Enhancing food systems for sustainable and healthy diets through nutrition-sensitive value chains: Key insights from Tanna, Vanuatu

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Introduction

Traditional farming systems in Vanuatu, once ecologically sound and socially cohesive, are now under strain. Population growth, a shift toward imported processed foods, and limited income opportunities (especially for women and youth) have eroded local diets and heightened vulnerabilities. Extreme climatic events further threaten food security. These factors contribute to the coexistence of undernutrition, micronutrient deficiencies, and diet-related non-communicable diseases (NCDs).

In response, World Vision and the Alliance of Bioversity International and CIAT, with support from the International Fund for Agricultural Development (IFAD), implemented the Melanesia Rural Market and Innovation Driven (MERMAID) Programme in Vanuatu and the Solomon Islands. The programme's overarching aim was to identify and implement scalable pathways to increase the production and consumption of local, nutrient-rich foods while improving livelihoods. This brief highlights key findings from Tanna Island in Vanuatu, focusing on how nutrition-sensitive value chains can enhance food systems for sustainable and healthy diets.

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Nutrition-sensitive value chains: Nurturing health through agriculture

Key principles

A holistic approach. Nutrition-Sensitive Value Chains (NSVC) go beyond simply boosting food production or income. They aim to ensure that the food produced, processed, distributed, marketed and consumed not only meets the caloric needs of a population but also provides the necessary nutrients for overall health and well-being. The NSVC approach recognizes that nutritional status is influenced by a variety of intersecting factors, necessitating holistic and multifaceted solutions; such approach helps to establish clear links between the nutrition problems of the target populations and the existing constraints in terms of supply, demand, and nutritional value of the food.

Multiple entry points. NSVC initiatives integrate nutrition considerations into every segment of the value chain. Core strategies include: diversifying crop and livestock production to include nutrient-rich foods, enhancing post-harvest handling to preserve nutrient content, enhancing market access and affordability of nutritious foods for vulnerable populations, and promoting dietary diversity to encourage the consumption of a wide range of nutritious foods. NSVC interventions typically operate through three main avenues: (i) income generation: encouraging the production of commodities that can be sold for profit, potentially increasing a household's ability to purchase nutritious foods; (ii) market access: making healthier foods more available, affordable, and acceptable to consumers, including smallholder farmers themselves; and (iii) local consumption: promoting the production and intake of locally-grown, nutrient-dense foods.

Contributions to SDGs. NSVC aligns with Sustainable Development Goals 2 (Zero Hunger) and 3 (Good Health and Well-being) by prioritizing nutrient-rich food production and access. Healthier populations also bolster productivity and resilience, contributing more broadly to socio-economic development.

Social inclusion and gender. NSVC approaches emphasize reaching vulnerable populations, particularly women, youth, and marginalized communities. Women play pivotal roles in agricultural production, caregiving, and household food provisioning. Empowering women and youth is therefore essential for enhancing food security, improving nutrition outcomes and household well-being, and fostering sustainable development.

A four-step roadmap

To operationalize these principles, the research team followed a structured four-step NSVC methodology[1]:

1. **Nutrition situation analysis:** Gather data on diet quality, nutritional status, and food consumption patterns to identify critical gaps (e.g., vitamin A, protein deficiencies, seasonal hunger periods). This sets priorities for value chain interventions.
2. **Commodity selection:** Identify food commodities with high nutritional value and feasible market potential. Community input and criteria like nutrition value, market demand, and women's involvement guide this pre-selection.
3. **Nutrition-sensitive value chain analysis:** Map each step of the value chains for the pre-selected commodities (production, processing, storage, marketing, consumption) to pinpoint where food and nutrients are lost and how to improve the quality, availability, and utilization of food products. This also includes examining gender roles, power dynamics, and cultural practices affecting food access and nutrition outcomes.
4. **Intervention design:** Develop strategies to boost both the supply of nutrient-rich foods and their consumption (e.g., introducing improved crop varieties, forming cooperatives, linking farmers to school meal programs, providing nutrition education, etc.).

