different commodities present to address the nutrition problem, and the project should consider a multiple-commodity and multiple-value-chain approach, which can lead to more nutrition-sensitive food systems overall.

Impact pathways and target groups

NSVCs aim to improve nutrition primarily by improving the diet quality of beneficiaries. For IFAD, this means a focus on the well-being of smallholder producers. This framework, using a smallholder perspective, recognizes the smallholders in their role as producers and in their role as consumers. This section explains how NSVCs can improve the nutrition of these smallholder families.

Three possible impact pathways can lead to changes in consumption of nutritious foods: the income pathway, the own-production pathway and the market pathway. In addition, there are two cross-cutting mediators of these impacts: nutrition awareness and women’s empowerment. Figure 3 identifies these impact pathways, relating them to the three NSVC strategies – increasing supply, adding nutrition and increasing demand – and to their expected outcomes and impacts.

Each NSVC project will need to develop its own theory of change, which will likely entail some combination of these three impact pathways and the two mediators of impact.

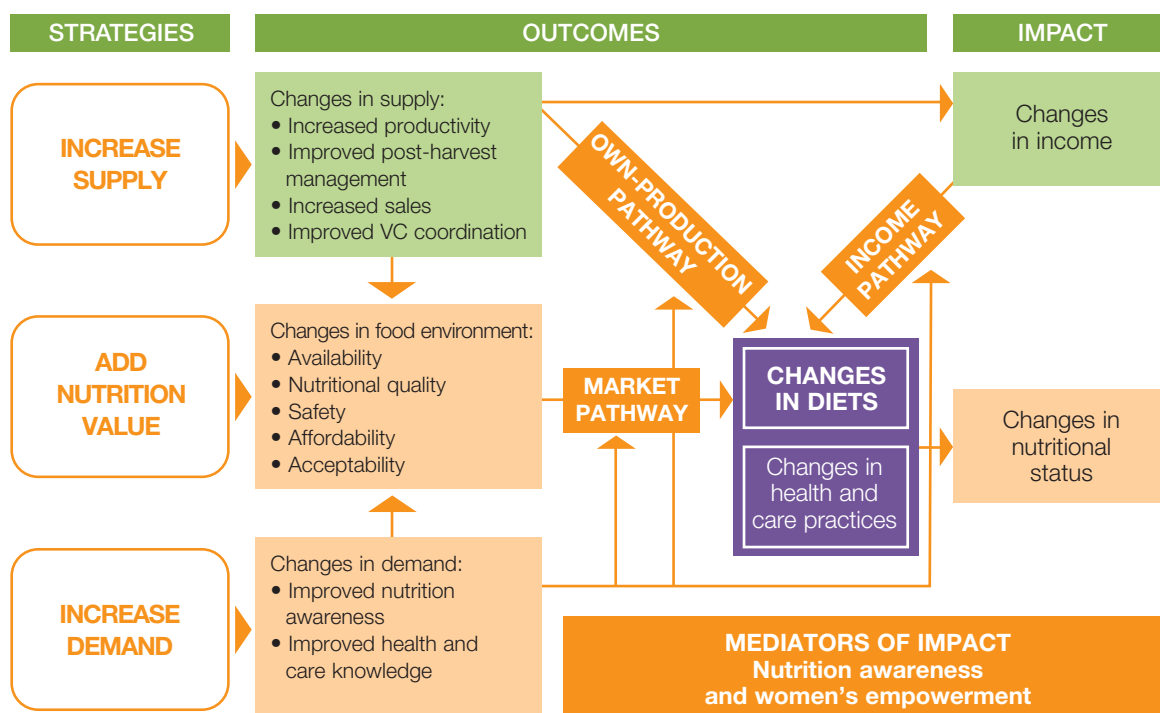
Impact pathways

Income pathway, own-production pathway, market pathway

Impact pathway 1: Income pathway

In a typical VC project, interventions aim to increase marketed agricultural output and, as a result, beneficiary income. In principle, the increase in income could lead to dietary improvements in the household by enabling the purchase of more nutritious and diverse foods, as well as improving access to healthcare, better water and sanitation, and better education. However, evidence shows that dietary and other improvements do not happen automatically with increases in income. In fact, there are a number of factors, especially low nutrition awareness and women’s social status, that can prevent increases in income from leading to improvements in nutrition.

FIGURE 3. Impact pathways of NSVC projects



Source: De la Peña, Garrett and Gelli, 2018.

Therefore, to ensure that an increase in income leads to improvements in nutrition, it is fundamental to complement any income-generation activities with specific actions to raise the target population's nutrition awareness and stimulate its consumption of nutritious foods and, most likely, increase the empowerment of women as well.

Target group: The income pathway's target group is composed of stakeholders whose incomes are expected to rise as a result of a VC project. This includes smallholder producers but also others who may benefit from a VC project, such as processors or individuals who can take advantage of employment opportunities generated along the chain. Women constitute a key target group of this pathway, since where women are empowered or income is controlled by women, there is a higher chance of income increases resulting in improvements in household nutrition.

Impact pathway 2: Own-production pathway

Households consuming nutritious foods out of their own production is the shortest and most direct pathway to achieving changes in consumption. Yet, increased production does not automatically lead to increased consumption within the household. Experience shows that market-focused VC investments can sometimes lead to farmers selling, rather than consuming, the nutritious foods they have produced, or focusing on one or two cash crops, which affects on-farm diversity of production diversity (see Box 6). As with the income pathway, this means there is a need to adopt specific measures to stimulate consumption of nutritious foods. This may require measures to promote nutrition awareness and behaviour change through specific educational outreach, cooking classes, provision of home storage and processing equipment, and incentives to save a portion of the nutritious foods for household consumption.

Target group: The producer households that can benefit from increased consumption of nutritious foods due to increased on-farm availability and diversity are the own-production pathway's main target group. Members of this group would, of course, also be involved in selling their surplus, which means they would also benefit from the income pathway.

Impact pathway 3: Market pathway

Developing NSVCs can catalyse changes in the food environment. NSVC activities can lead to improved availability, affordability and acceptability of foods of high nutritional quality and safety in the market. Each of these elements is important for shaping more nutrition-sensitive food systems. The market pathway's contribution to nutrition can be maximized if the projects also include a focus on local or informal markets where low-income consumers and, most likely, project beneficiaries purchase their food.

- *Availability.* Food availability in the market can improve through a range of NSVC activities. Changes in production such as increasing yields, introducing new varieties and developing counter-seasonal production can increase year-round availability. Changes in post-harvest management, such as promotion of climate-resilient storage and improved processing or packaging practices, can lead to longer product conservation and shelf life. Development of local markets closer to low-income consumers or linkages with institutional markets such as home-grown school feeding programmes can increase availability for nutritionally vulnerable populations, including poor consumers and children.

- *Affordability.* NSVCs can affect affordability in terms of changes in food prices and changes in purchasing power. For example, pricing improves with improvements in efficiency, productivity or quality, while purchasing power is enhanced when NSVC development leads to increased incomes for producers or other VC actors.
- *Acceptability.* Acceptability of nutritious foods can be improved through activities such as behaviour change communication campaigns or nutrition education that, in turn, can lead to higher demand, willingness to pay for nutritious foods and, consequently, increased consumption.
- *Nutritional quality and food safety.* Activities to reduce food and nutrient loss as well as ensure food safety throughout the VC result in improved quality and safety of foods available in the market.

Target group. The market pathway benefits producer households plus a wider set of consumers in the community who benefit from a food system where diverse, good quality and safe foods are more available, affordable and acceptable.

Mediators of impact: Nutrition awareness and women's empowerment

Nutrition awareness. Food and nutrition awareness among consumers is a key mediator of impact for all three impact pathways. Be it consumers in producer households or other consumers in the community, increased nutrition awareness affects food purchases and willingness to pay, as well as food preparation and food distribution within the household. Without adequate knowledge or awareness of nutrition and healthy dietary practices, increases in production and incomes will have limited effect on food choices and diets.



BOX 6. A deeper look

The importance of diversity – in production, diet, environment and gender

Diversity in consumption and production is essential for inclusive value chain development and for nutrition. Diversification is a key factor for all impact pathways while also being central to environmental sustainability, response to climate change and women's empowerment.

- *Risks from specialization and climate.* In VC projects targeting smallholders, diversity of production can mitigate the risks of specializing in one commodity, making smallholders less susceptible to shocks from weather, climate change, pests and diseases, or price fluctuations that may compromise income generation (income pathway).
- *Nutrition.* A diverse and healthy diet, which is central to addressing all forms of malnutrition, depends on access to a diverse set of foods, either from the producer's production (own-production pathway) or from the market (market pathway).
- *Environment.* From an environmental and climate perspective, diversity serves additional goals in terms of climate adaptation and resilience. It also serves the conservation of biodiversity by, for example, promoting nutrient-rich neglected and underutilized crops. These neglected crops are often local and traditional, so their utilization becomes an important part of preserving cultural heritage. A focus on these crops has potential to encourage participation by indigenous peoples in the social, political and economic processes dealing with these crops and, consequently, promote their empowerment.
- *Gender.* From a gender perspective, diversification of production is instrumental in creating opportunities for the incorporation of commodities or varieties that women control and benefit from, in terms of income and management of production.

Women's empowerment. Women are in a unique position at the nexus of agriculture and nutrition. In addition to their economic roles as agricultural producers and, often, their roles as processors, marketers and vendors, they are responsible for food choice, consumption and preparation within the household, as well as for childcare and feeding practices. This means that improvements in women's decision-making power and control over resources can have significant positive effects on their own nutrition and that of other household members, especially children. Yet, increasing women's engagement in agriculture and VCs can also have negative effects on nutrition, if it leads to situations where women are overburdened, or if it reduces the time they can dedicate to caregiving and food preparation. Careful consideration and understanding of women's time allocation and control over resources, as well as their social status and roles in and outside the household, are essential for ensuring that development of NSVCs promotes women's empowerment in ways that are conducive to positive nutrition outcomes.

Nutrition-sensitive value chains: key messages

- An NSVC framework can be useful in unpacking the complexity of food systems and identifying opportunities to contribute to nutrition at different stages of the value chain.
- NSVCs can address nutrition problems by shaping food value chains to alleviate constraints in supply and demand of specific foods and add nutrition value.
- NSVCs aim to increase consumption of nutritious and safe foods, which contributes to healthier diets for all members of the household. Further contributions to nutrition outcomes can be achieved through increased nutrition awareness and women's empowerment.
- The NSVC framework described here promotes the application of a nutrition lens to value chains, and thus entails some fundamental shifts from the standard VC development approach. This can include:
 - shifting from a focus on supply and market demand to one that takes consumers' nutritional needs into consideration – this may involve creating demand rather than just meeting existing demand, and it calls for investments in areas such as social marketing campaigns, food and nutrition education, and behaviour change communication (BCC), which, traditionally, have not been part of VC development projects;
 - shifting from a commodity focus that addresses one value chain at a time to one that considers several commodities and their roles within the food system in order to contribute to healthier diets;
 - targeting smallholders and recognizing them in their roles as producers as well as consumers;
 - broadening the concept of value from a purely economic focus to one that incorporates value that is relevant for nutrition and, thus, requires understanding nutritional value, food safety and food quality;
 - taking into account both the positive and the negative additional effects that VC development may have, such as consideration of gender and environment, and considering linkages with other programmes and sectors as needed to create a more comprehensive and effective approach to improving nutrition.

PART II. Nutrition-sensitive value chain project design process

Overview of the project design process

The process for designing NSVC projects comprises a sequence of four diagnostic studies (Steps 1 to 4) that identify the appropriate activities and interventions to support NSVCs and then Step 5, which suggests how to integrate the information from the studies in Steps 1 to 4 into the project design, paying special attention to those elements that are new or different when using a nutrition-sensitive approach.

Steps 1 to 4: Diagnostic studies for project design

A sequence of studies and analyses is needed to understand the nutrition context and potential interventions for the project. Namely:

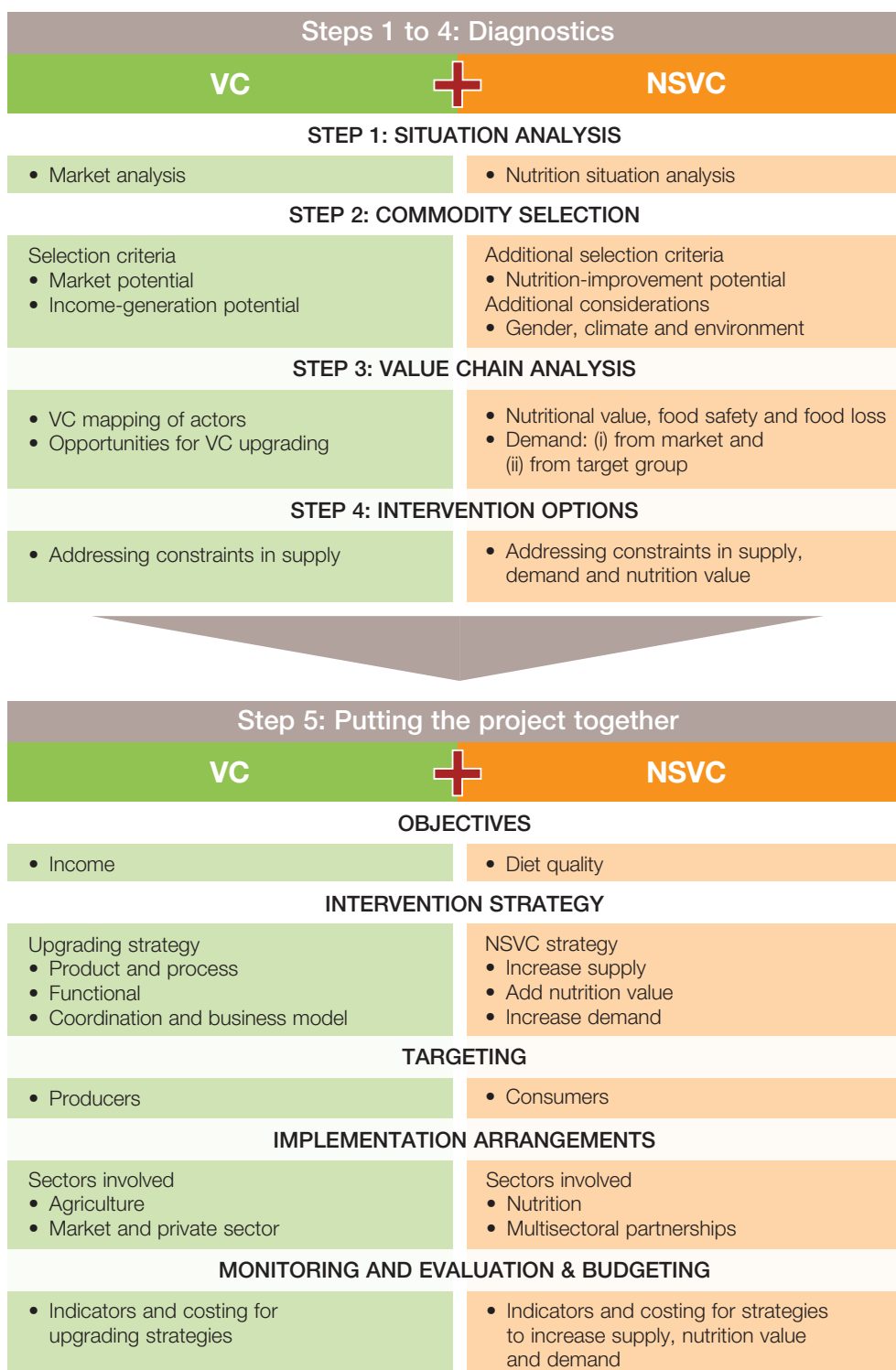
- Step 1: Nutrition situation analysis. Identify nutrition problems faced by the project's target population.
- Step 2: Commodity selection. Identify the commodities that can address the nutrition problem while also making business sense.
- Step 3: NSVC analysis. Undertake VC analyses of the selected commodities using a nutrition lens, in order to identify constraints in supply, demand and nutrition value.
- Step 4: Identification of intervention options. Identify the intervention options that respond to the nutrition problem and its context, and that the NSVC project can invest in.

Step 5: Putting the project together

During the design process, those who are putting the project together have to take into account the different pieces of information identified in the diagnostics, plus a number of elements, such as setting objectives, developing an intervention strategy, selecting the target group, developing the implementation arrangements and project budget, and setting up a monitoring and evaluation (M&E) framework. Step 5 takes the results from Steps 1 to 4 into account as these elements are developed.

To highlight the differences and specificities of NSVC project design, Figure 4 explains the modifications or additions needed at each stage of the design process to make a VC project nutrition sensitive, as compared with a standard VC project. These aspects are explained below in more detail, with full guidance for each step.

FIGURE 4. Overview of differences between VC projects and NSVC projects during the design process



Steps in NSVC project design

Part II of this guide provides detailed guidance for conducting the diagnostic studies associated with each of Steps 1 to 4, while also discussing how these fit into project design in Step 5: Putting the project together. Figure 5 provides an overview of the steps in NSVC project design, highlighting the key elements of each one.

For each of the diagnostic studies (Steps 1 to 4), the guide answers the following questions.

- Why is it important to conduct this step? – looks at the main objective of each step.
- What information is needed? – determines research questions and information needs.
- How will the information be collected? – includes secondary data sources and proposes primary data collection methods..
- How does this step help project design? – provides key information that will inform project design.

References and additional resources for further reading related to each step are available in the References and Resources section at the end of this volume.

