CRS
CATHOLIC RELIEF SERVICES

Nutrition-Sensitive Value Chains

Caroline Dinda, 30, weighs and packs dried mangoes. With six years of employment, she is the longest-serving worker at the Sweet N' Dried factory. "The works let's me send my children to school. It's also helped me build my house. I even bought solar for my house because of this work! I like working with mangoes and bananas." Founded in 2010, Sweet N' Dried has benefited from a variety of skills and expertise offered by CRS Farmer-to-Farmer volunteers who have helped the owners improve their products and operation. Recent volunteers have helped with factory design and safety, branding and marketing, electronic accounting and recipe formulations.

Woltering, Kris, Peter Ton, and Valerie Rhoe Davis. 2023. Nutrition-Sensitive Value Chains. Baltimore: Catholic Relief Services.

Cover photo by Georgina Goodwin for CRS.

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Shanti Bohara (18), is the manager of K. B. Multipurpose Agro Limited. She takes care of the goats and feeds the baby goats. She has been working here since the farm was established. Like many others, K. B. Multipurpose Agro is one of the major meat suppliers of MUNAA Krishi Limited. [Photo by Amit Rudro for CRS]

Nutrition-Sensitive Value Chains

After completing this session, you should be able to understand:

- What nutrition-sensitive value chains (NSVCs) are and how they can contribute to improved nutrition.
- How non-nutrient rich or non-food value chains (VCs) can contribute to improved nutrition.
- Tensions and trade-offs within NSVCs that may occur between nutrition, income and women's empowerment.
- NSVC design process.
- How existing value chain tools and methods can be adapted to be nutrition-sensitive.

Nutrition-sensitive agriculture: Leveraging the agricultural sector to improve nutrition outcomes

A large body of governments, donors and development organizations is committed to achieving the Sustainable Development Goals (SDG), including the elimination of hunger and malnutrition (SDG2: Zero Hunger). However, research has shown that nutrition-specific interventions and projects (Box 1)[1] alone will not be able to meet the agreed global target for improved nutrition. There is consensus that other technical sectors like agriculture, need to adapt their approaches to include a nutrition-lens in order for the sector to contribute to nutrition outcomes (UNICEF, 2021).[2] Agriculture can contribute to nutrition outcomes by influencing the underlying determinants of nutrition and food security: food availability and access, dietary quality and diversity, income and women's empowerment (figure 1) (UNICEF, 2021).

Box 1. Nutrition-specific versus nutrition-sensitive interventions (Ruel et al., 2013)

Nutrition-specific interventions or programs are those that address the *immediate causes* of malnutrition. That is, food and nutrient intake, feeding, caregiving and parenting practices, and prevalence of infectious diseases.

Nutrition-sensitive interventions or programs are those that address the *underlying determinant* or *causes* of malnutrition and development. That is, the food security pillars, adequate caregiving resources at the maternal, household and community levels, and access to health services.

1 Marie T. Ruel, Harold Alderman, and Maternal and Child Nutrition Study Group, "Nutrition-sensitive interventions and programmes: how can they help to accelerate progress in improving maternal and child nutrition?" The lancet 382 no. 9891 (2013): 536-551. https://doi.org/10.1016/S0140-6736(13)60843-0.

2 UNICEF. Conceptual Framework on the Determinants of Maternal and Child Nutrition (New York: UNICEF, 2021), 1-4, https://www.unicef.org/documents/conceptual-framework-nutrition.

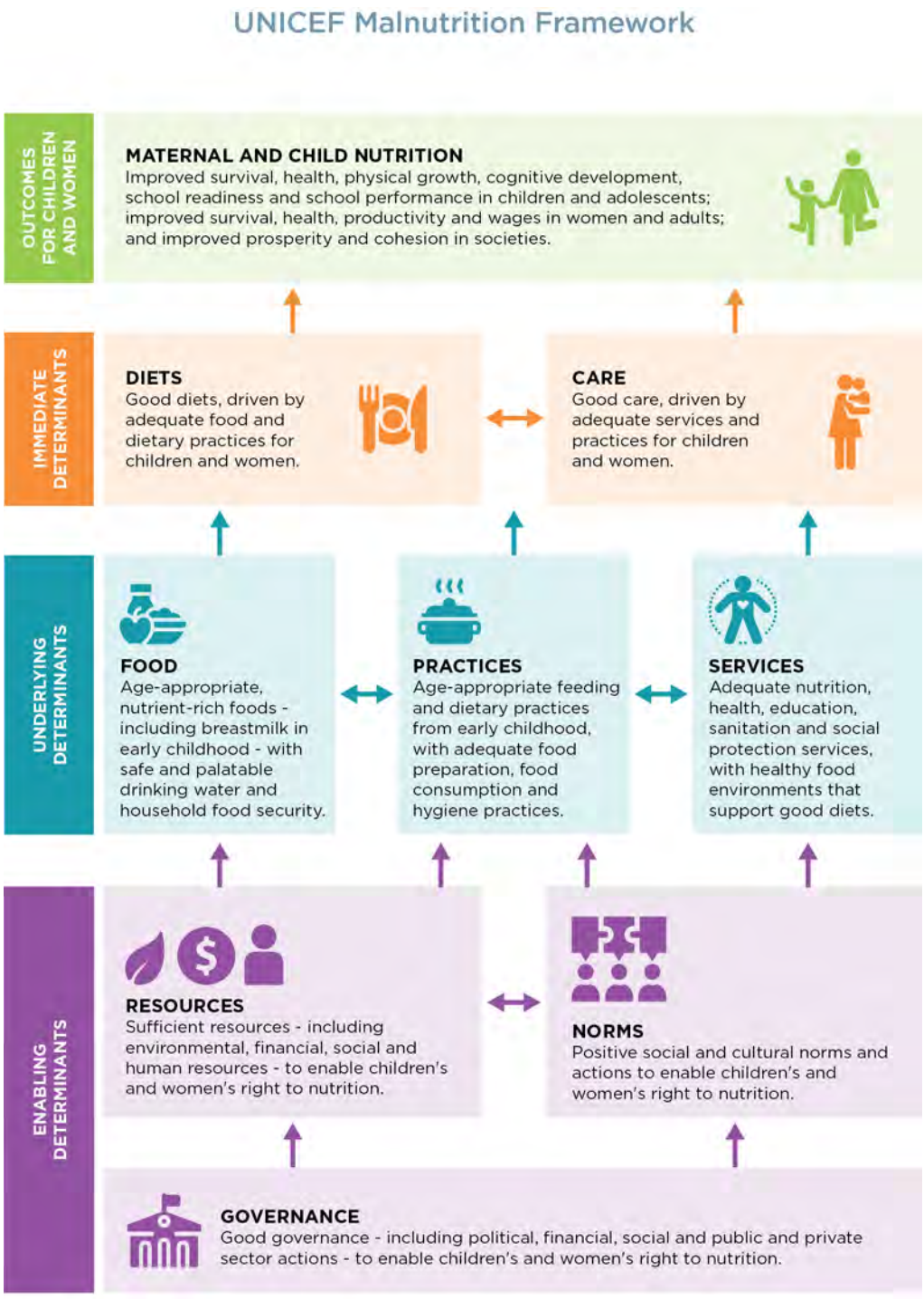


Figure 1. UNICEF framework for the prevention of malnutrition.[3]

3 UNICEF. *Conceptual Framework*, 3.

Nutritious (or nutrient-rich) food

Varies by cultural context, dietary customs, availability and individual needs based on age, gender, health status, etc. These foods provide beneficial nutrients such as vitamins, minerals and macronutrients (i.e., protein). Examples of these foods with good market potential in many contexts are fruit, vegetables, legumes, animal-sourced food (i.e., meat and dairy products), and biofortified crops.