1 de la Peña I; Garrett J. (2018). Nutrition-sensitive value chains: A guide for project design. Volumes II: Resources. IFAD, Rome (Italy). 96 p. ISBN: 978-92-9072-865-8. https://hdl.handle.net/10568/99243

Tanna's overview: At the heart of Tafea province

Tanna is one of the five islands of Tafea Province in southern Vanuatu. Home to about 30,000 people (roughly 10% of Vanuatu's population), Tanna is known for its rugged terrain and active volcano Mount Yasur. The island's communities are spread across distinct ecological zones, each facing unique opportunities and constraints for agriculture.

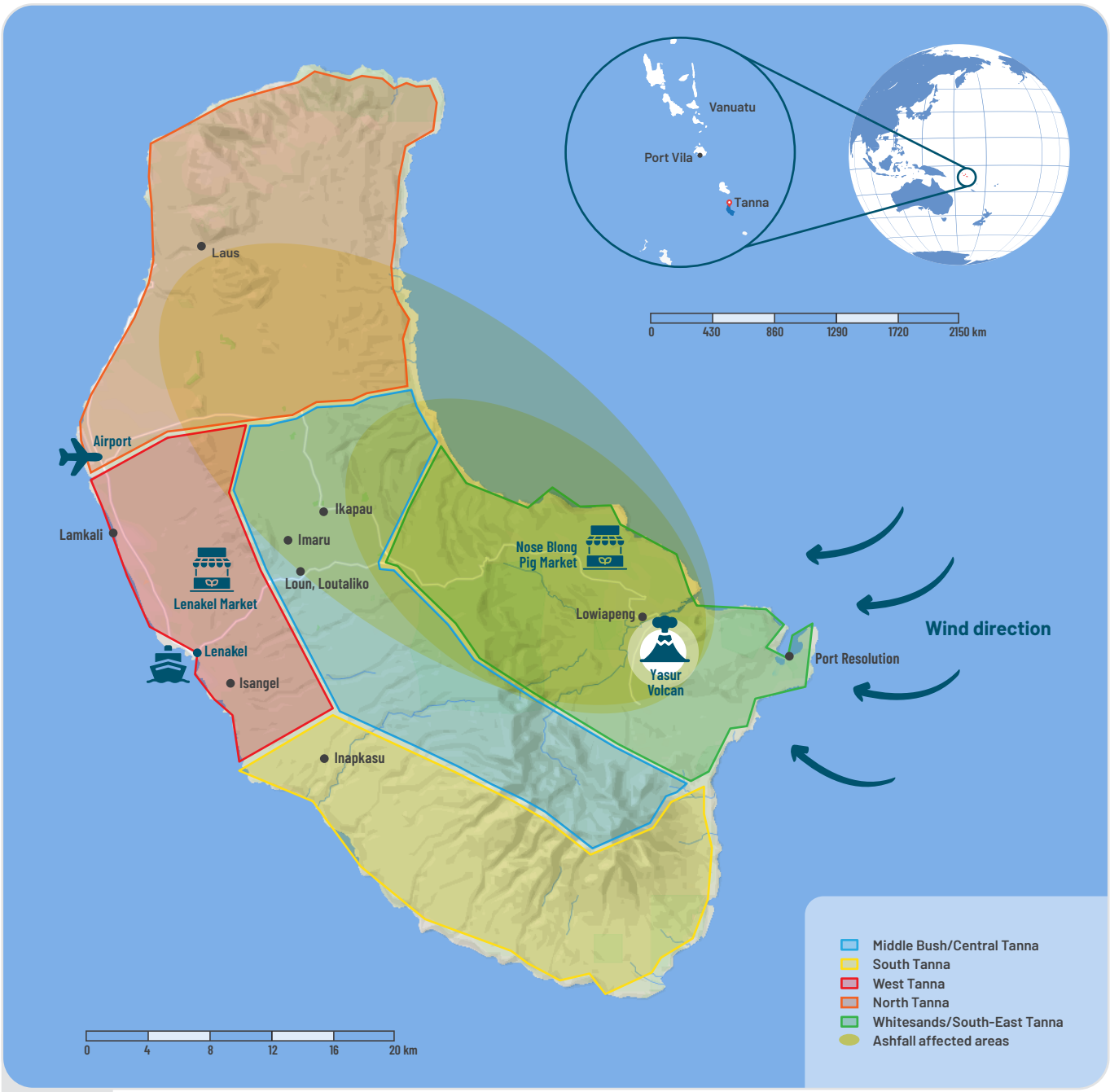

Figure 1 Indicative zones reflecting potential for differentiated interventions.