FIGURE 5. Overview of the nutrition-sensitive value chain design process

Diagnostics					
	STEP 1: Nutrition situation analysis	STEP 2: Commodity selection	STEP 3: NSVC analysis	STEP 4: Intervention options	STEP 5: Putting the project together
Key elements of each step	<ul style="list-style-type: none"> • Nutritional status • Causes of malnutrition • Diet characterization and identification of diet gaps 	Selection criteria: <ul style="list-style-type: none"> • Nutrition-improvement potential • Market potential • Income-generation potential • Gender • Environment and climate 	<ul style="list-style-type: none"> • VC mapping and characterization • Analysis of constraints and opportunities in: <ul style="list-style-type: none"> - Supply - Nutrition value - Demand 	<ul style="list-style-type: none"> • Types of intervention • Cost-effectiveness • Target group • Tensions and trade-offs 	Objective
					Intervention strategy
					Targeting strategy
					Implementation arrangements
					M&E
					Budget

Operational considerations on conducting the diagnostic studies

Approach

Although the steps for the NSVC studies are presented as a sequence, they also can be adapted to specific project situations, as in cases where commodities have been preselected, or where nutrition situation analyses or VC studies are readily available.

The approach to conducting the diagnostic studies is both practical and design friendly. Project designers need reliable information and data for undertaking design. Yet time and resources are typically limited during the design phase. Studies for guiding project formulation must rely largely on secondary data sources. Fieldwork for primary data collection cannot be large scale or exacting in the way in-depth research can, but fieldwork during design can nevertheless fill important knowledge gaps and contextualize the information. The field experiences in Indonesia and Nigeria were essential for suggesting what would be feasible to undertake in a project context, while producing reliable information that the project could confidently use in design. The tools and methods proposed follow the principles that are common to quality research.

- **Feasibility.** They can be implemented in a field context within a given time frame and with given resources and capacities.
- **Reliability.** They can produce consistent, accurate and relevant results.
- **Validity.** They measure what they are intended to measure.
- **Replicability.** They can be replicated and applied across different contexts.
- **Triangulation.** Findings can be further cross-checked among the different data sources, which include key informant interviews, focus groups, individual surveys and secondary data.

Timeline

Steps 1 to 4 can reliably be completed within six months. Although it will depend on the specific institutional project cycle, it would seem reasonable that most project design processes would allow this amount of time for diagnostic studies. The timeline can be reduced if some activities or steps can be conducted simultaneously, or expanded if necessary due to the project's characteristics or the number of commodities. Draft terms of reference, tools and templates that can be used in each step are provided in Volume II of this guide.

Process for conducting the diagnostics

While information needs, tools and approaches will differ at each step, the process across steps is similar. In general, the process for conducting the diagnostic studies includes a desk review, fieldwork and analysis. The list below explains the key activities and estimated duration of each.

Desk review and preparation for fieldwork (2 to 3 weeks, depending on the step and project)

- Develop a work plan and identify preliminary research questions.
- Gather secondary data by reviewing the relevant literature and analyse data as needed. Guidance on specific secondary data sources is provided for each step (see Tables 1, 2 and 3). A report that summarizes the secondary data will be useful to begin describing the context, further develop research questions and hypotheses, identify data gaps and, in turn, inform the fieldwork.
- Prepare a fieldwork plan, and determine and adapt tools and methods to be used in the field.

Fieldwork (2 to 4 weeks, depending on the step and project)

- Undertake primary data collection. Each step requires determining which particular approach, methods and tools to use. Examples of tools, including questionnaires, templates and interview guides, are included in Volume II.

Analysis and report-writing (2 to 3 weeks, depending on the step and project)

- Carry out data analysis and report-writing. Analyse findings from secondary and primary data collection and prepare a report that provides relevant considerations for project design, including identification of specific interventions to create an NSVC.

The process for conducting Step 4 can vary from what is proposed here, since this step builds on information collected in the previous diagnostics (for further detail see Step 4: Identification of intervention options.)

Team composition and expertise

Conducting the NSVC diagnostic studies in Steps 1 to 4 calls for expertise in nutrition, agriculture and value chains. For greatest efficiency and continuity, one multidisciplinary team would be the preferred option, with a team of independent experts or an organization, including local experts, conducting all the diagnostic studies in Steps 1 to 4. This will prove beneficial by accelerating the process, avoiding duplication and ensuring that neither the data itself nor the understanding of it is lost in the process. Although the steps are considered sequential, some steps may move quickly, and some can even be conducted simultaneously, if they are carried out by the same team. Steps can also be conducted by separate teams, in which case it will be important to ensure adequate documentation of each step's data collection and the key findings for subsequent teams to use.³

3. In the case of IFAD projects, it is recommended that the IFAD project design mission include a member of the team that conducted the NSVC diagnostic studies in order to ensure adequate integration of findings in the Project Design Report.

Step 1: Nutrition situation analysis

Diagnostics					
	STEP 1: Nutrition situation analysis	STEP 2: Commodity selection	STEP 3: NSVC analysis	STEP 4: Intervention options	STEP 5: Putting the project together
Key elements of each step	<ul style="list-style-type: none"> • Nutritional status • Causes of malnutrition • Diet characterization and identification of diet gaps 	<p>Selection criteria:</p> <ul style="list-style-type: none"> • Nutrition-improvement potential • Market potential • Income-generation potential • Gender • Environment and climate 	<ul style="list-style-type: none"> • VC mapping and characterization • Analysis of constraints and opportunities in: <ul style="list-style-type: none"> - Supply - Nutrition value - Demand 	<ul style="list-style-type: none"> • Types of intervention • Cost-effectiveness • Target group • Tensions and trade-offs 	Objective
					Intervention strategy
					Targeting strategy
					Implementation arrangements
					M&E
				Budget	



Why is it important to conduct this step?

The objective of Step 1: Nutrition situation analysis is to identify nutrition problems in the target population, specifically in terms of dietary gaps, and to start identifying commodities that can address those problems. In a standard VC project, the situation analysis begins with a market assessment, while an NSVC project initiates analysis by identifying the nutrition problem in the target population. This information feeds into Step 2: Commodity selection, which will identify which of the commodities that have potential to improve nutrition also make business sense.

What information is needed?

Malnutrition is a multidimensional phenomenon, and food is only part of the solution. The causes of poor nutrition are complex and cut across different sectors, including food and food choices, health and hygiene, and, for children, care and feeding practices. An NSVC project will mainly address the food-related causes of malnutrition – namely food security and dietary quality. However, it is also important to understand the overall nutrition problem and the different factors affecting the nutrition situation in order to determine the adequate intervention strategy and to coordinate with other sectors if needed (see Box 7).

The nutrition situation analysis is composed of three sections, each with key questions and associated information needs.

Section 1: Nutritional status: What is the prevalence of the different forms of malnutrition?

- Prevalence of child malnutrition: stunting, wasting, underweight, overweight and obesity
- Prevalence of malnutrition among women: underweight, overweight and obesity
- Prevalence of micronutrient deficiencies among children and women, especially iron, iodine, vitamin A and zinc

Section 2: Causes of malnutrition: What are the causes of malnutrition?

- Basic causes. Consider: i) policies and programmes related to food and nutrition security, ii) prevalence of poverty, and iii) women's status, including equality, empowerment and control over resources. The explanation of these basic causes must be brief, geared towards identifying key policies and programmes operating in the area, and provide an overview of socio-economic conditions in the area and prevailing gender practices and norms, as well as any other key political, institutional or social and cultural factors that may affect nutrition.



BOX 7. Insights from the field

Focusing on diet characterization, while identifying non-dietary factors as well

A healthy diet is critical for dealing with malnutrition, but it is also important to recognize non-food-related causes of malnutrition. In both **Indonesia** and **Nigeria**, the high rates of open defecation and lack of access to safe water were issues of concern.

Insight. Although a healthy diet is an objective in itself, it remains important to map the situation of the other causes of malnutrition – including care and feeding practices, women's empowerment and environmental health – to identify non-dietary factors that contribute to nutrition problems. These can then be addressed through additional activities in the project or through coordination with other actors, especially those in other sectors.

- Underlying causes. Analyse: i) food security: prevalence of food insecurity, including across seasons, ii) care and feeding practices: prevalence of poor child feeding and other care practices, use of women's time, and iii) environmental health and access to health services: access to safe drinking water and sanitation, access to health services. The analysis of underlying causes of malnutrition will focus on the food-related causes of malnutrition, especially with regards to food security and feeding practices, as well as gender norms and practices that influence intrahousehold food distribution.
- Immediate causes. Assess: i) dietary intake and ii) health status. Dietary intake issues are central to NSVC and are included below under Section 3: Diet characterization and identification of diet gaps. In terms of health status, only a brief indication of major health issues would be needed here.

Section 3: Diet characterization and identification of diet gaps: What are the main dietary problems?

- Food consumption: i) food consumption patterns, ii) food availability and sources of food, iii) food stability, iv) food affordability, and v) food preferences (giving insight into acceptability), cultural norms and taboos, and intra-household food distribution dynamics. Factors that affect food choices or food consumption, such as seasonality, should be described here as well (see Box 8).
- Dietary problems: estimation of the existing diet gap. This section, the central element of the nutrition assessment, zooms in to the dietary intake of the target group to identify foods that may be insufficiently or inadequately consumed and thus contribute to food-based nutrition problems, including poor dietary quality. This analysis will provide a list of food groups and food items that hold potential to address the nutrition problem in the target population, and will be the basis of Step 2: Commodity selection.

How will the information be collected?

As with all steps, the nutrition situation analysis should start with a desk review. Experience from IFAD-funded VC projects in Nigeria and Indonesia showed that a review of nutritional status indicators and causes of malnutrition can be covered primarily through secondary data sources, with some additional key informant interviews (KIIs) to contextualize, ground truth and fill in the gaps. Primary data collection in the field should focus on diet characterization and identification of diet gaps, which calls for identifying the food-related causes of malnutrition.



BOX 8. Insights from the field

Factoring seasonality in the analysis

In **Nigeria**, the analysis revealed that seasonality played a key role in food consumption patterns, as is the case in many countries. Cereals were consumed year-round, but portion sizes were reduced in certain seasons. Consumption of tubers, legumes, nuts, vegetables and fruits was highly dependent on variations in seasonal production, while consumption of animal-source foods was impacted by seasonal fluctuations in purchasing power.

Insight. Beyond identified dietary gaps, the study revealed the importance of factoring seasonality into the project's design, in terms of both food and cash availability.

When analyzing the information to provide a picture of the nutrition situation, it is common not to have fully comprehensive data or precise statistics. Still, the results should be useful for project design, as it is often sufficient to have a general idea of the situation and context, including major problems, constraints, opportunities and issues. For example, it is usually enough to know that vitamin A deficiencies are high and are a public health concern or that consumption of fruits and vegetables is below the recommended levels, even if the exact prevalence of deficiency in each community or among each group is not available. Table 1 details the information needs and indicates key secondary data sources and primary data collection tools and methods to guide the nutrition situation analysis. Further details on tools and resources are presented in Volume II.

How does this step help project design?

- *Project objectives*
NSVC projects must include explicit nutrition objectives. Identification of the nutrition problem should be the basis for setting the objectives of the project.
- *Identification of vulnerable groups*
The analysis of the nutrition situation should be disaggregated by age, gender, location and, when applicable, other population groups, such as migrants or ethnic groups. Identifying vulnerable groups during this analysis will inform the project's targeting strategy.
- *Identification of non-dietary problems*
Although an NSVC project will mainly contribute to improving nutrition through diet quality, it is also essential to map non-dietary causes of malnutrition, such as lack of water and sanitation facilities. This will enable the project to: i) incorporate additional components or activities outside the investments in NSVC themselves, or ii) coordinate with other organizations or governments working in these areas to achieve programmatic convergence. This means having programmes working on the various determinants of nutrition come together at the same time and place to focus their attention on the same intended beneficiaries, to ensure the multisectoral causes of malnutrition are effectively and simultaneously addressed. This more holistic analysis also helps to ensure that the project itself is successful, even in terms of addressing the main aim of improving diet quality, as not considering these other issues could potentially prevent the NSVC interventions from having their desired positive effect on nutrition.
- *Dietary gaps*
Step 1 finishes with a list of food groups and food items that hold potential for addressing the dietary gaps and problems of the target population (see Box 9). The identified dietary gaps and problems will be the basis of Step 2: Commodity selection.



BOX 9. Insights from the field

Addressing the needs of key vulnerable groups

In **Indonesia**, the nutrition situation analysis found that the nutrition gap for young girls was particularly severe. Young girls were given the lowest priority at meal time and were significantly worse off in terms of energy and protein intake, with very low levels of fruit and vegetable consumption. Instead of selecting key foods for the population in general, the team selected foods that could address the dietary gap of female adolescents and, in turn, have positive spin-off effects in reducing low birth weight and stunting.

Insight. The list of key foods – those that will be used as the basis for Step 2: Commodity selection – can be developed according to the needs of especially vulnerable groups. In Indonesia, the team identified female adolescents as a key target group for the NSVC project, and recommended incorporating additional measures in the project to ensure their participation and benefit.

TABLE 1: Summary of research questions, methods and tools - Step 1: Nutrition situation analysis

Section 1: Nutritional status				
Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
What is the prevalence of malnutrition?	<ul style="list-style-type: none"> • Prevalence of child malnutrition: stunting, wasting, underweight, and overweight and obesity • Prevalence of malnutrition among women: underweight, overweight and obesity • Prevalence of nutrient deficiencies among children and women, especially iron, iodine, vitamin A and zinc 	<p>Demographic and Health Surveys (DHS), nutrition and health surveys (NHS), Standard Monitoring and Assessment of Relief Transitions (SMART), Multiple Indicator Cluster surveys (MICS), data from ministries of health, UNICEF, WHO, Global Nutrition Report</p>	<ul style="list-style-type: none"> • Kils with: nutrition officials at province/local level, nutrition experts, Scaling Up Nutrition (SUN) focal points, development partners working on nutrition (WFP, UNICEF, FAO, NGOs, bilateral assistance organizations) 	<p>Nutritional status will be mainly characterized through a secondary data review. Selected Kils can contextualize the information on the project area.</p>
Section 2: Causes of malnutrition				
Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
What are the basic causes of malnutrition?	<ul style="list-style-type: none"> • Policies and programmes related to food and nutrition security • Prevalence of poverty and economic, social and political conditions • Status of women's empowerment and control over resources 	<ul style="list-style-type: none"> • National nutrition strategies and programmes, relevant studies, socio-economic surveys and databases, Women's Empowerment in Agriculture Index (WEAI) 	<ul style="list-style-type: none"> • Kils with: government officials from ministries of health, agriculture, rural development and women's affairs, SUN focal points, development partners 	<ul style="list-style-type: none"> • Mapping relevant policies and programmes (government, NGOs) that are already active in the project area is key for characterizing the nutrition problem, as well as for ensuring complementarity and coordination.

Section 2: Causes of malnutrition

Research question	Information needs	Secondary data	Data collection methods/tools	Primary data	Tips and comments
What are the underlying causes of malnutrition?	<p>FOOD SECURITY</p> <ul style="list-style-type: none"> Prevalence of food insecurity 	<ul style="list-style-type: none"> Food Consumption Score (FCS), Food Insecurity Experience Scale (FIES), Coping Strategies Index (CSI), Comprehensive Food Security and Vulnerability Assessments (CFSVAs), other food security studies 	<ul style="list-style-type: none"> KIIs with: food and agriculture sector professionals, development partners, community leaders 	<ul style="list-style-type: none"> An adequate characterization of the food security situation in the area is central to the design of NSVC projects. Keep this characterization brief, as the analysis of key dimensions of the food environment (affordability, availability) is covered in Section 3. Diet characterization and identification of diet gaps. 	
	<p>CARE AND FEEDING PRACTICES</p> <ul style="list-style-type: none"> Prevalence of poor child feeding and other care practices, specifically breastfeeding and complementary feeding practices Women's time use, men's support role 	<ul style="list-style-type: none"> MIC surveys Infant and young child feeding (YCF) data and studies Gender studies 	<ul style="list-style-type: none"> KIIs with: professionals from the health sector, gender experts, development partners, UNICEF, WHO, NGOs 	<ul style="list-style-type: none"> Although care and feeding practices, as such, may not be part of the NSVC strategy, an adequate understanding of these practices is needed to: i) ensure that women's VC engagements do not have negative effects on nutrition, and ii) identify opportunities to improve complementary feeding through local food-based approaches. 	

Section 2: Causes of malnutrition

Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
	<p>ENVIRONMENTAL HEALTH AND ACCESS TO HEALTH SERVICES</p> <ul style="list-style-type: none"> • Access to safe drinking water • Access to improved sanitation facilities (or open defecation rates) • Access to or use of health services 	<ul style="list-style-type: none"> • MIC surveys, DHS, NHS, health surveys, WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation, Global Nutrition Report 	<ul style="list-style-type: none"> • KIs with: professionals from the health sector, development partners, WHO, NGOs 	<ul style="list-style-type: none"> • Although water, sanitation and hygiene (WASH) investments are not normally part of an NSVC strategy, it is essential to determine if non-dietary nutrition problems are an issue in the target population. This will ensure the project includes any needed additional activities or coordinates with other organizations working on WASH.
What are the immediate causes of malnutrition?	<p>DIETARY INTAKE</p> <ul style="list-style-type: none"> • Prevalence of inadequate food consumption <p>HEALTH STATUS</p> <ul style="list-style-type: none"> • Prevalence of illness: malaria, HIV/AIDS, diarrhoeal diseases, for example 	<ul style="list-style-type: none"> • See Section 3: Diet characterization and identification of diet gaps 	<ul style="list-style-type: none"> • See Section 3: Diet characterization and identification of diet gaps • KIs with: professionals from health sector 	<ul style="list-style-type: none"> • See Section 3: Diet characterization and identification of diet gaps. • Although health investments will not be part of the NSVC strategy, a brief indication of major health problems can be included.