Global Alliance for Improved Nutrition, What constitutes a nutritious and safe food? Knowledge Leadership guidance note, 2017, https://www.gainhealth.org/sites/default/files/publications/documents/gain-nutritious-food-definition.pdf.

World Health Organization, Healthy diet, 2002, https://www.who.int/news-room/fact-sheets/detail/healthy-diet.

Nutrition-sensitive agriculture implies that the program, project or intervention is designed and implemented with specific nutrition objectives in mind. For making agriculture more nutrition-sensitive, a new way of thinking, planning, implementing and partnering is necessary.[4]

There are three overarching primary pathways through which agriculture and agricultural interventions can impact nutrition[5]:

Pathway 1: Food Production: Nutrition may be positively affected when there is an increased supply of nutrient-rich food in local markets that people can purchase, or when farmers increase production and consume their own nutrient-rich produce. Food prices can have an effect on when nutritious foods become more affordable or expensive for households.

Pathway 2: Income: Nutrition may be affected when income is increased (from agricultural and non-agriculture activities) or reallocated to enable households to spend more on nutritious foods or other products that improve nutrition, such as soap and latrines. The impact of income on nutrition is strongly linked to the women's empowerment pathway below.

Pathway 3: Women's empowerment: Nutrition may be affected by women's empowerment in three ways: Decision-making power, women's workload and women's caring capacity.

- **Decision-making power**: Nutrition may be affected when women and girls have increased access to and control over resources and income and have improved input into decisions relevant to food and non-food expenditures that effect food production and consumption, feeding and care practices, and sanitation practices in the household.
- **Women's workload**: Nutrition may be affected when agricultural activities either increase or decrease the workload of women and girls, effecting their ability to take care of themselves or their children. For instance, using labor-saving technologies may provide more time for child feeding practices.

4 Marie T. Ruel, Agnes R. Quisumbing and Mysbah Balagamwala, "Nutrition-sensitive agriculture: What have we learned so far?" *Global Food Security* 17 (2018): 128-153, https://doi.org/10.1016/j.gfs.2018.01.002.

5 Marie T. Ruel, et al., "Nutrition-sensitive interventions" 536-551.

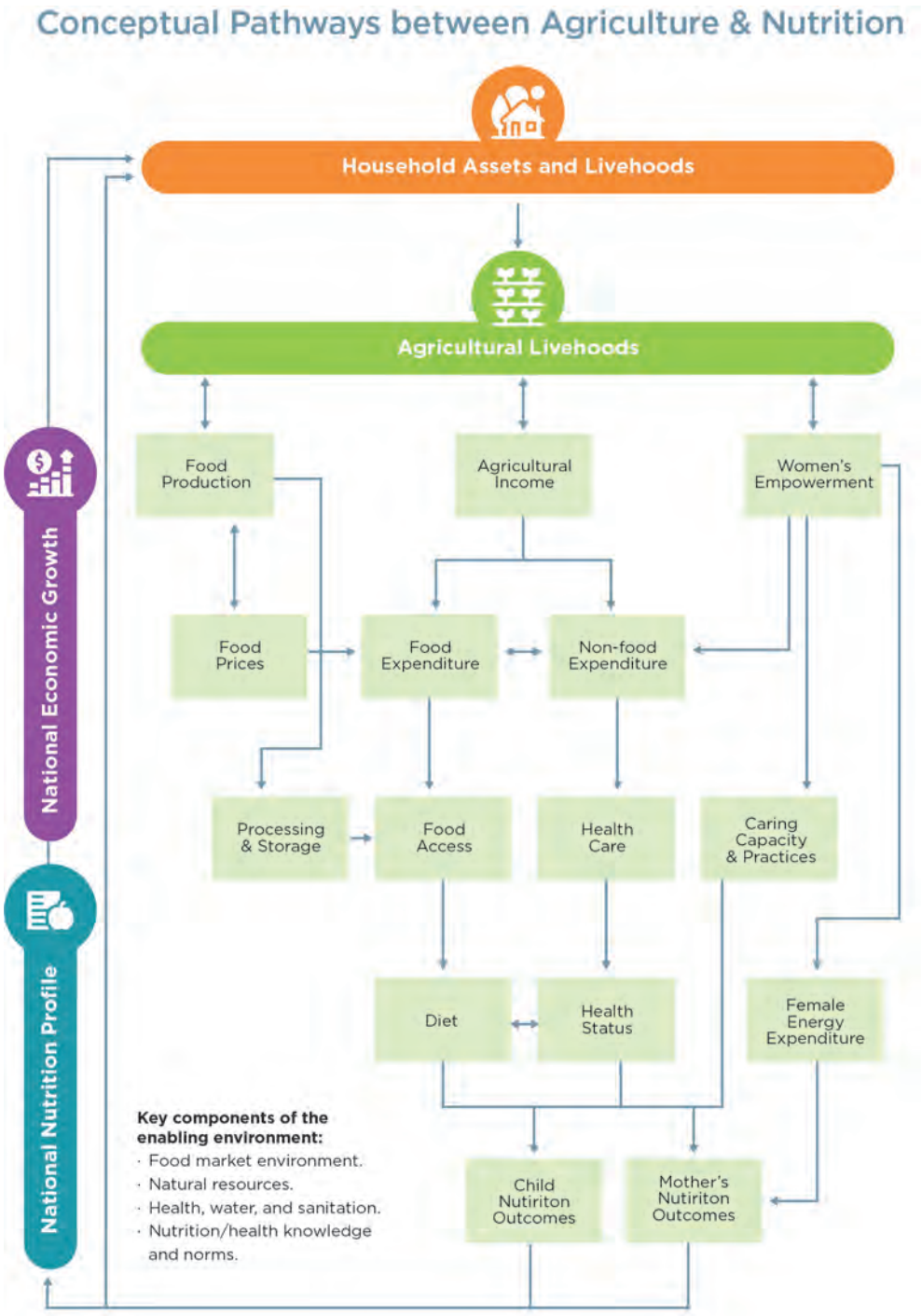
Nutrition may be affected by women's empowerment in three ways: Decision-making power, women's workload and women's caring capacity.

Motorized mobile shellers reduce post-harvest loss in Horongo village, Mbeya region, Tanzania. This machine, which belongs to Abishai Ezekiel Aron and his wife, Kelin Ahombile Mwandwelo, was acquired thanks to CRS' Growing Hope Globally (GHG) program. [Photo by Jennifer Lazuta for CRS]

Women's health and nutrition: Nutrition may be affected when there are changes in the amount of energy or calorie burn-off required for agricultural activities, effecting women and girls' weight. Being underweight may have repercussions for future pregnancies, such as birthweights. Women and girls can also be exposed to hazardous substances and pathogens that effect their health.

To learn more about these pathways, their application and how the pathways complement each other, please read this technical brief series Improving Nutrition through Agriculture produced through the USAID SPRING Project.[6]

6 "Improving Nutrition through Agriculture Technical Brief Series," USAID, accessed September 2023, https://www.spring-nutrition.org/publications/series/improving-nutrition-through-agriculture-technical-brief-series.