Note: In this context, any food systems intervention must be climate- and area-specific. Interventions in fertile central Tanna might not suit the ash-laden East or dry South. Tailoring interventions for each zone is crucial. For example, in ashfall-affected communities, focusing on hardy root crops and poultry (which can be raised near the home) is more suitable than water-intensive vegetables. Meanwhile, in the more favorable central and western areas, a broader range of crops (including nutrient-dense vegetables) can be promoted.

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Nutritional challenges in Tanna

The MERMAID baseline survey, conducted in 2022, combining household-level data and focus group discussions, revealed the following:

Agricultural production. Households typically grow an average of six crop types. Of 55 reported crops, only nine are grown by over 40% of households, mainly roots, tubers, vegetables, and cereals. Fruits, legumes, and nuts are grown to a lesser extent. About 41% of households raise pigs and chickens. In addition to cultivated crops, many households rely on wild fruits and nuts, which supplement diets particularly during lean seasons or when garden yields are low.

Food security and consumption patterns. 23% of the population experience moderate to severe food insecurity. Dietary diversity is notably poor: surveyed women and children consumed only 2–2.4 food groups on average in a 24-hour period, well below recommended thresholds. Alarmingly, 91% of children did not meet the minimum diversity of four food groups, and 99% of women fell short of the five-group benchmark.

Main food groups. Diets are heavily dominated by starchy staples (consumed by 96% of women and 99% of children), followed by vitamin A-rich vegetables (62% and 69%, respectively). Consumption of animal source foods remains low, with particularly low intake of dairy (7%) and eggs (3%) for children.

In summary, Tanna faces the triple burden of malnutrition in all its forms. Many children lack access to nutrient-dense foods essential for healthy growth (national data show that 29% of children under five are stunted; anemia affects 27% of children and 22% of women of reproductive age).

At the same time, adults are increasingly exposed to diet-related illnesses due to poor-quality diets. The underlying causes are multifaceted: ecological (what can grow where), economic (poverty and market access), informational (lack of nutrition awareness and skills), and cultural (food preferences, traditional beliefs, and intra-household roles that shape food production, allocation, and consumption).

These findings underscore the need for an integrated approach that simultaneously improves both food supply and dietary practices. It is not enough to produce more food; it must be the right kind of food, and people must have the means, knowledge, and motivation to incorporate it into their diets. The next step was to identify which foods to promote that could realistically help shift the nutrition situation.

Food product prioritization: Choosing the nutrient-rich stars

With a clear picture of local nutrition issues, the research team compiled a broad list of 40+ crops and livestock products, including starchy staples, fruits, vegetables, legumes, nuts, and animal-source foods. Drawing on secondary data from agriculture reports and nutrition databases, and local expert suggestions, the list was narrowed down to 13 promising products for further analysis. This list included Vitamin A-rich vegetables (carrot, pumpkin, orange-flesh sweet potato), other vegetables (broccoli, cauliflower, beetroot, green beans, cabbage), fruits (pineapple, mango, citrus), and small livestock (poultry, eggs, and small pigs).

Each of the 13 commodities was then assessed using four groups of criteria: **market potential, income generation potential, nutrition improvement potential, and gender/social dimensions.** This involved scoring each item on sub-criteria like: *Does it fill an important nutrient gap (e.g. high in protein, iron, or vitamin A)? Is there demand in local or urban markets for it? Can smallholder farmers realistically produce more of it with the available resources? Would promoting it empower or burden women? Are communities interested about this product?*

The team used a combination of key informant interviews, focus group discussions, and secondary data to perform the scoring. For example, in the case of small livestock, communities expressed a strong desire to increase egg consumption (yet there was limited local production) indicating both unmet demand and potential for impact.