Section 3: Diet characterization and identification of diet gaps

Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
<p>What are the food consumption patterns and the main dietary problems or gaps?</p>	<p>FOOD CONSUMPTION PATTERNS</p> <ul style="list-style-type: none"> • Food consumption patterns: commonly and inadequately consumed food groups and food items • Food availability and sources of food: own-production, market, collected from the wild, social assistance programmes • Food stability: seasonal patterns affecting year-round availability • Food affordability: food expenditure and household purchasing power • Food preferences: norms and taboos, and intra-household food distribution dynamics, especially food intake of children and women <p>DIETARY PROBLEMS</p> <ul style="list-style-type: none"> • Nutrient content of commonly/poorly consumed foods • Optimal dietary intake • Existing diet/nutrient gaps 	<ul style="list-style-type: none"> • Food security data: household consumption and expenditure surveys, food price data, cost of diet studies • Household diets: food consumption surveys; Food Consumption Score (FCS), Household Dietary Diversity Score (HDDS), Fill-the-Nutrient Gap studies, other reports • Children's diet: DHS or MIC surveys, Minimum Dietary Diversity (MDD), Minimum Meal Frequency, Minimum Acceptable Diet (MAD) surveys and studies • Women's diets: Minimum Dietary Diversity for Women (MDD-W) • Food composition tables and databases from a source such as the International Network of Food Data Systems (INFOODS) • Dietary recommendations: food-based dietary guidelines (FBDGs), recommended daily allowances (RDAs) 	<ul style="list-style-type: none"> • Minimum dietary diversity for women (MDD-W) • Four-cell Analysis (FCA)⁴ • Seasonal food calendar • Focus group discussions (FGDs) with: women, men (covering needs of all household members) • Observation: community transect walk, observation of meal preparation and hygiene • KIs with: nutrition professionals, development partners 	<ul style="list-style-type: none"> • Characterization of the food system and the food consumption patterns should be adequately documented, as it will inform not only Step 1: Nutrition situation analysis, but also Step 2: Commodity selection, and Step 3: NSVC analysis. • Since relevant secondary data on food consumption is rarely available, primary data collection will likely be needed. The MDD-W is a relatively easy to collect indicator of dietary quality, which reflects micronutrient adequacy and has potential to characterize food consumption patterns for women of reproductive age, a key vulnerable group for nutrition. Although this is the preferred tool, it should be combined with other tools, such as food calendars and FGDs, to complete data on quantities, food sources and seasonal trends. • FBDGs are useful in identifying dietary gaps, as they provide guidance on foods consumed rather than nutrients (RDAs are set in Kcal or grams). However, FBDGs may not be available or relevant for the project area. Information on local varieties and locally used foods is especially difficult to come by. • The combination of a secondary data review, MDD-W, FCA, seasonal food calendars, KIs and FGDs provides sufficient triangulation to confidently identify significant dietary problems and gaps in the target population.

Note: The list of primary and secondary data collection methods and tools included in the table is not exhaustive, but contains the most typical data sources

4. FCA is a rapid assessment technique developed to assess the amount and distribution of crop diversity in farming communities. More information on how this participatory method can be adapted to the needs of NSVC is provided in Volume II.

Step 2: Commodity selection

Diagnostics					
	STEP 1: Nutrition situation analysis	STEP 2: Commodity selection	STEP 3: NSVC analysis	STEP 4: Intervention options	STEP 5: Putting the project together
Key elements of each step	<ul style="list-style-type: none"> Nutritional status Causes of malnutrition Diet characterization and identification of diet gaps 	Selection criteria: <ul style="list-style-type: none"> Nutrition-improvement potential Market potential Income-generation potential Gender Environment and climate 	<ul style="list-style-type: none"> VC mapping and characterization Analysis of constraints and opportunities in: <ul style="list-style-type: none"> Supply Nutrition value Demand 	<ul style="list-style-type: none"> Types of intervention Cost-effectiveness Target group Tensions and trade-offs 	Objective
					Intervention strategy
					Targeting strategy
					Implementation arrangements
					M&E
					Budget



Why is it important to conduct this step?

The objective of Step 2 is to select food commodities that can address the nutrition problem in the target population but also make business sense for engaging in VC development (see Box 10).

In standard VC projects, commodities are selected based on their market and income-generation potential for smallholder producers (IFAD, 2014a). However, NSVC projects require an additional selection criterion: their potential to improve nutrition.

What information is needed?

The overarching research question for Step 2 is: *Which commodities have potential to address the nutrition problem and also have market and income-generating potential for smallholder producers?*

Step 1 identifies a long list of nutritious commodities that the project can promote. Then, Step 2 more systematically assesses the potential of each commodity based on three criteria: i) nutrition-improvement potential, ii) market potential, and iii) income-generation potential. In addition, the selection must consider three other essential areas: i) the government's interest and priorities, ii) environmental sustainability and climate resilience, and iii) gender. Figure 6 illustrates how these different criteria interact. Market potential and income-generation potential (in green) are standard VC criteria for commodity selection, whereas nutrition-improvement potential (in orange) is specific to NSVCs. These three main criteria must be placed in the rural development context and, thus, take into consideration government priorities, environmental sustainability and climate resilience, and gender.

Through the literature review, field experiences, and national and expert consultations, additional sub-criteria were agreed on, to highlight key elements in the ways each criterion contributes to successful development of an NSVC. Research questions and associated information needs for each criterion and sub-criteria are below and further explained in Table 2.



BOX 10. What do we mean by...?

Food, food commodity and value chain

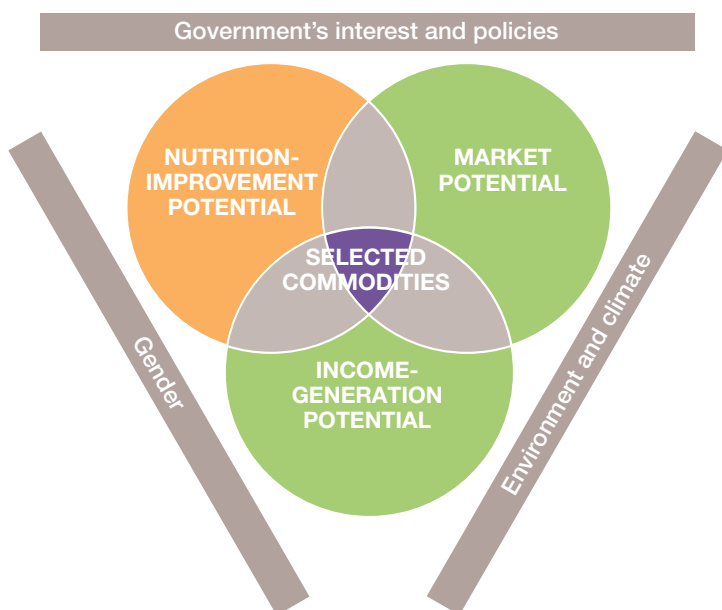
Throughout this guide, three terms are used in an interrelated way: food, food commodity and value chain.

Food generally refers to what is consumed and can be composed of a single or multiple ingredients. When analysing specific dietary gaps in Step 1: Nutrition situation analysis, it is important to identify these different ingredients to characterize nutrient intake.

Food commodity refers to food that becomes commercialized or traded. The list of foods with potential for addressing the dietary gaps of the target population will then be analysed against market and income-generation potential criteria under Step 2: Commodity selection. The term commodity has been brought into this guide from the VC literature, and it is used primarily in Step 2, which aims to select food commodities that are good for both nutrition and business.

Value chain refers to the different stages needed to bring a food commodity from production to consumption. Once commodities are selected, the NSVC analysis of Step 3 will analyse their respective value chains with a nutrition lens. A VC usually refers to a specific product and serves a specific market. Thus, from just one commodity, say cassava, there can be multiple VCs, such as fresh cassava, cassava flour and cassava leaves.

FIGURE 6. Criteria for commodity selection



1. Nutrition-improvement potential: What commodities can address the target population's nutrition problem identified under Step 1: Nutrition situation analysis?

- Food consumption levels: identify low, inadequate or seasonal consumption.
- Food preferences: identify commodities that are familiar and culturally acceptable to the target group.
- Food composition: analyse the nutritional value of foods and identify commodities that are rich in the macronutrients or micronutrients lacking in the diets of the target population.

These three sub-criteria – food consumption levels, preferences and composition – help to identify commodities whose increased consumption would address the nutrition problem and would have potential for consumer acceptance. These foods may currently be consumed insufficiently, in terms of frequency or volume, or their composition may be particularly high in the nutrients lacking in the local diets. The criteria on food preferences are important to account for taste and socio-cultural norms, since it will be challenging to increase the consumption of foods that face serious acceptability issues.

2. Market potential: Which commodities have market or growth potential?

- Market demand: identify existing, potential or unmet market demand, as well as the specific markets – local, provincial, national or international – that demand comes from.
- Private-sector interest and upgrading potential: gauge the private sector's interest and opportunities for VC upgrading, given the services, capacities, infrastructure and technologies available.
- Agroecological conditions: assess whether agroecological conditions and climate projections allow for increases in production or productivity, indicating the commodity's growth potential (see Box 11).

These sub-criteria – market demand, private-sector interest and upgrading potential, and agroecological conditions – are essential to ensuring that added investment in production and VC development will be successful and sustainable. They give an indication of whether there will be demand for the commodity if the NSVC project decides to promote it. To give a chance to commodities that may be nutritious and respond to the nutrition problem, but may not yet be well-known among producers or consumers, market demand analyses should also consider potential demand. Market analyses should also consider the potential for growth, either as growing demand or in terms of increasing market share. These sub-criteria also note whether there is interest from other actors in developing the VC – essential for needed investment and demand along the entire VC that the project itself will not be likely to directly promote – and if, in fact, agroecological conditions will allow increased production should demand increase.

3. Income-generation potential: Which commodities can generate income for smallholder producers and rural populations?

- Levels of engagement of smallholder producers: assess to what extent the target group – producers or other rural populations with a special focus on the most vulnerable – can be engaged in the VC.
- Margins: identify commodities that provide high margins and, thus, profits for the primary project beneficiaries (smallholder producers).
- Employment generation: identify VCs whose development would create significant numbers of jobs either on- or off-farm.

Assessing income-generation potential for smallholders is needed because, although the commodity might have a solid market with potential for growth, there may be barriers to entry that hold special challenges for smallholder producers. For example, smallholders may not have the power to engage equitably with market actors or their production costs may be too high (relative to other producers) in ways that an NSVC project would not be able to address. This criterion also highlights that – at the critical point of determining which commodities to promote – account should also be taken as to which ones hold the greatest potential for job creation among smallholders and the rural population that are the targets of the investment.

These three criteria – nutrition-improvement potential, market potential and income-generating potential – are the basis of the commodity selection process. As explained below and illustrated in Figures 7a and 7b, commodities will be scored against each criterion and its sub-criteria to identify those that hold potential across the three dimensions (see Boxes 12 and 13 for further detail). However, there are some additional considerations that the commodity selection process should include: government’s interest and priorities, gender, environment and climate.



BOX 11. Insights from the field

Agroecological differences matter

In **Indonesia** and **Nigeria**, the studies revealed that differences across sites matter for commodity selection. Market and income-generation potential varied significantly by agroecological zone in Nigeria. In Indonesia, remoteness significantly influenced market potential, and the dietary needs of coastal versus inland, and migrant versus native populations were significantly different.

Insight. Agroecological zone differences may require conducting a differentiated analysis across the regions within the project intervention area. They are also key to assessing whether there is scope for growth in terms of production and productivity.



BOX 12. A deeper look

Searching for win-win opportunities when selecting commodities

The tensions and trade-offs that arise between the objectives of generating income for smallholders and improving nutrition outcomes is perhaps the most significant challenge that NSVCs face. This tension is especially profound when selecting commodities, since some income-generating commodities may be more profitable than the ones needed to address the nutrition problem. When a commodity is promoted by a programme for income-generation purposes, this may cause a shift and decline in consumption of the commodity by the household so that it is rarely or even no longer consumed. Moreover, there can be a substitution effect at the farm level. Since smallholders generally rely on family labour, shifting to a cash crop can entail discontinuing production of food crops for household consumption. Therefore, VC development for income generation can pose risks to food security and nutrition.

A number of actions can mitigate these risks. Horticultural products and animal-source foods are generally high-value commodities that are experiencing increases in demand and often can also contribute to filling key nutrient gaps. Promoting diversification or incorporation of additional nutritious foods in the farming system, through, for example, intercropping or crop rotation, can provide smallholders with an alternative to balance the production of profitable crops for sale, while maintaining the natural resource base and making a range of food available for the household.

4. Government's interest and priorities: How are the commodities affected by government policies or programmes?

- Policies or programmes: identify enabling or restrictive political and institutional factors within the environment in which the VC will be developed.

5. Gender: Is the commodity associated with women's empowerment?

- Women's empowerment: assess women's level of engagement and how development of the commodity VC can affect women's equality and empowerment positively or negatively. Improvement or threats to women's empowerment and its impact on nutrition could arise at different stages of the VC, such as production, processing or marketing. The analysis should also consider how VC development might affect women's time and control over income, mobility and their own health. Intervention design may recognize and attempt to ameliorate negative impacts or enhance benefits.

6. Environment and climate: Is the commodity associated with sustainable natural resource management (NRM) and climate-smart agriculture?

- NRM and climate-smart agriculture: assess environmental impacts associated with the production and VC development (VCD) of the commodity. Production systems, or marketing or processing activities associated with some commodities or VCs, could have potentially negative, or potentially beneficial, effects on the environment, including exacerbating or ameliorating effects of climate change. As with gender, intervention design may work to either enhance or mitigate such effects.

Scoring process for commodity selection

The approach proposed here for commodity selection is based on the literature review, lessons from field experience in applying the approach, and further discussion and review at national workshops and a global expert consultation. These consultations highlighted the many considerations that such a process should take into account, reflected in the proposed criteria and sub-criteria. The approach provides a solid, though consolidated, representation of the key factors that should be taken into account when selecting commodities for NSVC development.

At the same time, specific project situations may call for adaptation of the scoring process – proposed here and illustrated in detail in Figure 7a. For example, in some cases, selection of commodities may be predefined or may not take place during the design process. In these cases, the “nutrition-improvement potential” criterion may, therefore, play a lesser role – although even then, there is a possibility of applying this criterion, and perhaps noting the prioritization of commodities for project designers. Box 14 describes a number of ways that nutrition impact can still be taken into account, even in this situation.

In those cases where commodities can be selected during the design process, the proposed approach, based on the field experience in Nigeria and Indonesia, combines quantitative scoring with qualitative information. It uses a sequential analysis that emphasizes nutrition-improvement potential, while also making sure that the commodities selected make business sense. This approach thus responds to concerns that an NSVC approach could select commodities only on the basis of whether or not they were “nutritious”, and thus propose promotion of commodities that, in the end, producers would have no interest in taking up because they would not generate income for them. It also brings gender and environmental considerations into the analysis, with the goal of optimizing impact or, at least, ensuring interventions do no harm. Government’s interest and priorities, as well as ongoing programmes or policies related to specific commodities, are an important dimension to factor in the selection. Rather than scoring this criterion, the proposed approach is to consider it from the outset when developing the initial list of commodities to be scored (see Figures 7a and 7b).

Although a certain level of subjectivity during scoring of commodities is inevitable, quantitative scores will be useful for identifying those commodities that have clear potential across the different dimensions considered.

However, commodity selection depends on a range of context-specific issues that need to be factored into the selection. Thus, accompanying the quantitative score with a narrative summary of the strengths and weaknesses associated with each commodity will provide useful additional information to guide final commodity selection. Detailed guidance on the scoring process is presented in Table 2 and illustrated in Figures 7a and 7b. An example of the process carried out in Nigeria is described in Box 15.