Source: Herforth and Harris, 2014

Figure 2. Conceptual Pathways between Agriculture and Nutrition.[7]

7 Anna Herforth and Jody Harris. Understanding and Applying Primary Pathways and Principles. Brief #1. Improving Nutrition through Agriculture Technical Brief Series. (Arlington, VA: USAID, 2014), 3. https://www.spring-nutrition.org/publications/briefs/understanding-and-applying-primary-pathways-and-principles.

Nutrition-sensitive agricultural programs can take a variety of forms, such as introducing nutrient-rich varieties of certain crops (biofortification), homestead food production systems, innovative agricultural financing and irrigation programs, as well as nutrition-sensitive value chain development. While the nutrition-sensitive concept can be applied to both food and non-food value chains, this document mainly focuses on how food value chains can be made more nutrition sensitive.

Introduction to nutrition-sensitive (food) value chains

The previous section focused on nutrition-sensitive agriculture more broadly. This section focuses on NSVCs. A nutrition-sensitive value chain is a (food) value chain designed to alleviate constraints in supply or demand of food as it relates to nutrition problems of consumers or target audiences. NSVCs aim to increase the consumption of nutritious and safe foods that contributes to healthier diets. This concept can be broken down into three parts.

A nutrition-sensitive value chain is a (food) value chain designed to alleviate constraints in supply or demand of food as it relates to nutrition problems of consumers or target audiences.

1. **Nutrition-sensitive** addresses the underlying causes of malnutrition (figure 1). When applied to value chains, the activity is aiming to address a nutrition problem in a specific group of consumers.
2. **Value reflects** not only the economic value of the chain, but also the nutritional value. For instance, when food is made more nutritious along the chain, when less nutritious food is lost or when nutrients within a commodity are retained along the chain, the nutritional value of the chain is improved.
3. NSVCs extend investments **along a chain**[8] to include consumption.

In the context of food-based NSVCs, the nutritional status of individuals and communities are improved through increased quantity, quality and access to diverse, safe and nutrient-rich foods at markets or in homes. For practical examples of value chains for nutrition, please see Hawkes and Ruel.[9]

How do value chains contribute to improving nutrition?

Three overarching pathways through which agriculture can impact nutrition were discussed above. This section discusses pathways through which value chains can impact diet quality and nutrition of project participants or target groups, with a focus on smallholder farmers. These pathways are the income pathway and the food production pathway, the latter being split into two: own-production pathway and market pathway (figure 3).

Income pathway: Increasing agricultural production (the supply) and ultimately the income of participants is an intervention often applied in regular value chain projects. In figure 3, this is depicted in green, and refers to regular value chain characteristics. However, research has shown that, in practice, increasing income alone does not automatically lead to dietary improvements at the household

8 Isabel de la Pena, James Garrett and Aulo Gelli, Nutrition-sensitive value chains from a smallholder perspective: A framework for project design, Research Series 30 (IFAD, 2018), 1-46, https://www.ifad.org/en/web/knowledge/-/publication/research-series-issue-30-nutrition-sensitive-value-chains-from-a-smallholder-perspective-a-framework-for-project-design.

9 Corinna Hawkes and Marie T. Ruel, "Value Chains for Nutrition" Leveraging Agriculture for Improving Nutrition & Health Conference, brief 4 (Washington, DC.: International Food Policy Research Institute, 2020). https://a4nh.cgiar.org/files/2013/06/ValueChainsForNutrition.pdf.

Baomahintsy Ndrianjanirina waters plants at the Mirindra Cooperatiry nursery he manages in Bac Namorona Madagascar, where he cultivates cacao, vanilla and other crops. This project encourages farmers to use the income from the sale of spices for nutrition.
Photo by Tofy Rabenandrasana for CRS.

level.[10,11] This might seem counter intuitive as increased incomes could enable the purchase of nutritious food and improve access to health, safe water and education. However, evidence has shown that numerous factors such as low nutrition awareness and women's social status can prevent increases in income from translating into improvements in diets and nutrition. Projects focused on income improvement should consider complementing the income-generating activities with nutrition awareness, couples' communication and women's empowerment activities where necessary and appropriate.

10 Priya Bhagowalia, Derek D. Headey and Suneetha Kadiyala, *Agriculture, Income, and Nutrition Linkages in India: Insights from a Nationally Representative Survey.* IFPRI Discussion Paper 1195 (Washington, D.C.: International Food Policy Research Institute, 2012). http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/127051.

11 Derek D. Headey, *An analysis of trends and determinants of child undernutrition in Ethiopia*, *2000-2011*, ESSP II Working Paper 70 (Washington, D.C. and Addis Ababa, Ethiopia: International Food Policy Research Institute and Ethiopian Development Research Institute, 2014) http://ebrary.ifpri.org/cdm/ref/collection/p15738coll2/id/128896983. 2019.

Cluster leader Ruth Yu says the gardens bring families in the community together and provide healthy, nutritious food for our families. So far we have harvested cabbage, water spinach, and okra. We divided our produce among ourselves to feed our families. These women are part of Purok Rosal Community Gardens in Surigao del Norte, Philippines. Photo by Jomari Guillermo for CRS.

Own-production pathway: The own-production, own-consumption pathway might be the easiest way to influence smallholder diets. For example, farm households could consume second-quality produce that does not meet market specifications but is safe and rich in nutrients. Yet market-based value chain interventions may also push farmers towards producing for markets rather than for home consumption. Farmers switching to cash crop production may see on-farm production diversity reduced. The own-production pathway may require complementary interventions that encourages diverse farm production while investing in a value chain. This could entail including nutrition education and behavioral changes to encourage farmers to diversify their farms.

Market pathway: Developing NSVCs may result in improved availability, affordability and acceptability of foods on the market, thus contributing to nutritious and safe diets. This pathway can impact both producer households and consumers with

access to the target markets. NSVC projects should include sensitivity towards low-income consumers or markets where low-income consumers do their shopping to enhance impact. In case novel products, such as biofortified foods, are introduced to a market, advertising and marketing might be required for consumer uptake. For example, when HarvestPlus introduced their biofortified beans, they designed a specific logo to help consumers identify biofortified foods, partnered with retailers to market the new product to consumers, and targeted informal food markets where bulk (rather than bagged) grains were sold. This contributed to successful uptake of the biofortified product.[12]

As displayed in figure 3, nutrition awareness and women's empowerment are the so-called impact mediators for all three pathways. Nutrition awareness affects food purchases and willingness to pay, as well as food preparation and food distribution within the household. Nutrition awareness often targets women, given their caregiving role but it is important to target fathers and others who influence nutrition behaviors in the household such as mothers-in-laws. Women often play important roles in the agricultural sector as producers, processors or vendors and are often responsible for food preparation and food purchases as well as for childcare and feeding practices within the household. This puts them in a unique position in the interlinkage between agriculture and nutrition. Specifically, improving women's decision-making power or control over resources may improve their own and other household member's nutrition. However, when decision-making and control over resources are not equally distributed and additional agricultural activities result in an increased time burden, this might, for instance, compromise the time available for childcare and feeding practices and consequently negatively affect nutrition of household members (see also chapter 5 of the CRS Garden Resource Guide[13]). It important to consider how NSVC activities consider and address women's empowerment and male engagement in its design.

Nutrition awareness affects food purchases and willingness to pay, as well as food preparation and food distribution within the household.