Table 1. Aggregated zone-based scores (across market, nutrition, income, and gender criteria) for 13 nutrient-rich food products.

	CENTRAL	WEST	SOUTH-WEST	NORTH	EAST	SOUTH-EAST	AVERAGE SCORE
Small livestock	27	28	28	27	27	28	**27.5**
Broccoli	27	27	26	23	23	26	**25.3**
Carrot	26	26	27	23	23	25	**25.0**
Green beans	27	28	24	22	24	24	**24.8**
Kumala	25	27	26	22	22	26	**24.7**
Napa cabbage	25	25	26	22	22	26	**24.3**
Pineapple	25	24	26	22	23	26	**24.3**
Mango	25	25	25	23	23	25	**24.3**
Beetroot	24	24	24	24	24	24	**24.0**
Pumpkin	24	25	24	22	24	24	**23.8**
Mandarin oranges	25	25	24	22	23	24	**23.8**
Passion fruit	23	22	23	23	21	23	**22.5**
Cauliflower	25	23	22	20	20	22	**22.0**
AVERAGE SCORE	**25.2**	**25.3**	**25.0**	**22.7**	**23.0**	**24.8**	**24.3**

After this scoring exercise, results were discussed with local experts and five priority commodities were selected for in-depth value chain analysis:

- **Sweet potato (kumala):** A climate-resilient staple carbohydrate, important for energy and certain vitamins (especially orange-fleshed varieties for vitamin A), widely grown and consumed in Tanna.
- **Broccoli:** A green vegetable rich in micronutrients (vitamins A, C, K, folate, etc.), with good market value and some established cultivation on Tanna (though seasonal surpluses occur).
- **Carrot:** A vitamin-A rich vegetable well-liked for its sweet taste, consistently in high demand both locally and in urban markets.
- **Beetroot:** A nutrient-dense root vegetable (high in folate, fiber, etc.) relatively new to Tanna but with strong interest from farmers and potential to diversify diets and markets.
- **Poultry (meat and eggs):** A source of high-quality protein and micronutrients (iron, zinc, B-vitamins); chicken meat is traditionally valued for cultural ceremonies and is an important protein source; eggs are especially beneficial for children and pregnant women.

Poultry, including both meat and eggs, received the highest overall prioritization score and was selected for all regions of Tanna. It was seen as one of the most effective ways to address the significant protein gap in local diets. Egg production, in particular, offers a quick win for improving dietary quality, as eggs are nutrient-dense, widely accepted across age groups, and easy to integrate into meals. They provide high-quality protein along with essential nutrients such as vitamin B12, choline, and vitamin D. Furthermore, discussions with stakeholders underscored the strong market demand and income generation potential of poultry and eggs, especially in local and provincial markets.

For the horticultural crops, broccoli, carrot, and beetroot were chosen as a package of diverse vegetables. Green beans and napa cabbage had initially scored well, but were excluded from the final selection after discussion with stakeholders. This is because while nutritious, other factors made them slightly less strategic such as the high pest challenges for green beans and low uniqueness of cabbage which is more prominently grown elsewhere. Broccoli was included despite some prior episodes of overproduction that caused price crashes and losses, because of its market potential in the long-run. Beetroot was selected largely due to community interest and its novelty; it has an extended shelf life and no other Vanuatu islands were producing beetroot at scale, indicating a niche market opportunity. Carrot had both high local demand and existing production knowledge on Tanna, making it a logical, practical choice.

Sweet potato, while a rather common and important staple, was chosen to ensure root crops were represented, particularly in the zones where vegetables cannot easily grow (like the ashfall-affected East area). In fact, in the more fertile central and southern zones, all five products could be pursued for value chain analysis and interventions, whereas in the more challenging North and East, the emphasis could be on poultry and sweet potato only.