BOX 13. Insights from the field

Looking out for products that have potential across different dimensions

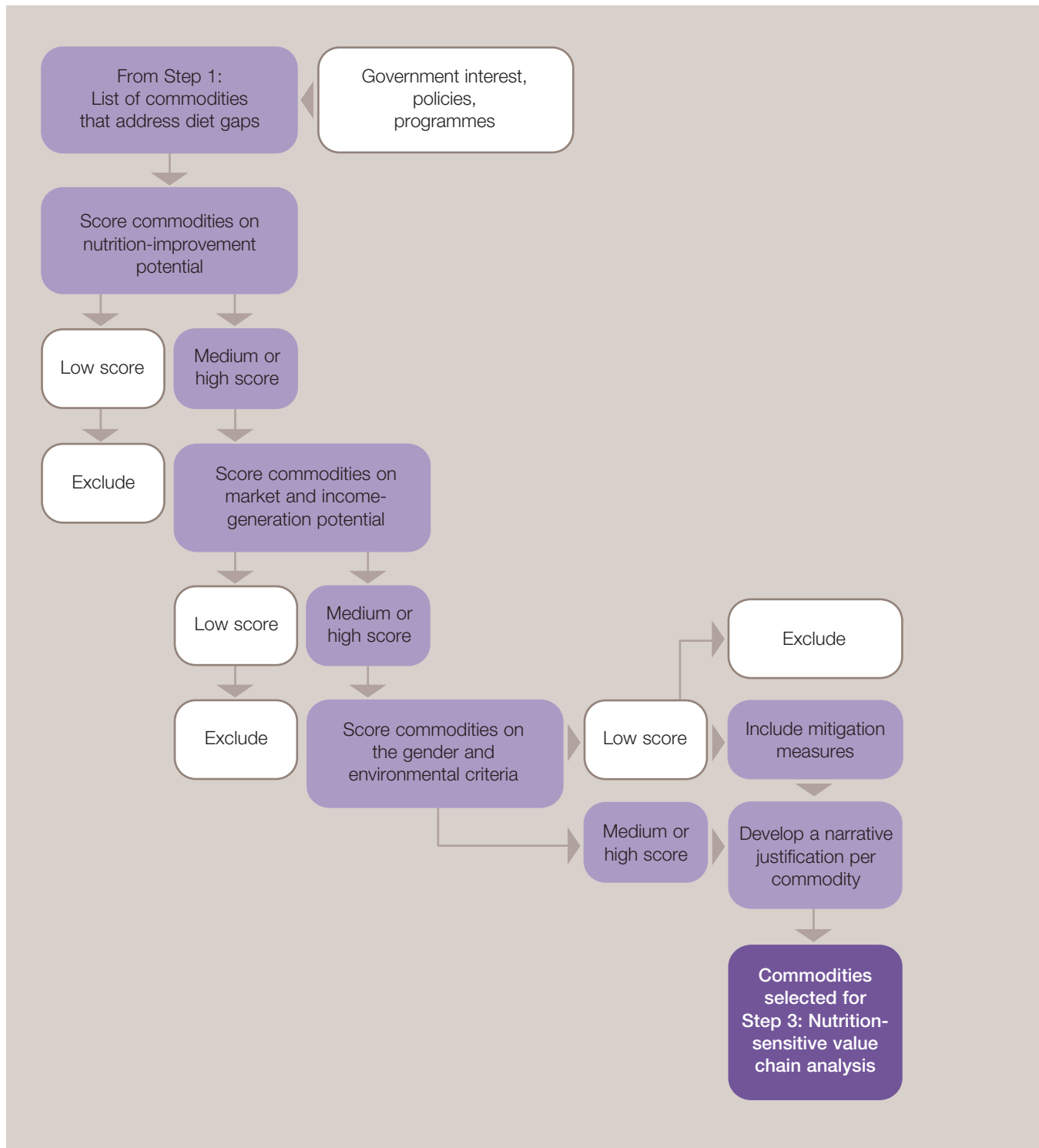
Some commodities or products may have potential across different dimensions. This was the case of “fura”, a traditional millet-based drink, produced in **Nigeria**. Millet, a commodity with nutrition-improvement potential, is also a traditional and climate-resilient crop produced locally by smallholders. Processing and selling fura provides a stable profit margin to members of a local women’s enterprise who are able to work a limited, four-hour day. The value proposition for this business finds fura provides a reliable and reasonably priced traditional product of good quality that is flavoured and packaged to suit consumers’ specific tastes and needs.

Insight. Commercialization of traditional products, based on indigenous crops and processed locally, has potential to serve objectives across the dimensions of nutrition, market, income generation, gender and climate.

FIGURE 7a. Scoring process for commodity selection

Scoring process for commodity selection			
List of commodities	Diet gaps identified in Step 1 will form the basis of the list of commodities to be scored. Consideration of government priorities, programmes and policies will take place at this stage of the scoring process to inform the initial list of commodities.		
Criteria	Sub-criteria (each to be scored 1 to 3)	Total score (sum across the sub-criteria)	Comments
Nutrition-improvement potential	<ul style="list-style-type: none"> • Food consumption • Food preferences • Food composition 	Low: 3–4 Med: 5–7 High: 8–9	<ul style="list-style-type: none"> • Each commodity is scored on a 3-point scale (1–3) for each of the three sub-criteria for nutrition-improvement potential. • Scores for the three sub-criteria are totalled to provide an overall nutrition-improvement potential score: low (3–4), medium (5–7) and high (8–9). • Commodities with low scores are excluded from further consideration. Those with medium or high scores go on to be scored for market and income-generation potential.
Market potential	<ul style="list-style-type: none"> • Market demand • Private-sector interest and upgrading potential • Agroecological conditions 	Low: 3–4 Med: 5–7 High: 8–9	<ul style="list-style-type: none"> • Each commodity is scored on a 3-point scale (1–3) for each of the three sub-criteria for market and income-generation potential. • Scores for the three sub-criteria are totalled to provide an overall score for market potential and an overall score for income-generation potential: low (3–4), medium (5–7) and high (8–9). • Commodities with low scores in either market or income-generation potential are excluded from further consideration.
Income-generation potential	<ul style="list-style-type: none"> • Level of engagement of smallholder producers • Margins • Employment generation 	Low: 3–4 Med: 5–7 High: 8–9	<ul style="list-style-type: none"> • Commodities with low scores in either market or income-generation potential are excluded from further consideration.
Gender	<ul style="list-style-type: none"> • Women's empowerment 	Low: 1 Med: 2 High: 3	<ul style="list-style-type: none"> • Each commodity is scored on a 3-point scale (1–3) against the gender and environment criteria. • Commodities with a low score in gender or environment will be excluded. In some cases, the commodity scores low because of the potential harm it could cause women or the environment. In this case, the commodity could be flagged for further consideration but noted as requiring specific measures to mitigate risks and ensure investments "do no harm". Those that are flagged could then be re-evaluated once specific mitigation measures are identified.
Environment and climate	<ul style="list-style-type: none"> • NRM and climate-smart agriculture 	Low: 1 Med: 2 High: 3	
Narrative accompanying commodity scores	The data collected for commodity scoring provides valuable information that can inform Step 3: NSVC analysis, as well as Step 4: Intervention options. To ensure this information is not lost in this scoring process, a narrative summary should be developed to accompany each commodity score and provide insights on the advantages and disadvantages associated with that commodity. A strengths, weaknesses, opportunities and threats (SWOT) analysis can also be useful in developing this summary.		

FIGURE 7b. Decision tree for commodity selection





BOX 14. A deeper look

What if the commodity is predefined or is not selected during the design phase?

Those involved in developing the project do not always start with a completely blank slate, especially in terms of which commodity value chains are to be developed. Commodity selection, therefore, may not take place during project design, as this guide assumes. In some cases, the government or a donor may be interested in a particular commodity, or commodities may be left to be selected by the communities themselves during project start-up. Although the situation varies by project, the following principles can be useful in guiding commodity selection even in these cases.

- *Complementarity and diversification.* In projects where commodities are pre-identified and do not appear to respond to the nutrition problem of the target group, opportunities for diversification and complementarity to the existing diets should be explored, such as integration of nutrient-rich foods (integrating rice and fish farming) or promotion of biofortified varieties (switching to orange-fleshed sweet potato), crop rotations and intercropping.
- *Participatory approach.* A simplified version of the commodity selection process can be carried out at the community level, especially in projects with a strong participatory approach. Carrying out the commodity selection with the communities is instrumental in raising awareness of the nutrition-improvement potential of some commodities and in reinforcing beneficiary ownership, and so enhancing the effectiveness of any nutrition education or BCC activities.
- *Flexibility.* For many NSVC projects, it is important to allow for some flexibility in VC selection. While the analysis can identify a set of commodities that meet all three criteria, decisions about which commodities the project will ultimately promote will necessarily fall to decision-makers, project implementers or project beneficiaries. Flexibility is also important in ensuring that smallholder producers can adapt to new opportunities or challenges that may arise during project implementation.

How will the information be collected?

Table 2 presents detailed criteria and sub-criteria for scoring and information, as well as an indication of possible secondary data sources and primary data collection tools (see Volume II for further details on tools and resources). The assessment of the nutrition-improvement potential will rely heavily on findings and sources from Step 1. If the nutrition situation analysis is carried out as recommended, limited or no additional primary data collection should be required to assess nutrition-improvement potential. The desk review and fieldwork can therefore focus on obtaining information about: i) market and income-generation potential and ii) additional considerations related to governmental policies and priorities, and gender and environment.

A report on findings from Step 2: Commodity selection should present the results of the scoring process for each commodity with a narrative justification of the advantages and disadvantages of each one in order to enable an informed decision on the final selection. Information collected during the scoring process will be useful for the VC analyses in Step 3, by providing background information and indicating major issues and opportunities to explore.

How does this step help project design?

- *Commodities*
Commodities that meet all criteria will pass on to Step 3, where a more in-depth VC analysis using a nutrition lens will be undertaken.

- *Food system analysis*

Information collected to score the commodities also can contribute to characterizing the food system. Understanding the roles of the different foods in the system – for example, the relative importance of a specific food for household consumption or for income generation, or the engagement of women in specific functions of the chain – will inform the commodity selection and also provide useful information for the design of intervention options and the intervention package of the project as a whole.



BOX 15. Insights from the field

Managing trade-offs in commodity selection

In **Nigeria**, 45 commodities were identified as having potential to address major dietary gaps during Step 1: Nutrition situation analysis. Applying the set of nutrition-improvement criteria narrowed the list to 42 commodities, which were then scored against the remaining criteria.

When applying the market and income-generation potential criteria, there were some surprises. Several vegetables and fruits with high nutrition-improvement potential were found to have little market demand or income-generation potential for smallholders. Animal-source foods, essential from a nutrition point of view, were not considered viable in terms of market demand, especially given the lack of infrastructure needed for safe storage and sales, and the fact that households generally considered livestock as assets rather than something commonly sold in the market.

In the end, six commodities emerged as having good potential across all dimensions: cowpea, groundnut, soybean, rice, sorghum and millet. Below, an example of the scoring process with the narrative justification is provided for a few commodities.

Criteria	Sub-criteria	Cowpea	Groundnut	Soybean	Comments
Nutrition-improvement potential	Food consumption	High	High	High	These three foods are able to address key nutrient gaps but are inadequately consumed (either seasonally or only in very small amounts).
	Food preferences				
	Food composition				
Market potential	Market demand	High	High	High	Commodities are considered cash crops with high local, national and international demand. There is, thus, a risk that further VC development will prompt households to sell them at the expense of their own consumption.
	Private-sector interest and upgrading potential				
	Agroecological conditions				
Income-generation potential	Level of engagement of smallholder producers	High	Medium	High	Commodities can be stored for a long time and frequently fetch a good income for farmers.
	Margins				
	Employment generation				
Gender	Women's empowerment	High	High	High	Women are heavily involved in processing and marketing.
Environment and climate	NRM and climate-smart agriculture	High	High	High	Sustainable production practices are promoted.

Insight. Developing a VC for nutrition calls for making important trade-offs in order to select commodities that make nutrition and business sense.

TABLE 2. Summary of research questions, methods and tools - Step 2: Commodity selection

Nutrition-improvement potential				
Sub-criteria	Description and scoring guidance (low to high)	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
Food consumption	<p>Commodities that can address the diet gap with increased consumption</p> <ul style="list-style-type: none"> • High (3) if inadequately consumed • Medium (2) if inadequately consumed during certain seasons or periods of the year • Low (1) if adequately consumed 	<ul style="list-style-type: none"> • Food consumption surveys, Food Consumption Score (FCS), Household Dietary Diversity Score (HDDS), Food-based Dietary Guidelines (FBDGs) 	<ul style="list-style-type: none"> • Minimum Dietary Diversity for Women (MDD-W) • Seasonal food calendars • Four-cell Analysis (FCA) • FGDS 	<ul style="list-style-type: none"> • If inadequately consumed by nutritionally vulnerable populations, even just seasonally, such as women or children, the commodity should be scored high.
Food preferences	<p>Commodities familiar and acceptable to the target population</p> <ul style="list-style-type: none"> • High (3) if a large number of households report consuming or purchasing it, either frequently or infrequently • Medium (2) if few households consume it frequently • Low (1) if few households use it infrequently or it has serious acceptability issues 	<ul style="list-style-type: none"> • Food consumption surveys, FCS, HDDS, FBDGs 	<ul style="list-style-type: none"> • Four-cell Analysis (FCA) • FGDS 	<ul style="list-style-type: none"> • This criterion aims to identify foods that are familiar to the population, including traditional and local varieties that may be neglected or underutilized.
Food composition	<p>Commodities rich in macronutrients or micronutrients, including biofortified commodities, that can fill the identified gaps in the diets of the target population</p> <ul style="list-style-type: none"> • High (3) if the commodity contains relatively high amounts of several nutrients lacking in the diets • Medium (2) if the commodity contains relatively high amounts of at least one nutrient lacking in the diets • Low (1) if the commodity contains relatively low amounts of nutrients lacking in the diets 	<ul style="list-style-type: none"> • Food composition tables and databases (INFOODS), nutrient density scores, studies of biofortification potential 	<ul style="list-style-type: none"> • Klis with: nutrition experts 	<ul style="list-style-type: none"> • Consider naturally nutrient-rich foods, but also those with potential for fortification and biofortification. • Consider the main crop (e.g. cassava) but also its by-products that can address other nutrient gaps (e.g. cassava leaves). • If food composition tables for a given country are not available, relevant tables from another country in the region could be used and complemented through Klis. • Offer adequate reflection on issues – such as potential for fortification and by-products – in the narrative justification that accompanies the quantitative scoring.

Market potential		Data collection methods/tools		Tips and comments
		Description and scoring guidance (low to high)	Primary data	
Sub-criteria		Secondary data		
Market demand	<p>Commodities with high existing or potential market demand</p> <ul style="list-style-type: none"> • High (3) if there is high local demand plus demand from provincial, national or international markets • Medium (2) if there is local demand, but little demand from provincial, national or international markets • Low (1) if local and other demand is low 	<ul style="list-style-type: none"> • Market studies, demand trends, price fluctuations 	<ul style="list-style-type: none"> • Four-cell Analysis (FCA) • Kils with: traders, lead buyers, institutional buyers • Market and price observations 	<ul style="list-style-type: none"> • Although demand trends at national and international levels can be assessed through secondary sources, reliable data on local demand is rarely available. For local demand, the scoring should rely on primary data of FCA, interviews and market observations.
Private-sector interest and upgrading potential	<p>Commodities with strong potential for VC upgrading</p> <ul style="list-style-type: none"> • High (3) if there is strong private-sector interest and sufficient services, knowledge, infrastructure and technology to upgrade production and meet market demand, or if these aspects could be easily developed by a project • Medium (2) if there is some private-sector interest or sufficient services, knowledge, infrastructure and technology to upgrade production and meet market demand, or if these aspects could be easily developed by a project • Low (1) if there is no private-sector interest, and if services, knowledge, infrastructure or technologies to upgrade production and meet market demand are severely limited or cannot be easily developed 	<ul style="list-style-type: none"> • Existing VC studies, market studies 	<ul style="list-style-type: none"> • Kils with: lead firms, traders, service providers, lead farmers • Market and farm observations 	<ul style="list-style-type: none"> • The objective of this criterion is to determine private-sector interest in engaging with smallholders and consider the opportunities for investments – from the project or in partnership with the private sector – in VC upgrading through improving capacities (technical assistance), infrastructure (storage, roads) and technologies.
Agro-ecological conditions	<p>Commodities where agroecological conditions and climate projections allow for significant growth</p> <ul style="list-style-type: none"> • High (3) if agroecological zones, agronomic conditions or climate projections allow for an increase in production or productivity • Medium (2) if agroecological zones, agronomic conditions or climate projections allow for maintaining production or productivity • Low (1) if agroecological zones, agronomic conditions or climate projections do not allow for maintaining production or productivity 	<ul style="list-style-type: none"> • Agronomic studies, volumes of production, weather and climate projections and models, Social, Environmental and Climate Assessment Procedures (SECAP)⁵ notes 	<ul style="list-style-type: none"> • Kils with: producers, depts. of agriculture, meteorology or environment, agronomists, climate and environment specialists • Farm observations 	<ul style="list-style-type: none"> • Agroecological zones and changing climate affect not only resilience but also production and market growth potential. These elements vary among different project sites, hence there may be a need to differentiate the analysis by area (e.g. coastal versus inland communities or agroecological zones).

5. See IFAD, 2017a.

Income-generation potential

Sub-criteria	Description and scoring guidance (low to high)	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
Level of engagement of smallholder producers	<p>Commodities widely produced by smallholders</p> <ul style="list-style-type: none"> • High (3) if many households produce the commodity or there are low barriers to entry • Medium (2) if few households produce the commodity but barriers to entry are low • Low (1) if few households produce the commodity and there are significant barriers to entry 	<ul style="list-style-type: none"> • Production data from agriculture department, extension agents 	<ul style="list-style-type: none"> • Four-cell Analysis (FCA) • Klls with: producers, dept. of agriculture, extension officers 	<ul style="list-style-type: none"> • Smallholder's engagement in the production of the specific commodity is key to ensuring a pro-poor focus.
Margins	<p>Commodities that consistently provide high margins to smallholders</p> <ul style="list-style-type: none"> • High (3) if the commodity provides high margins regardless of the season or size of the demand • Medium (2) if the commodity provides moderate margins or the margins vary significantly by season or size of demand • Low (1) if the commodity consistently provides low margins 	<ul style="list-style-type: none"> • Generic commodity production models 	<ul style="list-style-type: none"> • Four-cell Analysis (FCA) • Klls with: producers, dept. of agriculture, traders, extension officers 	<ul style="list-style-type: none"> • Producers will generally look for the commodity, or mix of commodities, that gives them the greatest profit as compared with other options. Thus, rather than income, this criterion assesses smallholders' margins – the difference between a commodity's sale price and its production cost.
Employment generation	<p>Commodities that provide opportunities for income generation through employment</p> <ul style="list-style-type: none"> • High (3) if the commodity provides opportunities for income generation through employment on- or off-farm, especially for women and youth • Medium (2) if the commodity provides limited opportunities for income generation through employment on- or off-farm • Low (1) if commodity does not provide opportunities for income generation through employment 	<ul style="list-style-type: none"> • Employment statistics and studies, existing VC analysis 	<ul style="list-style-type: none"> • Klls with: youth, producers, processors, dept. of agriculture 	<ul style="list-style-type: none"> • Employment generation can reach segments of the population that may not have the potential to engage in production, especially land-constrained or landless farmers, as is generally the case for vulnerable populations such as women and youth.