Context is key in deciding which pathway(s) to explore: When deciding on which pathway(s) to explore, many variables need to be considered: income vs nutrients, cost of production, maturing speed, labor intensity, perishability, transportation and storage needs. Horticultural products (i.e., fruits, vegetables, and pulses) and animal-source foods (i.e., dairy and meat products) are often classified as both increasing income and nutrition. These tend to be higher-value products than cereals or tubers. Many fruits are more expensive to grow (e.g., avocado), yet some fruits may be abundant and commonly available depending on season (e.g., mango). Vegetables differ in labor intensity (e.g., tomato vs. onions). Many vegetables grow fast so that returns may be quick and high. Vegetables also differ in perishability, and the distance to markets may be a critical issue to consider. Dairy products require some cold chain in order to access markets. Pulses have the advantage of being less perishable while being nutrient-rich.

12 HarvestPlus, *Scaling Nutrient Enriched Crops with the HarvestPlus Delivery and Commercialization Model*, Washington, D.C.: HarvestPlus, 2022), https://www.harvestplus.org/wp-content/uploads/2022/05/Scaling-Nutrient-Enriched-Crops.pdf.

13 Catholic Relieve Services, *Garden Resource Guide* (Baltimore, MD: CRS, 2021), https://www.crs.org/sites/default/files/tools-research/crs_garden_resource_guide_en_2021_01_0.pdf.

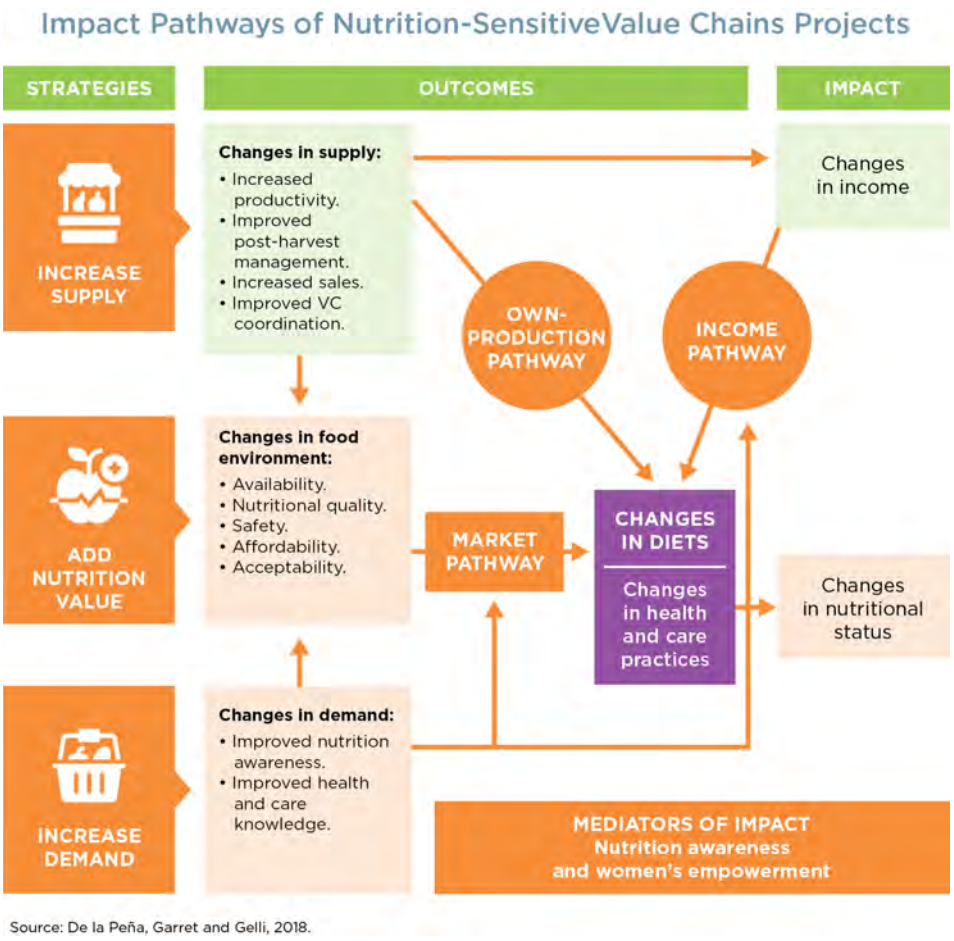


Figure 3. Impact pathways of NSVC projects. Green refers to aspects or components of regular value chains, while orange refers to aspects or components of NSVCs.

NSVC Framework

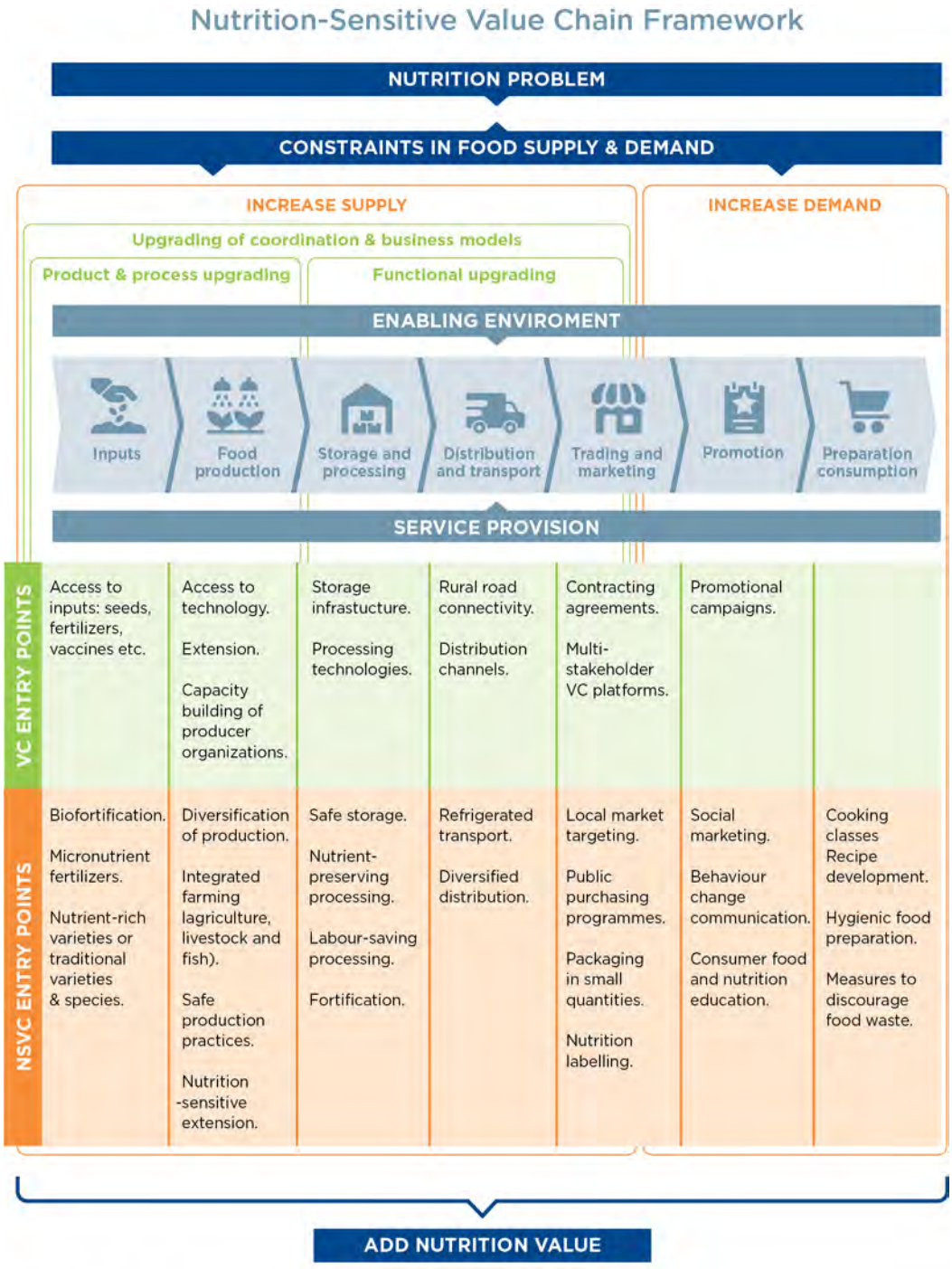
This framework illustrates how value chains can be more nutrition-sensitive and how their potential to impact nutrition could be leveraged (figure 3). It places the nutrition problem of the target group at its focal point, instead of profits. It addresses the nutrition problem by (1) tackling supply and demand constraints of specific foods to address identified nutrient gaps, (2) preventing loss of nutrients in food, and (3) adding nutritional value to existing foods. Figure 4 shows actions and entry points for chain development using a regular VC perspective as compared to a nutrition-sensitive perspective to illustrate the difference. For instance, when looking at the distribution and transport step of the value chain, rural road connectivity could be an entry point in a regular VC project. However, when applying a nutrition-lens, refrigerated transport may be the critical entry point since many nutrient-rich foods like fruits, vegetables and dairy are perishable, leading to food loss and ultimately resulting in decreased availability to the end consumer. When looking at a grain value chain, you might want to focus on improved storage facilities to decrease the chances of aflatoxin formation. **The relevant entry point is dependent on your chain**.