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Digging deeper: Nutrition-sensitive value chains analysis

Having identified sweet potato, carrot, broccoli, beetroot, and poultry/eggs as priority value chains, the research team conducted detailed analyses of each. This involved mapping how each product moves from input supply to production to market to consumption in Tanna, and identifying constraints or losses at each stage that affect availability, affordability, or nutritional value. Community members (farmers, traders, consumers) and other stakeholders (e.g., agricultural extension officers, local vendors) provided insights which, combined with secondary research, painted a picture of each value chain. A gender lens was also applied. Below is a synthesis of the key findings for each value chain.

Sweet potato: A stalwart staple

Sweet potato (Ipomoea batatas, locally known as **Kumala**) emerged as a foundational crop in Tanna's food system. Production of sweet potato is widespread; it is considered "very important" in all target communities (universally valued), except in the far North where it is still "important" but perhaps slightly less dominant. Several traits make sweet potato highly popular among smallholders: (i) it has a short growing cycle; vines planted can be harvested in 3–5 months, allowing multiple harvests per year; (ii) it is drought-tolerant and can survive periods of low rainfall thanks to its robust root system, yet it also withstands heavy rain (even waterlogging better than many crops); (iii) it grows reasonably well in degraded or marginal soils where other crops struggle, and, as a root crop, it is less exposed to damage from volcanic ashfall compared to leafy or fruit bearing plants; and (iv) it requires minimal inputs as farmers typically propagate it using cuttings, with little need for fertilizer or pesticides under traditional methods. These features are significant advantages in Tanna's context of limited resources and climate variability.

Over 20 sweet potato varieties are grown in Vanuatu, with flesh colors ranging from white and cream to yellow, orange, and purple. On Tanna, farmers prefer white or light-yellow varieties for daily consumption, but orange-fleshed sweet potatoes (OFSP) are being promoted for their high beta-carotene (provitamin A) content. OFSPs are also rich in vitamin C, fiber, and potassium, making them the most nutrient-dense. However, awareness of their nutritional benefits remains limited, suggesting a need to promote both planting and consumption of OFSP to address vitamin A deficiency.

Sweet potato is primarily a subsistence crop in Tanna but has latent market potential. Farmers harvest sweet potatoes for home consumption and local barter; any surplus is sold (mostly) unprocessed in local markets. Women often carry baskets of tubers to roadside or village markets to sell, and some take them to Lenakel (the main provincial market). Men are more involved in the heavier production work (clearing fields, planting and harvesting larger plots), while women typically handle sales of sweet potato in markets, controlling that income. This gender dynamic suggests that improvements in sweet potato production could enhance women's earnings and economic participation; although, in some contexts, increased income may shift control dynamics, with men taking on greater decision-making roles as the crop becomes more commercialized.

Some small-scale processing occurs at the household level; for instance, families in Port Resolution produce both fried sweet potato chips (crisps) and fries, primarily for sale at local markets or immediate consumption. These practices reflect local innovation in adding value and creating income opportunities. While such products are not intended for long-term storage, some households also experiment with drying sweet potato slices for preservation or later use. At a commercial scale, two companies based in Port Vila (the capital city, located on another island) process sweet potato for national and export markets, but Tanna farmers are not yet integrated into these supply chains. If Tanna producers could consistently generate surplus and improve transport logistics, they could potentially access this growing demand. Notably, Vanuatu began piloting sweet potato exports in 2021 to markets in New Zealand and Australia; though sourcing has so far excluded Tanna.

Post-harvest losses are also an issue as tubers spoil or suffer pest damage if stored poorly. Farmers often use "ground storage" (leaving tubers in the soil), but this risks losses. Improved storage methods (such as pits or ventilated shelving) could help preserve sweet potatoes longer.

Horticultural crops: The green, the purple, and the orange

Tanna's climate supports the cultivation of a variety of vegetables, though with seasonal and regional limitations. The analysis focused on three nutrient-rich crops: carrot (orange), beetroot (purple), and broccoli (green), each with distinct value chain dynamics but

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shared challenges. Examined together as a "vegetable basket," they offer potential to improve diets and diversify incomes.