Gender				
Sub-criteria	Description and scoring guidance (low to high)	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
Women's empowerment	<p>Commodities which have the potential to improve nutrition through women's empowerment (women's time, control over income, own health)</p> <ul style="list-style-type: none"> • High (3) if women significantly control certain function(s) of the VC – production, processing, sales – and benefit from participating without negative consequences for their own health and nutrition or for that of the household • Medium (2) if women's involvement and benefit from VC activities – production, processing, sales – is limited • Low (1) if women are not involved in the VC – through production, processing, marketing – or there are negative consequences for their own health and nutrition or for that of the household 	<ul style="list-style-type: none"> • Gender-sensitive VC analysis, gender studies 	<ul style="list-style-type: none"> • Kils with: gender experts • FGDs with: commodity members (separate men and women) 	<ul style="list-style-type: none"> • Women's empowerment is a key mediator of nutrition impact. Adequately assessing women's involvement in each commodity VC is key for: i) leveraging opportunities to catalyse positive impacts on women's and household nutrition and ii) identifying the need for mitigation measures – e.g. labour-saving technologies – to ensure a “do-no-harm” approach.
Environment and climate				
Sub-criteria	Description and scoring guidance (low to high)	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
Natural resource management and climate-smart agriculture	<p>Production and VCD associated with the commodities encourage appropriate sustainable natural resource management (NRM) and climate-smart agriculture</p> <ul style="list-style-type: none"> • High (3) if production and VCD of the commodity are positively associated with sustainable NRM and climate-smart agriculture • Medium (2) if production and VCD of the commodity have neutral impacts in terms of sustainable NRM and climate-smart agriculture • Low (1) if production and VCD of the commodity are associated with negative impacts in terms of sustainable NRM and climate-smart agriculture 	<ul style="list-style-type: none"> • Reports on biodiversity, pesticide use, water use, soil erosion • Climate change risk assessments • SECAP notes 	<ul style="list-style-type: none"> • Kils with: environmental and climate experts, agronomists, extension agents 	<ul style="list-style-type: none"> • IFAD projects, as well as other investment projects, undertake a social, environmental and climate assessment (SECAP) during project design. When undertaken, SECAP data provide key information on environment and climate risks associated with specific commodities. • The analysis should identify mitigation measures to ensure a “do-no-harm” approach.

Note: The list of primary and secondary data collection methods and tools included in the table is not exhaustive, but contains the most typical data sources.

Step 3: Nutrition-sensitive value chain analysis

Diagnostics					
	STEP 1: Nutrition situation analysis	STEP 2: Commodity selection	STEP 3: NSVC analysis	STEP 4: Intervention options	STEP 5: Putting the project together
Key elements of each step	<ul style="list-style-type: none"> Nutritional status Causes of malnutrition Diet characterization and identification of diet gaps 	Selection criteria: <ul style="list-style-type: none"> Nutrition-improvement potential Market potential Income-generation potential Gender Environment and climate 	<ul style="list-style-type: none"> VC mapping and characterization Analysis of constraints and opportunities in: <ul style="list-style-type: none"> Supply Nutrition value Demand 	<ul style="list-style-type: none"> Types of intervention Cost-effectiveness Target group Tensions and trade-offs 	Objective
					Intervention strategy
					Targeting strategy
					Implementation arrangements
					M&E
					Budget



Why is it important to conduct this step?

The objective of Step 3 is to carry out a more in-depth analysis of the possibilities for VC development of the commodities selected in Step 2. As in traditional VC projects, such an analysis should identify constraints and opportunities along the VC. In this case, however, a nutrition lens should be applied to the analysis, with a special focus on the relationship of the commodity and the various constraints and opportunities with the nutrition problem. This NSVC analysis of selected commodities should provide the information that will help in Step 4, which is meant to identify intervention options that can maximize impact on nutrition. As methodological guidance on VC analysis is widely available, the focus here is on discussing the innovative features related to the application of a nutrition lens to VC analysis.

Applying a nutrition lens to VC analysis identifies how investments along the selected VC can contribute to improving nutrition. This entails paying closer attention to nutrition-relevant aspects of both the supply and the demand side of the value chain, and specifically analysing aspects related to nutrition value, namely food safety, nutritional value, and food loss and waste. A VC analysis conducted with a nutrition lens specifically looks at issues of availability, affordability, acceptability, safety and nutrition quality, and their interconnections.

- *Supply.* Food availability and affordability are dimensions of the food environment that will be affected by investments in the supply of food. Recognizing that producers are also consumers makes the interconnection between these dimensions even stronger, as changes in purchasing power of smallholder producers will also affect affordability.
- *Nutrition value.* Investments in enhancing and preserving nutrition value will have a direct bearing on food safety and quality, but also on affordability and acceptability.
- *Demand.* Demand is affected by consumers' nutrition awareness and acceptability, which are linked to preferences, desirability and cultural norms, as well as affordability.

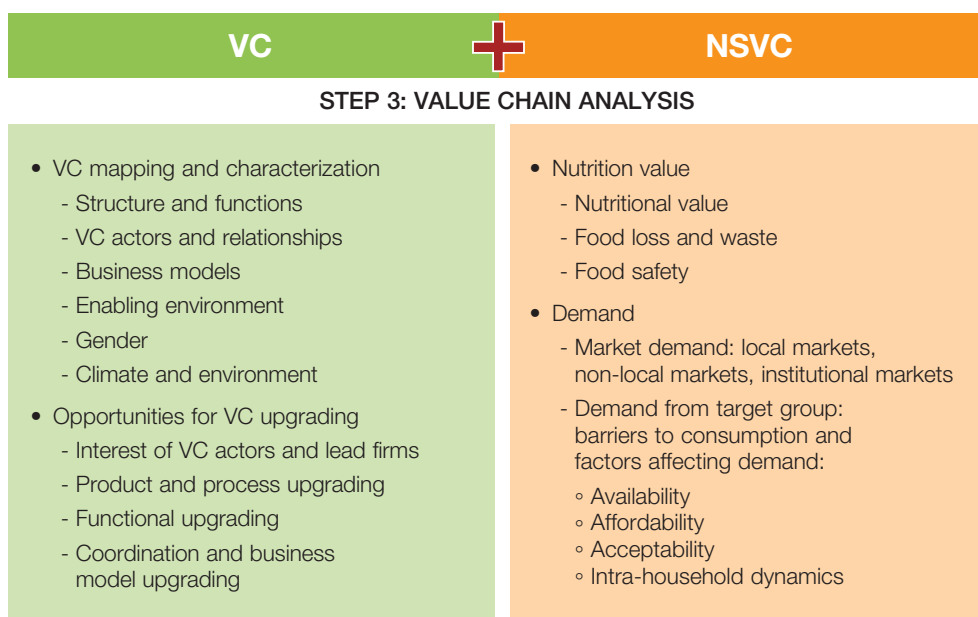
Step 3's NSVC analysis explores each of these interconnected dimensions of the food environment in more detail in order to identify constraints and opportunities across the dimensions of supply, demand and nutrition value.

What information is needed?

A nutrition-sensitive VC analysis adds nutrition-related elements to the traditional VC analysis. It encompasses: i) VC mapping and ii) identification of upgrading opportunities, which are key elements of a standard VC analysis, but also includes a deeper analysis of dimensions that are relevant from a nutrition point of view, such as: iii) nutrition value and iv) demand from the target population, as suggested in Figure 8 and detailed in Table 3.

The elements of a nutrition-sensitive value chain analysis are presented below, along with their research questions and associated information needs (see Table 3 for further detail).

FIGURE 8. Overview of differences between standard VC analysis and VC analysis with a nutrition lens⁶



1. Value chain mapping and characterization: *What are the main characteristics of the value chain?*

- VC mapping: as in a standard VC analysis, NSVC project designers map the structure, functions and actors in the VC, as well as the relationships among them. This will include an analysis of the profit margins at each stage of the chain.
- Enabling environment, gender and environment: the enabling environment – including policies, rules and regulations – as well as gender and environmental dimensions will be analysed.⁷ The analysis of gender roles within the chain will pay close attention to practices that may be potentially harmful for nutrition, such as drudgery or overburdening of women.

The VC mapping and characterization provide the basic information needed to identify constraints and opportunities of the subsequent elements of the NSVC analysis – analysis of supply, of nutrition value and of demand – as these will be strongly related to the structure and functions of the different actors along the VC.

2. Analysis of supply and opportunities for upgrading: *What are the constraints and opportunities related to supply?*

- Interest from VC actors and lead firms. The analysis will explore the interest of different VC actors, including smallholders, traders and buyers, in working together on a fair and sustainable basis. It will specifically explore motivations, areas of interest and concern, and incentives for VC actors to work with smallholder producers.

6. The VC column presents elements included in a standard VC analysis, while the NSVC column introduces additional nutrition-relevant elements that need to be added in an NSVC analysis. Market demand is a major component of a standard VC analysis, but it is included in the NSVC column to highlight the application of a nutrition lens to market demand analysis, which entails a focus on demand from the project’s target group, including rural populations, smallholder producers and low-income consumers.

7. Step 2: Commodity selection will have provided relevant information on these aspects – enabling environment, gender and environment – which should be further explored through the VC analysis.

- Opportunities for upgrading. Information gathered in the VC mapping will be complemented with information needed to assess possibilities for: i) product and process upgrading, relieving production constraints, and improving access to inputs, finance, etc., ii) functional upgrading and addressing post-harvest constraints and opportunities, such as processing, packaging or distributing, and iii) upgrading of coordination and business models, analysing both horizontal and vertical linkages among VC actors (see Table 3).

3. Analysis of nutrition value: *What are the constraints and opportunities related to nutrition value?*

To achieve nutrition outcomes, food must be nutritious and safe at the point of consumption. Hence, information needs to be collected concerning nutritional value, food loss and waste, and food safety across the chain (see Box 16).

- Nutritional value: analyse how nutritional value is affected as the product flows through the VC, noting, for example, nutrient content of the different crop varieties, if nutrients are lost through storage, processing, transportation, preparation or cooking, and also determining if unhealthful ingredients, such as trans fats, are added during processing or if other ingredients, such as sugar or salt, are added in ways that could pose a threat to healthy diets. The analysis will also identify opportunities for adding specific needed nutrients through fortification and biofortification.
- Food loss and waste: the VC analysis will pay close attention to issues of food loss and waste along the chain, from production to consumption.
- Food safety: the analysis will identify critical points for food contamination due to, say, excessive pesticide use or mycotoxin occurrence from the farm to the household.

4. Analysis of demand: *What are the constraints and opportunities related to demand?*

VC interventions should be demand driven. This means there is a need to understand market demand from the onset and to use demand, which reflects consumption and diet quality, as the starting point for all other dimensions of the VC analysis. Market demand is a central component of a standard VC analysis, since VC interventions mainly aim to meet existing demand. For NSVC, the innovation is that the analysis considers demand from the project's target group and analyses ways in which demand for specific under-consumed foods can be created or enhanced. This requires information on the nature of factors affecting market demand, including purchasing power and consumption patterns of consumers.

- Market demand. This calls for quantitative and qualitative analysis of existing demand from different markets, including local village or traditional markets, non-local provincial, national or international markets, and institutional markets, including public purchasing, food assistance or school feeding programmes (see Box 18).
- Barriers to consumption and factors affecting demand from the target group. This calls for an analysis of factors affecting demand and consumption behaviours from smallholders and rural populations, including:
 - availability: year-round availability, physical distance and time;
 - affordability: purchasing power, price fluctuations and willingness to pay;
 - acceptability and desirability: taste and preferences, level of nutritional awareness, cooking time, social status, socio-cultural norms and taboos;
 - intra-household dynamics and food distribution.

The analysis will identify factors hindering demand from the target group, as well as opportunities to increase demand, which an NSVC project could address. This dimension is critical, as intervention options (identified in Step 4) may be geared towards alleviating barriers as well as enhancing or creating demand through activities such as promotion, social marketing, behaviour change communication and nutrition education.

How will the information be collected?

As with the other steps, the VC analysis will include three phases: i) preparation for fieldwork and desk review, ii) fieldwork, and iii) analysis and report writing. Table 3 provides detailed guidance on the secondary data sources and fieldwork tools needed to conduct a VC analysis with a nutrition lens.

Flexibility should be built into the schedule to accommodate changes and adapt the fieldwork plan as needed. In this guide (Volumes I and II), tools are featured according to their use in analysing supply, demand or nutrition value. However, in practice, data collection will likely be a non-linear process. This means that questions will need to be adapted to the specific respondents and requirements of the moment, which may entail interlinking questions on demand, supply and nutrition value. Volume II of this guide provides specific tools, questionnaires and interview guides tailored according to respondents, such as producers or traders. The VC analysis will provide an indication of constraints and opportunities along the chain for the selected commodities, which can be represented in a table format or a diagram (see Box 17).

How does this step help project design?

- *Constraints and opportunities in supply, demand and nutrition value*
VC analyses of the selected commodities using a nutrition lens will identify constraints and opportunities relating to supply, demand and nutrition value of foods as they relate to the nutrition problem. These will be the basis for Step 4: Identification of intervention options.
- *Key stakeholders with whom to engage when putting the project together (Step 5)*
By looking along the VC, and mapping actors and the relationships among them, the analysis will identify key stakeholders with whom the project should engage. The analysis of the enabling environment may also highlight specific institutions to integrate into the project, such as tax authorities and health departments in charge of food safety certification, or agencies or groups able to host and monitor producer-intermediary-processor-marketer roundtables, or those working in nutrition education and behaviour change.



BOX 16. A deeper look

Commodity tables, a tool to analyse nutrition value critical points

The analysis of nutritional value, food loss and waste, and food safety is challenging. Data on nutrient content of different foods (especially local varieties) and how nutrients are lost as the product flows through the VC are rarely available. Methodologies for identification of food safety risks – such as laboratory analysis or hazard analysis and critical control point (HACCP) assessment – and quantified estimations of food loss and waste are complex and go beyond the scope of a VC analysis. Considering the limitations of a typical project design, the preferred approach would rely on secondary data, key informant interviews and qualified nutrition experts to develop “commodity tables” – one for each commodity.

Commodity tables are a tool to analyse nutrition value critical points. They would identify:

- critical nutritional value points: points along the chain where nutrients are lost or where nutrients can be added;
- critical food loss points: points along the chain where physical loss can be significant;
- critical food safety points: points along the chain where food safety hazards and contamination are more likely to occur.

These tables are based on secondary data and, thus, can be compiled prior to the fieldwork, so as to inform and tailor primary data collection to these critical points. Once the VC analysis is finalized, a full HACCP assessment, laboratory analysis or post-harvest loss study may be recommended to be included in the project.



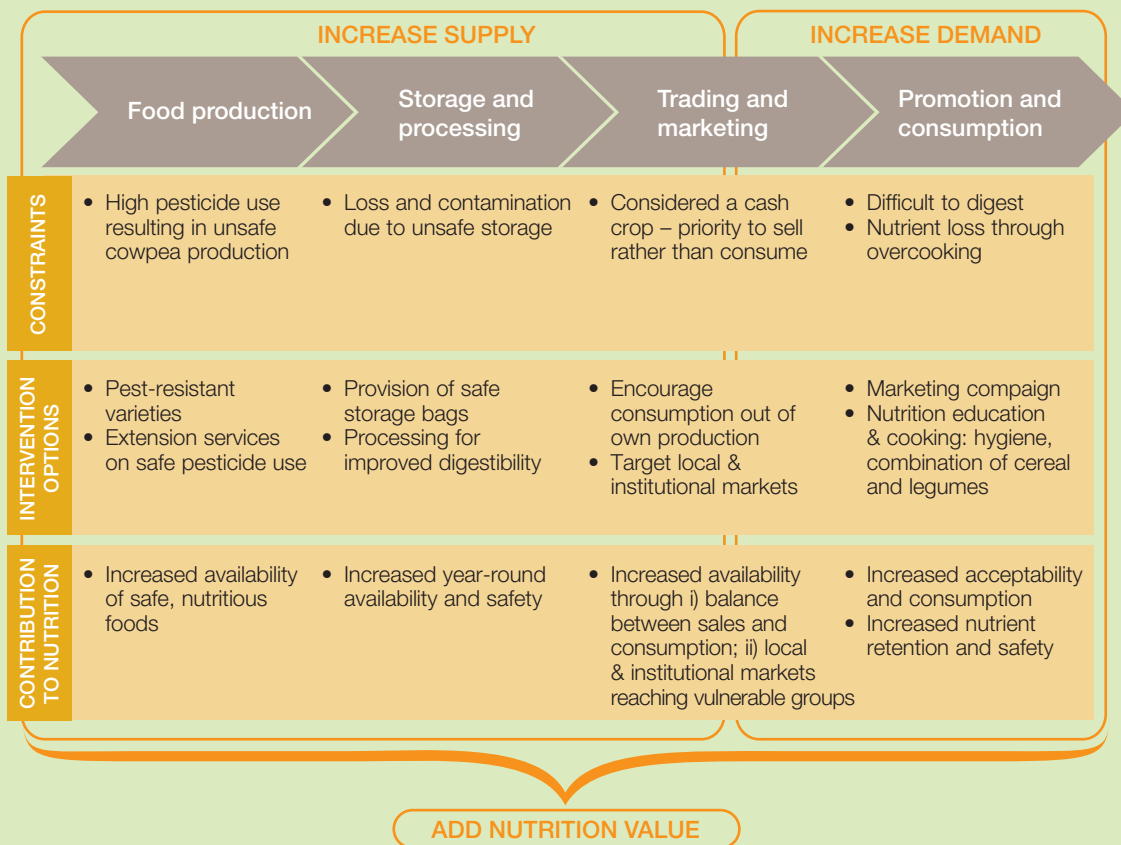
BOX 17. Insights from the field

Diagramming constraints and opportunities along the value chain

In **Nigeria**, the team identified food safety as a major problem in the cowpea value chain. Cowpeas, contaminated with pesticides and other agrochemicals, had led to consumer deaths. High use of pesticides was detected throughout the chain, from production and aggregation to storage and wholesaling. In addition, consumers had limited access to water and were thus unable to wash the pesticide-contaminated cowpeas properly, and traditional cooking methods led to nutrient losses. Cowpeas were also considered a cash crop, and thus were often not considered attractive for household consumption.