Increase supply: Activities that can increase supply of nutrient-rich foods can span from agricultural inputs to processing. At the input level, it could entail a seed systems approach that increases access to seeds of nutrient-rich crops. During production, good agriculture practices may increase yield or good harvesting practices that minimize damage to nutrient-rich produce may increase supply. At the trade level, projects can work at local, regional and national markets to ensure consumers can access affordable, safe and nutrient-rich foods. During processing, foods can be fortified with micronutrients or techniques can be used to mitigate nutrient loss. Increasing supplies of (nutritious) food affects food security dimensions such as food availability and food affordability. If constraints that need to be alleviated are related to food supply, then standard VC development strategies can be used (as described in the CRS Value Chain Toolkit[14]). In NSVCs, there is often a focus on mitigating food losses given the perishability of nutrient-rich foods. For example, perishability in the cow's milk value chain can be very high, so interventions that mitigate losses along this supply chain using refrigeration or ultra-processing need to be considered. In Kenya, for example, milk ATMs[15] have been introduced in urban areas to enhance consumer access to milk.

Kristina Uto picks eggplant on her family's farm in Oyangbarang village, Adonara Island, Indonesia.
Photo by Laura Elizabeth Pohl for CRS.

14 Jefferson Shriver, Shaun Ferris and Dan Barthmaier, *Value Chain Toolkit* (Baltimore, MD: CRS, 2019), https://www.crs.org/our-work-overseas/research-publications/value-chain-toolkit.

15 http://www.dairyafrica.co.ke/milk-atms/



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

Figure 4. Nutrition-Sensitive Value Chain Framework. Green refers to aspects or components of regular value chains, while orange refers to aspects or components of NSVCs.

Increase demand: As shown by figure 4, demand creation activities are generally not considered a regular part of value chain projects. With NSVCs, demand-generating activities are a key component in encouraging the purchasing and consumption of nutritious foods. Research has shown that including strong behavior change communication in projects aiming to promote optimal diets is key to enhancing the impact of agriculture on diets and other nutrition outcomes.[16]

Add nutrition value: The supply or demand for a specific product might not be the key issue, but rather value chain internal constraints, such as food contamination, food loss,[17] nutrient loss or food waste, that result in a loss in nutritional value. Interventions that may maintain or increase nutritional value include: biofortification, fortification, nutrient-preserving processing and packaging, and food-safe storage and transport. For example, in the milk value chain, the project can consider promoting the production of milk fortified with, for instance, vitamin A or D.

Trade-off and tensions within NSVCs

The unintended risks of value chain development and growth on social dimensions have been touched upon in chapter 3 of the CRS Value Chain Toolkit.[18] When working with NSVCs, it's important to consider the potential tensions and trade-offs between nutrition and income, and nutrition and women's empowerment.

When working with NSVCs, it's important to consider the potential tensions and trade-offs between nutrition and income, and nutrition and women's empowerment.

Nutrition vs. income: One of the primary objectives of any VC project is to increase income through improvements in the productivity or marketability of commodities. This includes a wide range of possible interventions depending on product and context, (e.g., increase efficiencies along the VC, introduce labor-saving technologies, produce new products, better marketing). It may also include the diversification of products for different customer segments, so that higher margin products can support lower margin products to better reach low-income households. For instance, a dairy company may produce milk for low-income households, but also high-margin products, such as flavored yoghurt or cheese, for other population segments.

Next to improving diets and nutrition, increasing incomes is also an important aspect for NSVC projects. Combining both objectives can be a significant challenge. For instance, what will you do when you have identified certain commodities with a high potential for improving diets and alleviating certain nutrition problems within your target group, but it is not the most profitable commodity? How do you weigh the income objective with the nutrition objective? And how do you prevent regular VC development with an income-generating objective from negatively impacting nutrition and food security?

There are at least three ways to deal with such challenges in your project:

- Identify double-value commodities, meaning, commodities that have good market potential with increasing demand as well as high nutrient value (e.g., nutrient-rich).
- Prioritize nutrition over income generation, ensuring that improving diets is always included (e.g., promoting diversified farming systems, such as intercropping or

16 Marie T. Ruel et al., "Nutrition-sensitive agriculture," 128-153.

17 Food loss occurs before the food reaches the consumer as a result of issues in the production, storage, processing, and distribution phases. Food waste refers to food that is fit for consumption but discarded at the retail or consumption phases.

18 Shriver, et al., *Value Chain Toolkit, 38.*

crop rotation, in order to increase access and availability of nutritious crops). This may also involve crops or products that are not yet considered commodities. If the income-generating potential of a crop is not favorable, the project may aim to complement interventions with parallel support for home production and its benefits. Note also that increasing demand (through marketing, or partnering with public purchasing programs) can be a valid pathway towards improving the income-generating potential of nutrient-rich products.

- Identify high potential income-generating crops and
  - Explore how nutrition could be integrated into the VC approach (e.g., at processing).
  - Include explicit approaches to influence how that income can be used to purchase products that improve the nutrition of key family members.
  - Explore ways to reduce women's workload, in terms of both time and energy needs.

A value chain approach can increase gender equality and women's empowerment, or it could create more inequities.