Carrot has been cultivated in Tanna for some time, with farmers in Central and highland areas having the most experience. Demand is high across all zones, particularly in eastern Tanna, where local production is constrained by volcanic ash, and where communities rely on supplies from other parts of the island. However, periodic overproduction in central Tanna causes market gluts and falling prices, underscoring the need for better coordination and market information. Transport costs, especially for inter-island shipping, further reduce profits. While Lenakel offers better prices than village markets, competition is stiff, and some farmers return with unsold produce.

Agroecological conditions in Central, West, and Southwest Tanna support widespread carrot cultivation, mostly in home gardens. North and far East Tanna, however, have little production due to poor soils and ashfall. Before COVID-19, tourist operators bought local carrots, and farmer groups had begun aggregating produce, but tourism disruptions exposed the fragility of that market. Key production challenges include lack of quality seeds year-round and pest issues. On gender, the carrot chain mirrors others: men and women both work in growing carrots, but women predominantly handle sales at market. Interestingly, focus groups revealed a slight perception gap: men thought women controlled the income from carrot sales, while women said decisions were often made jointly. Overall, carrots are popular among all household members.

Broccoli has gained popularity in recent years, grown mainly in cooler, higher-altitude areas of Central and Southern Tanna. It produces considerable yields but is highly perishable, with post-harvest losses a major issue. Without cool storage, broccoli wilts or yellows quickly. If not sold the same day, it often goes to waste. Mishandling during transport further reduces quality. Extreme weather is a threat: heavy rains, flash floods, and high heat can destroy broccoli plantings.

On the production side, broccoli requires more intensive care (quality seeds, pest control, exact harvesting time). Women and youth are very involved in broccoli cultivation, often because it is grown in garden plots near home. Some women's groups (usually informal networks of female relatives or neighbours) have handled sales of broccoli at provincial markets (i.e. Lenakel). However, these groups are not formally organized or trained.

Market-wise, broccoli is seen as a "luxury" vegetable, fetching high prices from tourist-oriented restaurants and urban consumers but often considered too expensive for regular meals in local households. In some communities, farmers experienced bumper harvests, and because many harvested at the same time, markets became saturated, leading to unsold stock and falling prices, highlighting the need for better production planning and coordination.

Beetroot's early adopters found it grows reasonably well, though best practices are still being refined. The value chain is nascent, and local demand is limited; many households have never eaten beetroot and do not consider it important for food security. Nonetheless, interest is growing due to its novelty and potential.

It has the advantage of a long shelf life, which could limit food and nutrient loss. Also, no other islands seem to produce beetroot commercially in Vanuatu, so Tanna could have a unique product to supply Port Vila or even other Pacific markets if developed. Key barriers include lack of farmer knowledge and irregular access to seeds.

On the consumer side, beetroot is unfamiliar in taste and color, but with suitable recipes and nutrition promotion, acceptance can grow.

Poultry: Providing meat and eggs for nutrition and income

Small livestock, especially chickens, are a key part of Tanna's food system. Poultry (meat and eggs) is a high-potential but under-developed value chain. Most rural households keep a few scavenging local chickens, but production is low-input and low-output. Strengthening poultry rearing could significantly improve nutrition (eggs and meat help address protein and micronutrient gaps) while offering income, particularly for women.

Poultry production remains small-scale and backyard-based. Households typically keep hardy indigenous breeds with minimal feed input, resulting in low, seasonal egg yields. A major constraint is lack of affordable feed. There is also limited knowledge on using local ingredients as poultry feed (like coconut, sweet potato vines, or greens), and limited access to protein-rich ingredients (e.g., copra meal, maize, or locally made rations). Costs are high for those trying to scale production, as both feed and improved chicks must be imported, and economies of scale are absent. Ducks, which are hardy and more productive in tough conditions, remain underutilized. There are no formal slaughter or cooling facilities, raising food safety concerns.