Figure 9 shows the results of the analysis of constraints and opportunities in the cowpea VC in Nigeria. Diagramming the constraints and opportunities against their contribution to nutrition is useful for tracing the project's impact pathway.

FIGURE 9: Graphic representation of constraints and opportunities along the cowpea value chain (Nigeria)



Source: Adapted from IFAD, 2018b.

Insight. Trainings on pesticide use, improved packaging, awareness-raising on nutritional value of cowpea, and promotion of safe and nutrient-preserving cooking practices can provide opportunities to address critical food safety challenges and improve acceptability of cowpeas for local consumption.



BOX 18. Insights from the field

Different markets for different purposes

Local markets. Smallholders generally engage with local and traditional markets – village markets, wet markets or kiosks – to sell their produce and to purchase food for the household. In the remote communities of eastern **Indonesia**, where the fieldwork took place, village kiosks were identified as a major source of food for target households.

Insight. Kiosks were identified as both constraints and opportunities: i) as a constraint because they mainly sell ultra-processed imported foods and snacks, and ii) as an opportunity, since more nutritious products could be sold through this market channel, which directly serves the target population. Local and traditional markets are key to achieving nutrition outcomes and shaping local food systems to be more nutrition-sensitive for the target population.

Non-local markets. Non-local markets, which can range from provincial to national or international markets, provide important opportunities for income generation. However, from a nutrition point of view, they can also pose risks. When a food crop enters these formal and long VCs, it generally becomes a cash crop and, once it is considered a crop for income generation, producer households may cut back or stop consuming it. This was the case for some of the value chains analysed in **Nigeria**, such as cowpea or sorghum, which farmers viewed as a valuable cash crop due to high market demand.

Insight. An adequate definition of the impact pathway to nutrition can mitigate this risk and ensure that targeting non-local markets still contributes to nutrition.

- *Dual marketing strategy.* If selling produce outside local markets is expected to seriously compromise food availability and affordability at the local level, a dual marketing strategy can be explored. For example, producers can be advised – through awareness-raising and marketing support – to save some produce for their own consumption or for local markets, and to sell the rest in ways that do not compromise the financial viability of the VC or significantly affect their ability to earn additional income.
- *Nutrition awareness.* In cases where the opportunity for income generation outweighs considerations for selling locally or keeping some produce back for home consumption, the project must ensure that increases in income contribute to nutrition by incorporating nutrition education and behaviour change communication activities that can inform food choices and good nutritional practices.
- *Women's empowerment.* Women's control over income can also lead to positive nutrition outcomes. The project should undertake analyses of and pay close attention to women's time use, decision-making power and levels of nutrition awareness.

Institutional markets. Public purchasing programmes, food assistance and school-feeding programmes can provide viable and secure markets for smallholders' produce, while also targeting vulnerable groups of consumers, including women, children, the elderly and low-income households. The prioritization of public interests and the existence of public programmes mean that public buyers may be more sensitized and open to taking nutrition into consideration than private-sector buyers, hence their engagement can be beneficial for both income generation and nutrition. In **Nigeria**, linking farmers to school-lunch programmes was identified as a potential market for a new product: maize flour enriched with soybean flour.

Insight. The Home Grown School Meals programme is an intervention model developed by the UN World Food Programme that links local farmers to the demand coming from local schools. By building a local VC and promoting local procurement of foods, the programme can contribute to diversifying the school meals offered to school children, while also providing a source of income for local, smallholder producers.

TABLE 3. Summary of research questions, methods and tools - Step 3: Nutrition-sensitive value chain analysis

Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
		<p>What are the main characteristics of the value chain?</p> <p>Structure and functions at each stage of the VC Mapping VC actors and relationships</p> <ul style="list-style-type: none"> Product and information flows, service provision, governance, power relations, VC platforms, level of formalization in the relationships <p>Business models and economic analysis</p> <ul style="list-style-type: none"> How producers and firms expect to create and capture value, price and profit margins <p>Enabling environment</p> <ul style="list-style-type: none"> Regulatory framework, policies, individual and institutional capacities, food safety standards, physical access to markets <p>Gender</p> <ul style="list-style-type: none"> Division of labour: women's roles, time use, decision-making, control over resources and remuneration, cultural norms and values <p>Climate and environment</p> <ul style="list-style-type: none"> Climate risks, use of inputs such as pesticides and water, sustainable production practices, processing and packaging 	<ul style="list-style-type: none"> Existing VC analyses, market assessments, business model reviews, crop models from extension services Policies and regulations related to trade, taxes, subsidies, labour legislation, cooperatives, food safety Gender studies SECAP notes, climate risk assessments, environmental impact studies Rainfall and meteorological patterns 	

8. Gender Action Learning System (GALS) is a community-led empowerment methodology using participatory processes and diagram tools which aims to give women as well as men more control over their lives as the basis for individual, household, community and organizational development. More information is available at IFAD, 2014b.

Opportunities for upgrading

Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
<p>What are the constraints and opportunities on the SUPPLY side of the value chain?</p>	<p>Interest of VC actors and lead firms</p> <ul style="list-style-type: none"> • Motivation of different VC actors including smallholders themselves • Level of interest of key players in working with smallholders, incentives for upgrading <p>Product and process upgrading</p> <ul style="list-style-type: none"> • Production: product types, varieties, volumes, seasonality, pests and diseases, consistency, efficiency • Market requirements: quantity, quality, size, consistency, frequency • Access to inputs and technologies • Access to finance • Capacities/knowledge <p>Functional upgrading</p> <ul style="list-style-type: none"> • Post-harvest management, storage, processing capacities, transport <p>Coordination and business model upgrading</p> <ul style="list-style-type: none"> • Horizontal linkages: presence and role of producer organizations • Vertical linkages: degree of coordination, contractual agreements 	<ul style="list-style-type: none"> • Existing VC analysis, market assessments, post-harvest challenges • Contractual agreements, product specifications and properties • Policies and regulations for producer organizations and cooperatives 	<ul style="list-style-type: none"> • Klis with: lead firm • Klis or FGDs with: VC actors, including input suppliers, producers, processors, traders, retailers, wholesalers, transporters, service providers • FGDs with: men and women producers • Klis or institutional meetings with: producer organizations, VC platforms, project staff • Market observation 	<ul style="list-style-type: none"> • Seasonality is a key dimension for VC and nutrition. Here, the VC analysis will focus on seasonal patterns of production and their implications for VC upgrading, such as cases where volumes of production vary significantly between seasons and thus impede provision of a consistent supply of produce to the buyer, or generate significant price fluctuations. In the analysis of demand (below), seasonality is assessed in terms of its impact on income and food availability at the household level. • FGDs should be held separately with men and women, to ensure women's challenges are adequately captured.

Nutrition value: Nutritional value addition, food loss, food waste and food safety				
Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
<p>What are the constraints and opportunities related to NUTRITION VALUE?</p>	<p>Nutritional value</p> <ul style="list-style-type: none"> • Nutrient content: nutrient content of different crop varieties or species • Critical nutritional value points: points along the VC where nutrients are lost, e.g. during processing or cooking, or where nutrients can be added through fortification and biofortification <p>Food loss and waste</p> <ul style="list-style-type: none"> • Critical loss points: points along the chain where food losses⁹ are most significant in terms of quantity and economic loss <p>Food safety</p> <ul style="list-style-type: none"> • Critical food safety points: points along the chain where food safety hazards and contamination are most likely to occur, due to, e.g. pesticides, aflatoxins, microbes • Consequences for market access • Consequences for nutrition and health 	<p>Food composition tables</p> <ul style="list-style-type: none"> • Research papers on nutrient content or contamination during production, processing, cooking • Food loss and waste studies and databases • Food safety standards and regulations 	<p>KIs with VC actors: input suppliers, producers, processors, traders, transporters, lead firm, buyers with quality assurance mechanisms</p> <ul style="list-style-type: none"> • Institutional meetings with government extension staff, nutrition/health, industry, food safety departments, certification authorities, regulatory bodies, research organizations • Commodity tables • Observation of production, processing, marketing, cooking 	<ul style="list-style-type: none"> • Interviews with VC actors should be conducted on site when possible. This provides an opportunity for direct observation that can give essential information to complement the analysis, such as the hygienic conditions of markets and contamination risks during processing or cooking.

9. The analysis here refers to physical loss, which relates to a decrease in food quantities available due to, for example, pests, spoilage, poor storage or rotting.

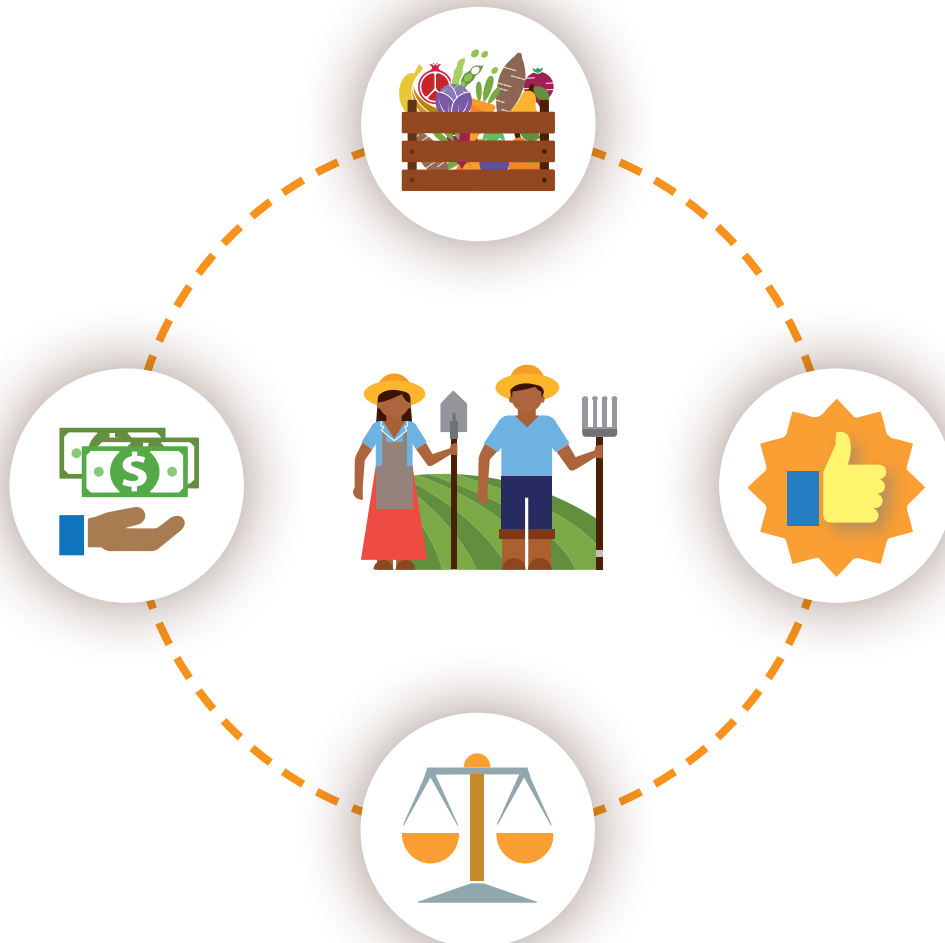
Demand: market demand and barriers to consumption from target group

Research question	Information needs	Data collection methods/tools		Tips and comments
		Secondary data	Primary data	
<p>What are the constraints and opportunities on the DEMAND side of the value chain?</p>	<p>Market demand</p> <ul style="list-style-type: none"> Local markets: wet markets, open air markets, kiosks Non-local markets: urban, provincial, domestic, export Institutional markets: public purchasing programmes, school feeding programmes, food assistance <p>Barriers to consumption and factors affecting demand from target group</p> <ul style="list-style-type: none"> Availability: year-round availability, physical distance, time Affordability: purchasing power, price fluctuations, willingness to pay Acceptability and desirability: taste and preferences, level of nutritional awareness, cooking time, social status, taboos Intra-household dynamics and food distribution 	<ul style="list-style-type: none"> Existing VC and market analysis, data on market demand trends, price trends Household consumption and expenditure surveys, cost of diet studies Knowledge, attitudes and practices (KAP) studies Seasonality analyses 	<ul style="list-style-type: none"> KIIs or FGDs with VC actors: producers, processors, traders, retailers, wholesalers, lead firms KIIs with institutional buyers: public purchasing programmes, schools, food assistance Market and supermarket observation FGDs with: producer households on consumption patterns and barriers to consumption 	<ul style="list-style-type: none"> Local, informal and traditional markets are key for reaching low-income and vulnerable populations. Yet, reliable secondary data on trends, prices, volumes sold for these types of markets is rarely available. This means fieldwork will need to be shaped to fill the gaps in the data related to these markets. Information on factors affecting demand and barriers of consumption is complex and difficult to obtain. It is useful to triangulate findings using different methods such as FGDs, household case studies or questionnaires.

Note: The list of primary and secondary data collection methods and tools included in the table is not exhaustive, but contains the most typical data sources.

Step 4: Identification of intervention options

Diagnostics					
	STEP 1: Nutrition situation analysis	STEP 2: Commodity selection	STEP 3: NSVC analysis	STEP 4: Intervention options	STEP 5: Putting the project together
Key elements of each step	<ul style="list-style-type: none"> Nutritional status Causes of malnutrition Diet characterization and identification of diet gaps 	Selection criteria: <ul style="list-style-type: none"> Nutrition-improvement potential Market potential Income-generation potential Gender Environment and climate 	<ul style="list-style-type: none"> VC mapping and characterization Analysis of constraints and opportunities in: <ul style="list-style-type: none"> Supply Nutrition value Demand 	<ul style="list-style-type: none"> Types of intervention Cost-effectiveness Target group Tensions and trade-offs 	Objective
					Intervention strategy
					Targeting strategy
					Implementation arrangements
					M&E
				Budget	



Why is it important to conduct this step?

The objective of this step is to synthesize the findings of Steps 1, 2 and 3, and to identify opportunities that an investment project can pursue. In identifying intervention options, the analysis should provide information on the mechanisms, the stakeholders and the arrangements that will be needed for their design and implementation.

What information is needed?

The overarching research question for Step 4 is: *What interventions should an NSVC project invest in?* Answering the question requires the following information.

Type of interventions

Project designers can select from a menu of intervention options which may include: i) actions along the target value chain aimed toward enhancing supply, enhancing demand and adding nutrition value, or ii) actions that cut across different VCs, such as a general nutrition awareness-raising campaign. Table 4 provides examples of potential intervention options along the different stages of the VC, as well as in cross-cutting dimensions such as enabling environments and gender. Although the table includes some standard VC activities, the focus is on interventions specifically relevant for an NSVC project.

Indication of cost-benefit and cost-effectiveness

The analysis should include an estimation of the main costs associated with each intervention option, as well as the expected effectiveness, benefits, outputs or outcomes to which each intervention option will contribute and how this relates to nutrition.

Target group

The analysis should indicate which target groups are relevant for different intervention options, such as a nutritious product specifically developed for pregnant women.

Tensions and trade-offs: advantages and disadvantages

Since tension can arise when promoting NSVC development, it is important to be clear about tensions and trade-offs associated with each intervention option, particularly from a smallholder perspective. These may relate to the tensions between income generation and nutrition value, as well as with other related dimensions, such as gender or environment. The analysis should also include potential mitigation measures to address the risks and tensions identified.