Women's empowerment vs. nutrition: A value chain approach can increase gender equality and women's empowerment, or it could create more inequities. Research has shown that women's empowerment positively influences the nutritional status of children and that improving women's decision-making power or control over resources can improve their own and household members' nutrition.[19] Therefore, women's empowerment should be an explicit strategy when developing NSVCs. At the production level, stimulating women's empowerment to achieve nutrition goals could lead to some unintended consequences. For instance, considering women's existing workloads, how does involving them in an NSVC activity affect their already limited time? Scholars are suggesting that time- and labor-saving machinery could be used to address constraints on women's time and energy use, but more detailed research is needed to assess whether these kinds of interventions actually do save time attaining desired nutrition outcomes. Furthermore, when looking at the income-pathway, women's empowerment could be vital when it comes to spending the household income on nutritious foods or other products that could benefit nutrition. To leverage women's empowerment in the income pathway, the project could consider involving the couple rather than the individual farmer, based on the context, and explore, for instance, joint decision-making interventions, such as CRS' Gender Transformative Approach for Savings and Internal Lending Communities (SILC) or SMART couples. When designing your project, map the different pathways through which NSVCs might affect women's empowerment, and gage how this, in turn, might affect nutrition at the household level, in terms of both benefits and risks.

19 Sanni Yaya, Emanuel K. Odusina, Olalekan A. Uthman and Ghose Bishwajit, "What does women's empowerment have to do with malnutrition in Sub-Saharan Africa? Evidence from demographic and health surveys from 30 countries," *Global Health Research and Policy* 5, no. 1 (2020): 1-11.

How to design a nutrition-sensitive value chain

An overview of the NSVC design process: This section walks you through the first four steps of designing an NSVC (figure 5).

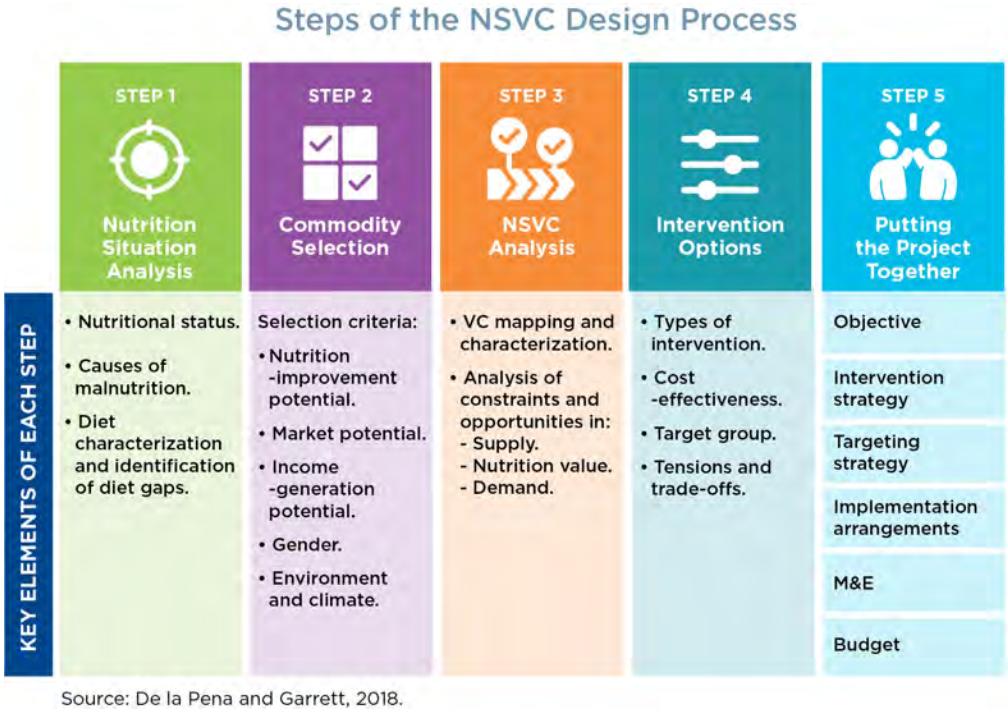


Figure 5. Steps of the NSVC design process.

Step 1. Start with a nutrition situation analysis

The first step is to conduct a **nutrition situation analysis**. This is different from a regular value chain process that would assess commodity selection first. The aim of this step is to identify nutrition problems and dietary patterns of the target audience to identify dietary gaps. It is important to tailor the nutrition situation analysis to the target audience of the *nutrition outcomes*. This could be smallholder farmer households, urban consumers, children under 5, adolescent girls, pregnant and lactating women, the elderly, etc. Different groups can have different nutritional needs and challenges, so it is important to be specific about the target audience. This analysis allows for a better understanding of how value chain development can contribute to alleviating the identified nutrition problem.

To understand the food-related determinants of malnutrition for particular targeted audiences and contexts, gather information on malnutrition prevalence, its causes, and dietary patterns.

- **Malnutrition prevalence:** Although all people are susceptible to malnutrition, children under 5 and women of reproductive age (15-49) are often the target audiences nutrition support. For child malnutrition, review data on minimal acceptable diet (MAD), stunting, and micronutrient deficiencies such as iron, zinc, iodine and vitamin A. For malnutrition among women gather data on dietary diversity, weight extremes and critical micronutrients deficiencies.

In Rwanda, Clementine Mukashyaka sells vegetables in the market. Research shows that even very poor families have the means to improve their children's nutrition through small and affordable behavior changes, like breastfeeding, and that's why Gikuriro focuses on lasting behavior change.
Photo by Michael Stulman for CRS.

- **Causes of malnutrition**: As described in the UNICEF malnutrition framework above (figure 1), there are three levels of causes of malnutrition: (1) immediate, (2) underlying, and (3) basic. It is important to gather information on the key components of all three to better understand nutrition problems and gain clarity on where value chains can contribute.
  - **Immediate causes** relate to food intake (diet) and health status (illnesses, such as diarrhea), that immediately impact one's nutritional status.
  - **Underlying causes** are food security (accessibility, affordability, availability and acceptability of food), childcare and feeding practices, access to health care, and safe water and sanitation.
  - **Basic causes** include policies and programs (or lack thereof), women's empowerment, poverty, etc.
- **Dietary patterns:** Assess current diet by gathering primary or secondary information on food consumption patterns such as what your target audiences consume, how much and how often (for instance through food frequency questionnaires or 24-hour dietary recalls). Explore how agriculture and religious seasons and cultural norms including intra-household food distribution, affect the food consumption of different target audiences. From this information, identify dietary gaps, based on insufficient consumption for meeting the nutritional needs defined for the targeted audience.

Collaboration for nutrition situation analyses: Any nutrition situational analysis will require expertise in nutrition. It is important to collaborate with the project, country program, regional and/or senior level nutrition staff when conducting a nutrition situational assessment. They are a valuable resource that can provide support or guidance on where to access the data identified above, share and support tools to gather data, help to interpret the analyzed data, and provide input into the follow-on steps for NSVC. Good sources of country level nutrition data are the *Global Nutrition Report*[20] and *Food Systems Dashboard*,[21] but you will likely need to dive deeper into data specific to your geographic location for the targeted audiences.

It is key to ensure that the target communities or target groups are involved from an early stage in understanding their nutrition situation, as practices regarding food and nutrition may differ from the practices perceived by outsiders (e.g., eating bush meat, gathering wild fruits, herbs and spices, picking low-hanging road-side mangos, and consuming expert-perceived non-foods, such as tisanes).

Output of the nutrition situation analysis: At the end of this step, the analysis will provide an initial list of nutrient gaps for a specific population. The nutrient gaps will shed light on the type of commodities and processing opportunities that the project might want to promote. These opportunities will be defined and narrowed down in the next steps.