Demand for poultry products is high. Chicken meat is reserved for special occasions and seen as a sign of hospitality and wealth. Eggs are highly valued, especially for pregnant women and children, and have no cultural consumption restrictions. Duck eggs are even less common but equally accepted.

At the community level, poultry is considered "very important" for food security in all target areas. Markets are local (within or between villages) and some sales occur in Lenakel, but Tanna is not connected to national poultry markets. Transporting live chickens is rare due to cost and animal stress. The value chain is informal with farmers selling directly to consumers or small vendors.

The poultry chain has a unique gender pattern. Both men and women raise chickens, but men typically sell live birds and retain the income, while women handle eggs—collecting them, deciding on their consumption, and occasionally selling or giving them away. While egg volumes are currently low, improving production could provide women with regular income and boost household nutrition. Supporting women's involvement in egg production could therefore yield both economic and nutritional gains.

In summary, Tanna's poultry value chain is under-developed but holds great promise. Moving toward semi-intensive rearing of chickens (and potentially ducks) could ensure steady access to eggs and meat, reducing dependence on expensive canned alternatives. Even a small egg operation (e.g., 10 hens) could provide meaningful contributions to household nutrition and income for women. The main needs are technical (breeding, feeding, disease control) and organizational (training, producer groups, market connections).

Promoting nutritious value chains: Intervention pathways

The analyses above pinpointed various constraints to improve diets and livelihoods. To address these, a set of recommended interventions were developed at two levels: value-chain specific actions tailored to sweet potato, horticulture, and poultry, and cross-cutting strategies that strengthen the overall food environment and food system. The emphasis is on integrated solutions that tackle both supply-side issues (production, processing, marketing) and demand-side issues (consumption, behavior, equity).

Customized approaches for specific value chains

Sweet potato

- **Improve planting material:** Establish community nurseries to produce vines for high-nutrient, climate-resilient varieties, especially orange-fleshed varieties. Train farmers to keep vines disease-free and periodically renew stock to maintain yields.
- **Boost production & dual use:** Encourage using sweet potato vines as livestock feed (e.g., making silage for pigs or cattle). This integrated approach adds value and motivates farmers to grow more sweet potato.

- **Reduce post-harvest loss:** Promote low-cost storage methods like sand covering or ventilated sheds to extend tuber shelf life, bridge hunger gaps, and allow waiting for better market prices.
- **Market development:** Connect growers with potential processors for sweet potato products (chips, flour). Conduct market research on consumer preferences to inform variety selection and production decisions.

Horticultural crops (broccoli, carrot, beetroot)

- **Seeds & inputs:** Improve access to quality seeds adapted to Tanna agroecological conditions and to local taste and preferences (e.g., quick-maturing carrots, heat-tolerant broccoli, tropics-suited beetroot). Strengthen farmer groups for collective input purchases (seeds, fertilizer, tools) and possibly set up local seedling nurseries.
- **Best practices:** Use demonstration plots to showcase recommended production practices such as spacing, mulching, drip irrigation, and composting for soil fertility. Create crop-specific "fact sheets" covering planting, care, and harvest steps.
- **Post-harvest & added-value:** Train farmers on optimal harvest timing and handling to maintain quality. Encourage basic processing (pickling, canning, drying) to reduce wastage during surplus periods.

Poultry (meat & eggs)

- **Enhance production systems:** Shift to semi-intensive poultry rearing with a focus on egg production (including ducks). Provide technical guides on poultry husbandry and disease management and establish community hatcheries for a steady supply of chicks/ducklings. To strengthen the gene pool, regularly import fertile eggs or improved breeds. Encourage the maintenance of crossbreeds that combine local resilience with better productivity. Where feasible, promote group-based production models to reduce individual investment risks and encourage collective action.
- **Local feed solutions:** Reduce reliance on expensive store feed by training farmers to make homemade feeds from local ingredients (e.g., cassava, coconut meal, legumes, cooked snails). Provide basic feed processing equipment (grinders, pellet-makers) at community level.
- **Market development:** Connect poultry and egg producers with institutional and commercial buyers, including schools, resorts, restaurants, and urban markets. Facilitate cooperative development and invest in transport solutions to link remote producers to consistent demand.