TABLE 4. Intervention options for NSVC development at each stage of the VC

INPUTS
Improve access to seeds of nutrient-rich varieties <ul style="list-style-type: none">- Promote use of underutilized or indigenous seeds, biofortified seeds or vines, better performing varieties
Improve access to inputs <ul style="list-style-type: none">- Promote access to micronutrient-fortified fertilizers- Promote access to improved feeds, access to vaccines- Promote access to inputs to control food safety risks, such as Aflasafe for aflatoxin contamination
FOOD PRODUCTION
Select commodities <ul style="list-style-type: none">- Select varieties that comply with the selection criteria: market potential, income-generation potential and nutrition-improvement potential- Select varieties that also serve complementary goals in the dimensions of gender and environment
Diversify production, to address seasonality and the risk of specialization <ul style="list-style-type: none">- Diversify farming systems: intercropping, integration of livestock/fish with agriculture- Introduce complementary food production for household consumption for increased on-farm availability- Promote counter-seasonal production to improve year-round availability
Promote nutrition-sensitive extension services <ul style="list-style-type: none">- Integrate nutrition (and gender and climate considerations) in agricultural extension services
Enhance product and process upgrading strategies <ul style="list-style-type: none">- Disseminate agricultural practices and technologies that improve farmers' capacity in terms of quantity, quality, food safety and consistency of production
POST-HARVEST MANAGEMENT AND PROCESSING
Increase capacity for post-harvest management <ul style="list-style-type: none">- Provide technical assistance and technology for post-harvest management: combating food loss, nutrient loss, degradation and contamination (including low-cost technologies)- Improve infrastructure and equipment for safe, nutrient-preserving post-harvest management: such as storage, processing, handling, packaging
Promote nutrition-sensitive processing methods <ul style="list-style-type: none">- Choose nutrient-preserving processing methods- Control incorporation of potentially unhealthful ingredients during processing: such as salt, sugar or trans fats- Develop healthy processed products, such as healthy snacks and complementary foods, products made from biofortified crops or nutritious, underutilized species- Improve fortification: capacity-building and finance for food fortification
DISTRIBUTION AND TRANSPORT
Improve smallholders' physical access to markets <ul style="list-style-type: none">- Upgrade rural road connectivity
Improve transportation <ul style="list-style-type: none">- Promote technologies or transportation options that preserve nutrient content or maintain the cold chain
Develop distribution systems <ul style="list-style-type: none">- Promote bottom-of-the-pyramid business models and distribution systems that reach the rural poor- Establish partnerships with consolidated businesses to leverage their wide-reaching distribution systems

TRADE RETAILING AND MARKETING

Improve smallholders' access to markets

- Strengthen vertical linkages: diversify smallholders' client base, promote contract agreements
- Strengthen horizontal linkages: capacity-building and creation of producer organizations to assimilate produce, reduce transaction costs
- Provide market and price information

Improve access to local and informal markets where low-income consumers traditionally purchase food

- Develop local and informal markets, incorporating the constraints and opportunities these markets offer in potential upgrading strategies
- Undertake dual marketing strategy: combination of reaching traditional and modern market outlets to improve financial sustainability while reaching low-income consumers

Address seasonality and year-round availability in markets

- Develop market studies to assess seasonal fluctuations in price and availability

Indicate product differentiation

- Promote nutrition signalling and labelling
- Establish mechanisms that control, verify and signal nutritional quality

Explore institutional markets

- Public purchasing programmes
- Home-grown school feeding programmes
- Food aid, food assistance

Innovate in the marketplace and retailing

- Promote small-size packaging and labelling to improve affordability and nutrition awareness

Promote VC coordination

- Promote multi-stakeholder platforms: identification of nutrition-relevant issues along the VC, mapping of incentives, roles and contributions of each VC actor, engagement in joint problem solving, policy dialogue

PROMOTION AND CONSUMER AWARENESS

Promote nutritious foods and recipes

- Develop food and nutrition education and nutrition messaging
- Carry out social behaviour change communication campaigns
- Undertake social marketing campaigns

Address acceptability issues

- Set up taste-testing activities
- Promote nutritious local products in marketing campaigns

PREPARATION AND CONSUMPTION

Promote hygienic and nutritious food preparation

- Carry out cooking classes and recipe development
- Demonstrate nutrient-preserving and safe food storage and preparation at household level
- Introduce measures and practices to reduce food waste

WOMEN'S EMPOWERMENT

Adapt project activities

- Change the location of storage and collection points, invest in labour-saving technologies, change the time of trainings, provide childcare services, promote women-friendly equipment and facilities

Influence practices, norms and regulations

- Support women's groups, quotas for women's participation and leadership, advocate for changes in regulations

CLIMATE AND ENVIRONMENT

Promote sustainable natural resource management and climate-smart agriculture

- Conduct climate risk assessments
- Promote inputs (fertilizers, pesticides) that preserve soil quality
- Promote safe use of inputs, including prevention of excessive use of pesticides, for sustainability and food safety
- Promote sustainable agricultural practices that preserve smallholders' natural capital
- Diversify farming systems, for resilience and biodiversity

ENABLING ENVIRONMENT

- Promote fiscal policies: taxes on unhealthy foods and subsidies on nutrient-rich foods
- Develop and enforce standards: such as food safety or quality
- Promote investments in research and development (R&D) and seed system development for nutritious crops and livestock, including underutilized and biofortified crops
- Promote fortification or mandatory fortification of conventional foods that are acceptable, widely consumed and affordable by all segments of the population, especially lower-income consumers
- Develop public-private partnerships to overcome the market constraints that prevent private-sector investment in NSVC

Note: The list of intervention options included in the table is not exhaustive, but contains the most typical options.

How will the information be collected?

Step 4 differs from Steps 1, 2 and 3, as it does not necessarily require extensive additional data collection and can be conducted in conjunction with Step 3's NSVC analysis. Step 3 is needed to gather information concerning the constraints on supply, demand and nutrition value of key foods, which will provide the basis for identifying intervention options. Some additional data collection, say through KIIs and secondary data reviews, may be needed to fill in specific gaps during the elaboration of the intervention options. For example, it may be difficult to obtain detailed information on areas such as costing or targeting while conducting Step 3: NSVC analyses. Therefore, additional efforts may be needed to collect enough information to conduct the cost-effectiveness/cost-benefit analysis.

Step 4 should at least make the nature of the interventions clear and should be confident of the intervention's appropriateness, feasibility, effectiveness and value-for-money. Specific details associated with the intervention options themselves can be left for the project design missions.

Validation of the intervention options proposed by local stakeholders and VC actors can take place through workshops or validation meetings. Enough time should be given to analysing the findings of Step 3 and collecting any additional information on costing prior to developing intervention options and holding validation meetings. These conversations can be instrumental in ensuring relevance, appropriateness, feasibility, effectiveness and ownership. They also may be left to be conducted during the design mission or even at project start-up, when they can involve the project beneficiaries and VC actors themselves. There are numerous ways in which validation meetings can be conducted, such as participatory identification and prioritization of interventions, and a SWOT analysis (see Volume II for further guidance).

How does this step help project design?

- *NSVC intervention strategy*
Step 4 is the basis of the intervention package that will be included in the project design. As mentioned in Part I, NSVC development will generally include a combination of actions on supply, demand and nutrition value. Guidance on how to prioritize interventions from the menu of options is provided in Step 5: Putting the project together.
- *Targeting strategy*
The target groups identified for each intervention option will inform the project's targeting strategy.
- *Budget and M&E framework*
The cost-effectiveness/cost-benefit analysis provides essential inputs for the project's budget by identifying major areas of cost, and for the M&E framework by highlighting the main benefits associated with each option.



BOX 19. A deeper look

Intervention options to address the tension between the objectives of raising incomes and improving nutrition

In NSVCs, smallholders are targeted not only as producers, but often also as consumers. This dual consideration brings tensions and trade-offs between the objectives of increasing incomes of smallholders and improving their diets and nutrition. This box looks at these challenges and the potential intervention options that can address them.

Smallholders as producers

- *Challenge: Low capacity to meet food safety standards.* Many of the most nutritious foods, such as milk, fish, fruits and vegetables, also pose the highest risks in terms of food contamination and perishability. Smallholder producers, however, generally have low capacities to meet strict market regulations on food safety.

Intervention options: Strengthening vertical linkages among VC actors through, for example, contractual agreements, is a potential way to address this constraint. Aside from investing in strengthening smallholders' knowledge of safe production and post-harvest practices, and in safe storage and distribution equipment and infrastructure, having contracts enables smallholders to engage effectively in long-term relationships with other private-sector actors, which affords them the opportunity to work together in identifying incentives and setting up mechanisms that ensure compliance with food safety and quality standards. Other private-sector actors further down the VC can be good allies in this process, given they often have strong quality assurance mechanisms and linkages to broader markets.

- *Challenge: Difficulties in product differentiation.* Food safety and nutritional value are "invisible" product characteristics. Consumers may not be able to distinguish a fortified versus a non-fortified product, or an aflatoxin-free versus a contaminated product, and thus may not be willing to pay a premium price. As a result, VC actors may be reluctant to engage in these VCs, if the market is not secured.

Intervention options: This challenge can be tackled through: i) product differentiation, for example, promoting orange-fleshed sweet potato versus the traditional white-fleshed variety, ii) nutrition labelling, which clearly signals the nutrient content and product safety to the consumer, or iii) certification, which allows for trusted indicators of the characteristics of the product. These actions should be combined with awareness-raising or social marketing campaigns to increase willingness to pay for safe, nutritious foods.

Smallholders as consumers

- *Challenge: Low affordability and willingness to pay.* Nutritious and safe foods, such as fruits, vegetables or animal-source foods, are generally more expensive and may be out of reach for low-income consumers.

Intervention options: Potential actions include improving VC efficiency to reduce costs of production, packaging products in small quantities that are sold at a lower price, or raising awareness of the negative consequences of consumption of unsafe foods through social marketing campaigns.

- *Challenge: Low acceptability and nutrition awareness.* Smallholders may not be willing to consume or pay for nutritious foods due to socio-cultural factors such as social stigma, taboos and taste preferences, or due to their low nutrition knowledge about food requirements for specific ages or sexes, child feeding practices or food preparation.

Intervention options: Being aware of the nature of these constraints and incorporating actions that stimulate demand – social marketing, nutrition education, behaviour change communication campaigns, etc. – must be part of most, if not all, NSVC strategies. Without them, simply increasing production or incomes will not likely result in greater consumption or improvements in diets.

- *Challenge: Food preparation and distribution in the household.* To achieve nutrition outcomes, the food must be nutritious and safe at the point of consumption, and it must be consumed in adequate amounts on a sustained basis and by vulnerable individuals within the household.

Intervention options: Nutrition education, recipe development, cooking demonstrations and behaviour change communication campaigns can help address these constraints.

Step 5: Putting the project together

Diagnostics					
	STEP 1: Nutrition situation analysis	STEP 2: Commodity selection	STEP 3: NSVC analysis	STEP 4: Intervention options	STEP 5: Putting the project together
Key elements of each step	<ul style="list-style-type: none"> Nutritional status Causes of malnutrition Diet characterization and identification of diet gaps 	Selection criteria: <ul style="list-style-type: none"> Nutrition-improvement potential Market potential Income-generation potential Gender Environment and climate 	<ul style="list-style-type: none"> VC mapping and characterization Analysis of constraints and opportunities in: <ul style="list-style-type: none"> Supply Nutrition value Demand 	<ul style="list-style-type: none"> Types of intervention Cost-effectiveness Target group Tensions and trade-offs 	Objective
					Intervention strategy
					Targeting strategy
					Implementation arrangements
					M&E
				Budget	



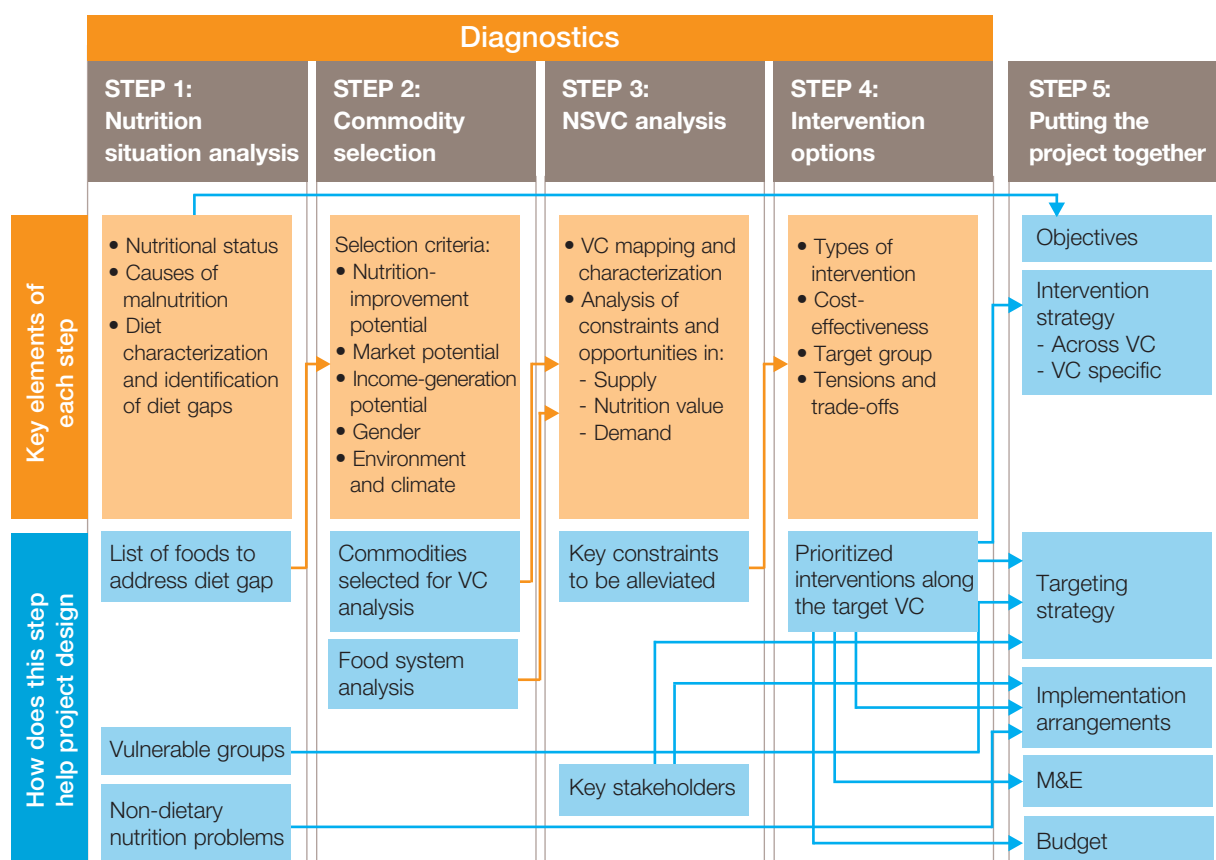
From diagnostic studies to project design

Each step of the NSVC design process (Steps 1 to 4) provides essential information to put the project together (Step 5). Figure 10 summarizes the main information collected at each step and its reflection in project design elements (as shown in the “How does this step help project design” section of each step). The different project design elements are discussed in detail below, providing tips for the design team to consider.

Objectives

VC projects generally have the objective of increasing incomes through increases in productivity, sales or profits. Increasing income is also an objective for NSVC projects, but these projects should also include specific nutrition objectives. As part of the food-based approaches to nutrition, NSVC projects will generally aim to improve access to a diverse and high-quality diet, with the overall goal of improving the diet quality of the target population. The specific project objective will be determined based on the findings of the nutrition situation analysis and the specific nutrition problem to be addressed. Aside from diets, NSVCs can contribute to improving other relevant nutrition dimensions, such as women’s empowerment and nutrition awareness, and improved hygienic practices and safety of produce, which impact health.

FIGURE 10. Relationship between diagnostic studies and project design features



Defining an NSVC project's objectives entails situating the intervention strategy within the impact pathways that lead to improved nutritional outcomes (see Part I, Impact pathways). To do so, it is useful to develop a theory of change that traces the linkages between the activities of the intervention strategy and the expected outputs, outcomes and impacts. The construction of the "causal chain" through which impact operates should be explicit as to the assumptions behind each link of the causal chain. Being explicit about these links and assumptions allows for incorporating the necessary activities to strengthen the logic towards achieving the objectives of the project.

Intervention strategy

NSVCs can operate through the three types of strategies introduced in Part I:

- strategies to increase supply, which would entail standard VC development actions;
- strategies to add nutrition value, including nutritional value, food safety, and food loss and waste;
- strategies to increase or stimulate demand for and consumption of specific foods.