For a more elaborate roadmap on how you could conduct this step (including research questions, information needs, data collection methods, team composition, templates, and more tips and tricks, see table 1 of the guide by the International Fund for Agricultural Development (IFAD).[22]

Step 2. Production selection

When selecting products for an NSVC activity, there are three criteria to consider:

- *Nutrition-improvement potential*: What commodities can address the target population's nutrition problem. Step 1 above on nutrition situation analysis will help generate this list.
- *Market potential*: Which commodities have market or growth potential? What commodities are preferred by the targeted audience?
- *Income-generation potential*: Which commodities can generate income for targeted producers and rural populations?

To help develop an initial list of commodities and processes that consider the three criteria above, review the USAID TOPS publication Tool for Framing a Discussion between Nutrition and Agriculture Specialists[23] quoted below in Box 2. This tool can support a facilitated process among agriculture and nutrition staff for selecting commodities.

20 https://globalnutritionreport.org/resources/nutrition-profiles/

21 https://www.foodsystemsdashboard.org/

22 Isabel de la Pena, et al., *Nutrition-sensitive value chains*, 19.

23 J. Jennings and L. Friedman, *A Tool for Framing a Discussion between Nutrition and Agriculture Specialists* (Washington, DC: The TOPS Program, 2017), 1-29, https://www.advancingnutrition.org/resources/tool-framing-discussion-between-nutrition-and-agriculture-specialists.

Box 2. Crop selection.

Agriculture and nutrition staff have unique perspectives and priorities. By drawing upon their combined analytical skills, this tool supports a dialogue between agriculture specialists and nutrition specialists as they jointly design project interventions aimed at improving nutrition. The TOPS tool provides four user-friendly steps through which they combine their skills and expertise to jointly select and prioritize crops to be promoted at household level for a more effective project intervention. The tool enables the two sector teams to clearly articulate their thought processes behind crop selection, better understand the opportunities and challenges from both perspectives, and jointly decide on the best crops to be promoted in a specific project.

Besides the three criteria for product selection mentioned above, the following overarching themes should be taken into account and addressed as needed in the value chain design and complementary activities:

- **Government policies and priorities:** How are the commodities affected by government policies or programs? Do export bans apply? Are there subsidies on inputs or outputs? Are there support programs? Do minimum or fixed consumer prices apply? Is there investment in food processing encouraging product uptake? Such factors influence the economic performance and (political) sustainability of interventions over time.
- **Gender:** Is the product associated (positively or negatively) with women's empowerment? Does it increase or decrease women's time or energy burden? Do women control the income of the commodity?
- **Environment and climate:** Is the product (positively or negatively) associated with sustainable natural resource management (NRM) and climate-smart agriculture? Does it contribute to environmental contamination? Does it contribute to environmental enteropathy (increased exposure to animal waste and associated risk)?

The scoring matrix, as described in chapter 2 of the CRS Value Chain Toolkit,[24] lays the foundation for an effective way to consider these criteria when selecting commodities for the value chain project. However, for an NSVC, the initial list of commodities for the scoring matrix would be identified based on the diet gaps identified in step 1, along with government priorities, programs and policies.[25] When defining the nutrition-improvement potential of a commodity, three sub-criteria should be considered: (1) food consumption, (2) food preferences and (3) food composition. Table 1 provides guidance on nutrition-sensitive improvement scoring.[26]

24 Shriver, et al., Value Chain Toolkit, 23.

25 Isabel de la Pena and James Garrett, Nutrition-sensitive value chain: A guide for project design Volume II (IFAD, 2018), 19, https://cgspace.cgiar.org/handle/10568/99243.

26 For more detailed information on the nutrition-sensitive (sub)criteria, data collection methods and scoring guidance, please see table 2 of Isabel de la Pena et al., *Nutrition-sensitive value chain* Vol. II, 51.

Table 1. Nutrition-sensitive improvement scoring.

CRITERIA	SUB-CRITERIA (EACH TO BE SCORED 1 TO 3)	TOTAL SCORE (SUM ACROSS THE SUB-CRITERIA)	COMMENTS
Nutrition-improvement potential	• Food consumption • Food preferences • Food composition	Low: 3 - 4 Med: 5 - 7 High: 8 - 9	• 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.

Source: De la Pena et al., 2018.

Output of the product selection: At the end of this step, you will have a list of commodities with the potential to contribute to solving the nutrition problem of the target group, while also making business sense.

Step 3. NSVC analysis

This step is a more in-depth analysis of the possible value chain development of the commodities selected in Step 2. As described in chapter 2 of the CRS Value Chain Toolkit,[27] a value chain analysis aims to identify constraints to and opportunities for upgrading along the value chain. In regular value chain projects, these constraints and opportunities generally relate to the market and income-generating potential of the chain, whereas a nutrition lens should be applied to this analysis when working on NSVCs. The analysis should not only reveal how the selected product or intervention might benefit incomes, but also how it might relieve constraints related to the supply, demand or nutritional value of the product and therefore its contribution to diets.

27 Shriver, et al., *Value Chain Toolkit*, 30.

Table 2. Adding a nutrition lens to a regular VC analysis.[28]

REGULAR VC ANALYSIS	NUTRITION-SENSITIVE VC ANALYSIS ADDING A NUTRITION LENS BY ALSO ANALYZING…
VC mapping and characterization - Structure and functions - VC actors and relationships - Business models - Enabling environment - Gender - Climate and environment	Nutritional value - Nutritional value addition potential - Food loss and waste - Food safety
Opportunities for VC upgrading - Interest of value chain actors and lead firms - Product and process upgrading - Functional upgrading - Coordination and business model upgrading	Demand - Market demand: local markets, non-local markets, institutional markets - Demand from target group: barriers to consumption and factors affecting demand (availability, affordability, acceptability, intra-household dynamics)

Similar to a regular VC approach, the NSVC analysis starts with mapping the VC and identifying the relevant actors in the chain. For an NSVC project, depending on the context, it might be relevant to also look at actors in the nutrition and health space such as, health workers, the ministry of health, Scaling Up Nutrition Network and active NGOs. This will provide the basic information needed to identify constraints and opportunities of the subsequent elements of the NSVC analysis: supply, nutritional value and demand.

When identifying the structure and functions for an NSVC, look at the nutritional value in addition to the financial value of the product and assess at which points in the chain this value can be improved or where losses can be prevented.

Traditional value chain projects generally have a focus on upgrading opportunities, and while this is also of importance in NSVC projects, the latter often put a strong emphasis on the demand side of the chain and are more consumer centered. This means that an NSVC analysis, like a regular VC project, should focus on the market demand for the product, but more specifically, assess which underlying factors affect the demand from the target audience. Besides, it is helpful to assess whether there are any programs in place to create demand for the commodity, such as campaigns on healthy eating and nutritional value of foods. For a more elaborate roadmap on how you could conduct this step including research questions, information needs, data collection methods, team composition, and more tips and tricks, please see table 3 of IFAD's guide.[29]

Output of the NSVC analysis: At the end of this step, you will have an overview of the value chain with its main components and actors, in addition to a list of constraints and opportunities relating to supply, demand, nutrition value of foods and gender dynamics as they relate to the nutrition problem and enabling environment.

28 Adapted from Isabel de la Pena et al., *Nutrition-sensitive value chain* Vol. II.

29 Isabel de la Pena et al., *Nutrition-sensitive value chain* Vol. II, 72.

Intending to strengthen the capacity of the municipal and private sectors to create structures that connect small farmers, buyers, and local authorities, CRS implemented the Value Chains project in the region in the Birač region of Bosnia and Herzegovina. Photo by CRS Staff.