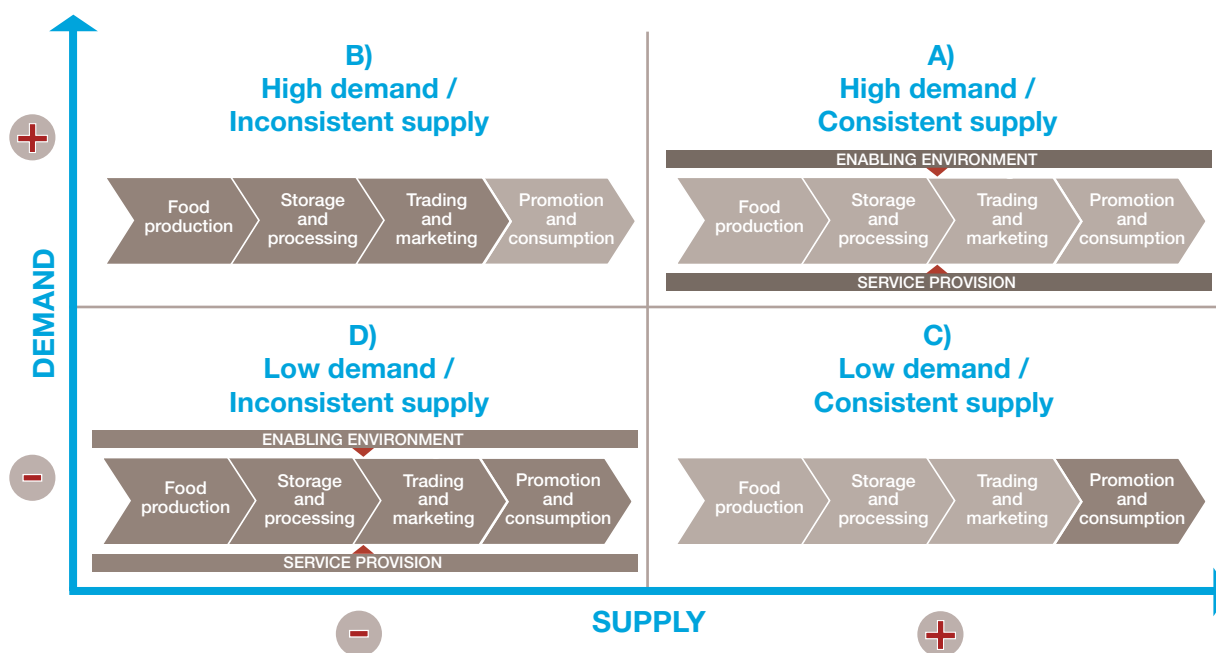
Developing an NSVC requires adopting a holistic approach that identifies the best combination of interventions in order to shape the VC towards the nutrition objective. The overall NSVC intervention strategy will depend on the specific situation identified in the NSVC diagnostic studies (Steps 1 to 4), and will entail a combination of activities associated with supply, demand and nutrition value addition.

The three NSVC strategies described earlier should be seen as underlying an overall, mutually reinforcing, intervention strategy, composed of a set of interventions. The possible interconnections among the interventions will be determined based on the constraints to be alleviated in the supply or demand of the specific commodity identified during the NSVC diagnostic studies. In the NSVC approach, supply and demand mainly refer to the local food system where NSVC beneficiaries engage, with consumption levels from local and rural populations determining the status of "demand" and availability in local markets determining the "supply".

Potential NSVC interventions could fit into one of the four possible scenarios listed below, which reflect different supply and demand conditions (see Figure 11 and Gelli, et al., 2015).

- *Scenario A: High demand and consistent supply.* Interventions for commodities in this scenario would primarily focus on adding nutrition value by, for example, improving food safety, adding nutritional value through fortification, and strengthening the linkages among VC actors to improve food quality.
- *Scenario B: High demand and inconsistent supply.* Interventions in this scenario would focus on enhancing the food supply and, therefore, would operate through standard VC development interventions, such as improving access to inputs, access to technology, training in production and post-harvest practices, and support to producer organizations.
- *Scenario C: Low demand and consistent supply.* In this scenario, the project's interventions would focus on enhancing demand for the specific food, specifically promoting consumption by the target group through, for example, social marketing, nutrition education, behaviour change communication and recipe development.
- *Scenario D: Low demand and inconsistent supply.* This scenario occurs when a new commodity, such as a biofortified crop, is to be introduced in the food system, in which case the project would need to intervene at all stages of the value chain, from production to consumption.

FIGURE 11. Nutrition-sensitive value chain strategies by scenario



The predominance of one strategy over the others depends on the type of constraints (supply, demand or nutrition value) to be alleviated, and may also depend on additional variables, such as the enabling environment or environmental aspects. Situating a commodity in one specific scenario does not mean that the intervention strategy will include activities only on supply, on demand or on nutrition value addition, but that, depending on the nature of the constraints identified, the strategy will place a stronger emphasis on or prioritize one strategy over the other.

NSVCs usually intervene in a range of different value chains across various geographic areas. The intervention package may, thus, be composed of: i) interventions for specific value chains, for example, developing a seed system for biofortified yellow-fleshed cassava or developing fish-based processed products such as fish powder, and ii) interventions that cut across different value chains, for example, undertaking a nutrition education and behaviour change communication campaign, or improving access to finance for women and youth.

Targeting strategy

The targeting strategy of the project will be informed by the nutritionally vulnerable groups identified in Step 1: Nutrition situation analysis and by the target groups of the different intervention options.

Standard VC projects and NSVC projects take different approaches to targeting. VC projects generally target the economically active poor and often rely on self-selection by participants. Nutrition projects, on the contrary, target populations based on their vulnerability to nutrition problems, which generally implies working with the poorest segments of the population. In addition, nutrition programmes prioritize targeting beneficiaries, such as pregnant and lactating women and children under the age of 2, in what is considered the “window of opportunity”. From a nutrition perspective, the challenge is to target not only the nutritionally deficient households, but especially vulnerable individuals – the women and children within the household. That said, changing nutrition behaviours also may call for targeting other relevant household members, such as husbands or mothers-in-law.

Another area of tension between VC and NSVC targeting is the shift from producers to consumers. VC projects generally target producers and small and medium enterprises (SMEs) along the chain, but do not necessarily target consumers. If VCs are to contribute to nutrition outcomes, the targeting strategy must take into account the potential consumers of the end-products, who may be the smallholder producers themselves, as well as other local consumers who would benefit from a food system where nutritious food is more available, affordable and acceptable. Therefore, in NSVCs, the targeting strategy needs to consider end-consumers.

Although VC projects may not specifically target nutritionally vulnerable populations, the producer households that are usually targeted do include these target groups. Ensuring that nutrition awareness and women's empowerment are adequately integrated into the project's theory of change can strengthen the focus of the intervention on vulnerable groups. Vulnerable groups can also be reached through developing nutritious products, such as nutritious snacks for children, or by specifically targeting interventions, such as supporting women's cooperatives with labour-saving technologies or linking with school-feeding programmes.

Implementation arrangements

Despite the intuitive link between agriculture (food) and nutrition, these two disciplines have traditionally been separated in different bureaucracies, including ministries and agencies which have different funding sources and different world views, and require different knowledge and skills. NSVCs add business logic to this equation, further complicating the challenge. The following guidance can be useful for identifying relevant stakeholders to incorporate in the project and for developing implementation arrangements.

Identifying stakeholders to be incorporated in the project intervention strategy

- *Draw on Step 1: Nutrition situation analysis*
NSVCs focus on addressing dietary problems. However, the assessment that emerges from Step 1 may also have identified non-dietary nutrition problems such as lack of water and sanitation facilities. The multisectoral nature of malnutrition may require that the project seek to collaborate with other institutions and organizations working to address non-dietary nutrition problems, such as with programmes working on WASH or health centres that can supply vitamin supplementation or treatment for acute malnutrition, or multisectoral coordination platforms.
- *Draw on Step 3: NSVC analysis*
The NSVC project should determine which of the stakeholders identified by Step 3 should be engaged with, such as the lead buyers, producer organizations, VC platforms or regulatory agencies.

Developing the implementation arrangements calls for considering these principles

- *Raise nutrition awareness among all actors involved in NSVCs, tailoring messages to the different stakeholders*
In the case of governments, advocating for nutrition as a priority may entail disseminating information on the physical and economic consequences of malnutrition or the threat of overweight and non-communicable diseases. Raising awareness among the private sector may require more emphasis on the "business case" for improving nutrition, which would include the economic impact associated with food loss, the importance of quality and food safety standards to access markets, the impact of malnutrition on employee's productivity and the market at the bottom of the pyramid. Once the different actors are aware of the importance of tackling nutrition, the project can work on building a shared vision, and a common understanding and sense of purpose.

- *Clearly define roles and responsibilities of the different stakeholders from the outset, capitalizing on their capacities and spheres of influence*

Defining government's role will generally include reference to the regulatory environment in which an NSVC operates, including fiscal policies, mandatory fortification and food safety standards. For the private sector, roles may include establishing quality assurance mechanisms or marketing campaigns. Project management staff should have an understanding of the roles of the agriculture, marketing and nutrition members of the team in order to assign responsibilities and identify synergies and complementarities. Clear coordination mechanisms also need to be set up with external organizations working on nutrition in the project area in order to coordinate, for example, co-location of activities or referral mechanisms to health centres.

- *Manage risks, costs and incentives among VC players*

Given that the overall performance of the VC depends on the individual contributions of each VC player, it is critical to define a joint vision, and identify and specify the contributions of each – including distribution of costs and risks. It is also important to align sufficient incentives for each actor to comply accordingly. The VC coordination platforms that are often established in VC projects offer a good space in which these contributions and incentives can be defined. A due diligence exercise may also be conducted prior to engaging in contractual agreements.

Monitoring and evaluation

A well-designed monitoring and evaluation (M&E) framework should contribute to both proving results (accountability) and improving practice (learning). With regards to improving practice, the M&E framework must provide timely and relevant information about changes and progress in the different dimensions of the intervention, allowing for rectification or readjustment. Project managers must recognize M&E as a useful tool to respond to challenges and opportunities that arise during project implementation, and one that supports results-based management. Regarding accountability, the M&E framework should be based on the theory of change and measure progress at different stages of the results chain, monitoring intermediate results that account for progress along the impact pathway.

The M&E framework should therefore respond to the specific activities included in the intervention package, measuring progress towards outputs, outcomes and objectives at each stage of the results chain, as well as in each dimension of the NSVC development strategy. Table 5 provides a working list of indicators for monitoring and evaluating NSVC projects in the supply, nutrition value addition and demand dimensions.

- **Supply:** indicators common to standard VC projects that measure changes in production, sales and incomes of smallholder producers incorporated in a VC.
- **Nutrition value addition:** indicators that measure changes in nutritional value, food loss and food safety along the VC.
- **Demand:** indicators associated with results such as the increased consumption of nutritious food, improved nutrition knowledge and improvements in diets.

TABLE 5. Working list of indicators for monitoring and evaluating an NSVC project

NSVC Strategy		Output	Outcome
VALUE CHAINS	Supply	<p>Product and process upgrading</p> <ul style="list-style-type: none"> - Number of persons trained to allow production to meet market requirements (volume, quality, efficiency) - Number of persons trained in diversification of production <p>Functional upgrading</p> <ul style="list-style-type: none"> - Number of persons trained in processing or other post-harvest management techniques <p>VC linkages</p> <ul style="list-style-type: none"> - Number of partnerships and agreements formalizing relationships among VC actors - Number of multi-stakeholder VC platforms 	<p>Product and process upgrading</p> <ul style="list-style-type: none"> - Increased volumes of production or productivity of target commodities - Increased availability of target commodities in markets - Increased diversity of foods available on farm or in the market <p>Functional upgrading</p> <ul style="list-style-type: none"> - Increased year-round availability of commodities (increased shelf life, conservation) - Increased percentage of final price and value-added accruing to producers <p>VC linkages</p> <ul style="list-style-type: none"> - Increased sales or profits - Changes in food prices
	Nutrition value addition	<p>Nutritional value</p> <ul style="list-style-type: none"> - Number of biofortified seeds/vines disseminated <p>Food safety</p> <ul style="list-style-type: none"> - Number of persons trained in food safety and hygienic practices at production and post-harvest stages - Technologies, equipment or infrastructure introduced to reduce food safety risks (market infrastructure, storage facilities)¹⁰ <p>Food loss</p> <ul style="list-style-type: none"> - Number of persons trained or benefiting from technologies to reduce food loss 	<p>Nutritional value</p> <ul style="list-style-type: none"> - Increased availability of biofortified products - Increased nutrient density of production <p>Food safety</p> <ul style="list-style-type: none"> - Adoption rate of safe production and post-production practices - Decreased levels of food contamination, such as aflatoxin levels <p>Food loss</p> <ul style="list-style-type: none"> - Reduction in pre- and post-harvest losses
NUTRITION-SENSITIVE VALUE CHAINS	Demand	<p>Nutrition education or BCC activities</p> <ul style="list-style-type: none"> - Number of nutrition modules, messages, spots <p>Outreach</p> <ul style="list-style-type: none"> - Number of persons provided with targeted support to improve their nutrition¹¹ <p>Women's empowerment</p> <ul style="list-style-type: none"> - Labour-saving technologies introduced to reduce women's workload 	<p>Dietary diversity</p> <ul style="list-style-type: none"> - Minimum Dietary Diversity for Women (MDD-W)¹² - Minimum Dietary Diversity for Children <p>Food security</p> <ul style="list-style-type: none"> - Food Consumption Score (FCS) - Food Insecurity Experience Scale (FIES) <p>Nutrition knowledge</p> <ul style="list-style-type: none"> - Changes in specific behaviours, such as food consumption, feeding practices, cooking methods and hygienic practices <p>Women's empowerment</p> <ul style="list-style-type: none"> - Women's Empowerment in Agriculture Index - Women's time use, labour, decision-making power - Women in leadership positions

Note: The list of indicators is not exhaustive and should be adjusted to according to local situations. For more information on indicators associated to NSVCs, refer to Gelli, et al., 2015; FAO, 2016a; IFAD 2016.

10. Also applicable for food loss.

11. Core indicator for nutrition-sensitive projects in IFAD's Results and Impact Management System (IFAD 2017b).

12. Core indicator for nutrition-sensitive projects in IFAD's Results and Impact Management System (IFAD 2017b).

Budgeting

Given the innovative nature of NSVCs, it is difficult to provide detailed guidance on costing and cost-effectiveness. In fact, costing of nutrition-sensitive programmes in general, as well as nutrition-sensitive value chains, is recognized as a knowledge gap where the evidence base needs to be built. Moreover, costing will depend heavily on the types, complexity and reach of interventions, which can range from a nutrition education module to setting up a cooling plant for safe storage of food. Certainly, additional information should be collected from projects being implemented in the field to begin to give designers an empirical, experiential basis for estimates. Still, although precise and comparative information remains to be collected, budget and finance officers and technical specialists can provide indications of costs of activities, and the carefully traced impact pathway can give an indication of expected benefits.

Allocation of adequate resources for NSVC projects (both human and financial) is essential to ensure quality implementation. The following considerations can guide budgeting of NSVC projects.

- *Enhancing demand.* As opposed to standard VC projects, NSVC projects will almost always require activities to raise nutrition awareness and stimulate consumption of healthy foods. Specific budget resources will need to be allocated to activities such as needs assessments, knowledge, attitudes and practices (KAP) studies, development of nutrition education materials, nutrition trainings, information, education and communication (IEC) materials, behaviour change communication (BCC) campaigns and social marketing campaigns.
- *Adding nutrition value.* In terms of nutritional value, food loss and food safety, indicative areas of cost may include biofortified seeds and vines, fortification equipment, food safety certification costs and sample testing.
- *Enhancing supply.* Allocation of resources in this type of interventions can follow standard VC costing guidelines. In NSVC projects, they may also include new production technologies and systems, such as intercropping, on-farm safety and agricultural practices for biofortified products, as well as development of marketing and distribution schemes, such as a network of women traders/sellers.
- *Human resources.* Implementation of NSVC projects will require adequate nutrition, agriculture and value chain capacity and expertise on the project team. Depending on the scope of the NSVC project, the number and depth of expertise of staff members and focal points will vary.
- *Monitoring and evaluation.* Human and financial resources need to be allocated for the M&E of NSVC projects, to cover, for example, an M&E specialist, baseline and end-line survey costs, and monitoring visits.
- *Multi-stakeholder coordination.* The multisectoral nature of nutrition and of NSVC calls for coordination among different actors, sectors and institutions, hence the need to allocate resources for items such as meetings and travel to bring stakeholders together for awareness raising, understanding and, potentially, planning.

Conclusion

It is now widely accepted that good nutrition is not only an outcome to which development projects contribute, it is a key input for economic and social development. Leveraging the potential of markets and value chains for nutrition is essential for addressing the complex nutrition challenges the world faces, particularly in terms of changes in dietary patterns and food systems.

The nutrition-sensitive value chain framework is a useful approach for navigating the complexity of food systems, and for identifying entry points to investment at the different stages of the value chain. By applying a nutrition lens to VC projects, a wide range of opportunities for nutrition can be identified and pursued, leading to positive outcomes in terms of nutrition, but also for income generation, women's empowerment and environmental sustainability.

This guide provides field-tested and validated guidance as to how that identification can be done in order to maximize the contribution of VC projects to nutrition. It provides a practical approach strongly built on the field experiences in Nigeria and Indonesia. Thus, the guide builds on voices from the field and expert opinion of a variety of organizations that have contributed to refining each and every step of the NSVC design process. These include the Rome-based UN agencies, development partners, multilateral financial institutions, private foundations, research centres, civil society organizations, consultancy firms and governments, as well as project staff from IFAD-funded projects who enriched the approach from an operational perspective.

Each of the diagnostic Steps 1 to 4 fills a different gap of the NSVC final project design. Although the ideal approach would be to conduct each step of the process sequentially, the reality of development projects often differs. By presenting these steps as "modules" that can be conducted independently, the guide can be adapted to accommodate the specificities of different contexts, projects or organizations. Step 5: Putting the project together outlines how to integrate the information collected in each of the diagnostic steps into an NSVC project design document.

This *Nutrition-sensitive value chains: A guide for project design* sheds light on how to identify interventions that will strengthen the contribution of VCs for nutrition. Nutrition-sensitive value chains remain an emerging and innovative field, with many knowledge gaps requiring further research and experience. The authors therefore welcome feedback from users of the guide, both in terms of refining and complementing the specific guidance provided, and in terms of sharing case studies and experiences that can enrich our collective understanding of nutrition-sensitive value chains.

Please send your feedback to nsvc@ifad.org

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