Step 4. Identify intervention options

In this step, you will synthesize the findings of Steps 1, 2 and 3, and identify opportunities that a value chain project can pursue. Identify intervention options by thinking through these four questions:

The project team should be confident of the intervention's appropriateness, feasibility, effectiveness and value-for-money.

1. Who is the target audience (i.e., the group of people whose diet and nutritional status the project aims to impact and improve)? How do you reach the targeted audience (directly or indirectly by focusing on another value chain actor, such as input suppliers or processors)?
2. Who (value chain actor or provider) will be involved in conducting, coordinating, investing and sustaining the benefits?
3. What is your entry point? Based on the findings from step 1-3, identify were to make investments: supply, demand, nutritional value of the chain(s) (or a combination). Determine if it is commodity-specific or cuts across chains. Explore and validate entry points in collaboration with (and ideally driven by) value chain partners. For examples of entry points, please see table 4 of IFAD's guide.[30]

30 Isabel de la Pena et al., *Nutrition-sensitive value chain* Vol. II, 65.

4. What are the costs of interventions and activities, compared to their expected benefits and effectiveness?
5. What are the tensions and trade-offs?

Output of Step 4: At the end of this step, you will have a clear understanding of the desired interventions. The project team should be confident of the intervention's appropriateness, feasibility, effectiveness and value-for-money.

Step 5. Project design

The final step of the NSVC design process is **project design**. During this step, all information gathered in steps 1 through 4 will come together and will inform the actual design of the project. As with any project, this step includes formulating a project objective, defining a clear intervention strategy, knowing who to target and how to target them, budgeting, and monitoring and evaluation. However, when doing an NSVC project, a nutrition lens should be applied to these different aspects.

How to adapt existing tools in the CRS Value Chain Toolkit

At this time, the chapters of the CRS Value Chain Toolkit do not apply a nutrition lens.

At this time, the chapters of the CRS Value Chain Toolkit do not apply a nutrition lens. Until the toolkit is updated, this section provides guidance on adapting the toolkit's tools to incorporate a nutrition lens.

Territorial analysis & nutrition situation analysis: As described on page 20 of the CRS Value Chain Toolkit, in regular VC projects a territorial analysis is a way to gain a better understanding of the productive assets and market opportunities for farming communities within a target geographic area. Integrating the nutrition situation analysis into this tool will enhance its nutrition-lens. By doing so, the most pressing nutrition problems in the project's target group and area are now captured in the drawing and are now part of strategic decisions on where to invest.

Nutrition-sensitive product selection & the value chain prioritization tool: Table 2 of the CRS Value Chain Toolkit[31] displays the value chain impact criteria. A scoring system like this can be used to select commodities based on pre-defined criteria and a weight given to each criterion. As you can see, the example in table 2 prioritizes commodities with profit potential (a weight of 20%) and scalability (a weight of 20%). This is common for regular VC projects whose primary aim is to generate more income for the target group. Furthermore, you will find that a nutrition component is already integrated into table 2, through the inclusion of the food security and nutrient-rich criteria. Depending on your project and context, you can adjust these criteria (and their weights) to reflect the potential of certain products for alleviating identified nutrition problems and, through the weighting, you can reflect the importance of achieving nutrition goals in the project (e.g., compared to income-generating potential).

In some instances, the specific product value chains to be included in a project are pre-defined by a donor, for example, or by communities themselves. Consequently, opportunities to carefully select those commodities which will benefit both income generation and nutrition (and possibly other criteria) may be limited. However, experience has shown that exploring the following options may still provide you with opportunities to contribute to nutrition improvement.

31 Shriver, et al., *Value Chain Toolkit, 21.*

When products or commodities are pre-defined and do not seem relevant to the identified nutrition problem of the target group, you can explore opportunities for **diversification and complementarity** in the project, which might benefit the target group's diet. That is, perhaps rice production (generally not contributing much to nutrition problems) can be combined with fish farming, or a biofortified rice variety (containing more critical micronutrients) can be promoted rather than the standard variety. Furthermore, crop rotation and intercropping systems can also be used to introduce nutritious foods at the farm level. If these options do not seem relevant, the income-pathway could be explored (see figure 2). Given this broader emphasis on value chains contributing to nutrition, the two criteria, food security and nutrient-rich, could be combined into one criterion: nutrition sensitivity.

Regular value chain analysis & nutrition-sensitive value chain analysis: In general, those interested in conducting an NSVC analysis can follow the regular VC approach as described in chapter 2 of the CRS Value Chain Toolkit. However, you should incorporate nutrition-sensitive goals and questions in your process to ensure that the information collected during the analysis phase is sufficient to guide the design process. For examples of nutrition-sensitive questions to incorporate into your analysis, please see the NSVC analysis section in this document. For an elaborate roadmap on how to implement this step, including research questions, information needs, data collection methods, team composition, and more tips and tricks, please see table 3 of IFAD's guide.[32]

Airawati Multipurpose Small Farmers Society was established in 2001. Of its 1,221 members, 60% are women farmers. The cooperative is well known in the municipality for actively engaging in the production and supply of local agricultural products such as ginger, turmeric, honey and beans.
Photo by Amit Rudro for CRS.

32 Isabel de la Pena et al., *Nutrition-sensitive value chain* Vol. II, 50.

Conclusions and Recommendations

To effectively face complex global nutrition challenges, we need to leverage the potential of markets and value chains. By applying a nutrition lens to value chain projects, a wide range of opportunities for improving nutrition can be identified and pursued, contributing not only to positive outcomes in nutrition, but also income generation, women's empowerment and environmental sustainability. A NSVC is a food value chain that has been shaped to alleviate constraints as they relate to the nutritional problems of consumers or a target group. In other words, NSVCs aim to increase the consumption of nutritious and safe foods, which contributes to healthier diets. Value chains may contribute to nutrition through these three identified strategies: (1) increase the supply of nutritious food, (2) increase the demand for nutritious food, and (3) add/retain nutritional value along the chain. These strategies are primarily relevant when working with a food value chain. When working with non-food value chain or food value chains that are less nutritious, nutrition can potentially be mainstreamed by focusing on income through spending on nutritious food and other nutrition-related products and/or women's empowerment through improved decision-making, income control, and energy and workload reduction.

The following aspects should be considered when developing a nutrition-sensitive value chain:

To effectively face complex global nutrition challenges, we need to leverage the potential of markets and value chains.

- Include staff or partners with nutrition and behavior change expertise on the design team.
- Establish when and how to involve the target communities/groups for information and validation of nutrition-related findings.
- Incorporate specific nutrition-related objectives or outcomes in the project design.
- Determine the types of value chains needed to improve nutrition (these may include food and non-food) and identify the pathways for enhancing nutrition through each.
- Identify ways the selected value chains impact income growth, income control and women's empowerment for the target group and actors along the chains.
- Incorporate lessons learned on assumptions about farm to fork, pervasive social norms that affect the well-being and income use of women and children, unintentional harm related to environmental pathogen exposure and gender-based violence.
- Consider the own-production pathway as part of the intervention design as smallholder farmers are often a producer as well as a consumer.
- Explore how demand generation might help achieve nutrition objectives, as this is generally not included in a regular VC project.

This document provides an overview of NSVCs, the four key steps in designing them and links to many resources. Use this document and the linked resources to support design and implementation teams in addressing nutrition-related issues through value chain development.

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