Across all these value chains, there is a common need to **stimulate demand and shift consumption patterns** toward more diverse and nutritious foods. This includes promoting regular consumption of poultry, eggs, vegetables, and orange-fleshed sweet potatoes, through community-level awareness campaigns, cooking demonstrations, and recipe development. Practical training should target cooks in restaurants, food stalls, and schools to encourage the use of local, nutrient-rich foods in everyday meals. For sweet potato, messaging can focus on its health benefits while for vegetables, campaigns should emphasize the nutritional value of color diversity.

Women's empowerment should be embedded throughout. In poultry, this means supporting women with training on incubation and flock management for example, and encouraging the formation of "Women Egg Producers Groups" for example. In horticulture, women can lead seedling nurseries, home gardens, and local cooperative stores, while also taking active roles in food processing and recipe demonstrations. Ensuring women have both technical skills and decision-making roles is essential, while also engaging men to re-invest income into household nutrition and shared priorities. Finally, **capacity building** is central. Specific interventions should ensure that local producers have the knowledge and skills to sustain these activities independently.

A spectrum of strategies: Cross-value chain interventions

Diversifying production & improving skills. Interventions should encourage farming systems targeting starchy staples to also include legumes, nuts, and leafy greens for diversification. Intercropping peanuts for example, or planting island cabbage improves nutrition and resilience. Farmer training in soil fertility management, pest control, and harvest timing boosts yields and cuts losses. Additional support is also needed for seed saving (for vegetables) and for the propagation of clean, disease-free sweet potato vines, which would reduce dependence on purchased planting material.

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Reducing seasonal gaps. Support communities to create seasonal calendars to spot "hunger gaps" and adjust production and post-harvest practices to increase food availability. For example, staggered planting, growing quick-maturing varieties, water management during dry periods, and improved storage practices can increase availability of nutritious foods across seasons.

Infrastructure & equipment. Interventions could support communal storage (cellars, solar-powered refrigeration) and small-scale processing (graters, dryers, feed choppers). Local feed processing and bulk equipment purchases would reduce costs and add value.

Organizing producers & enhancing market linkages. Support smallholders to gain bargaining power via cooperatives and farmer groups. Bulk input purchases and collective marketing could help lowering costs, while partnerships with businesses and better market information would help farmers respond to demand. Financial services (micro-loans, savings groups) could enable investment in seeds or livestock.

Nutrition education & demand creation. Behavior change campaigns could help raise awareness about diverse diets, emphasizing local nutrient-rich foods for children and pregnant women. Cooking demonstrations and nutritious and tasty recipes would also help families adopt healthier eating habits. Activities like food fairs and school food events and school gardens would increase community awareness.

Food environment & cost barriers. Strengthening institutional markets (e.g., schools, hospitals) could create stable demand, stimulate production, and keep nutritious options affordable. Public procurement policies that favor local produce could benefit smallholders and vulnerable groups alike. However, in the current Tanna context, such institutional procurement mechanisms would face significant implementation challenges. Efforts may need to start small (such as linking schools with local producers or community markets) before broader policies can take shape.

Leveraging wild & indigenous foods. Communities should be encouraged to sustainably harvest wild nuts, fruits, ferns, and small game to enrich the diversity and nutritional value of their meals across different seasons.

Policy support. Interventions should seek to collaborate with local and national bodies to embed nutrition in agricultural plans. Sharing evidence can shape broader policies helping scale successful interventions across Tanna and beyond, for example, guidelines or regulations on school food environments, or subsidies for local nurseries.

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Conclusion

The MERMAID programme's experience in Tanna, Vanuatu demonstrates how a NSVC approach can be used to identify and design context-relevant interventions that enhance both diets and livelihoods. Even in remote, hazard-prone areas, there are concrete opportunities to strengthen local food systems when interventions are grounded in evidence and co-developed with communities.

The structured, participatory process allowed to prioritize nutrient-rich products and to identify practical entry points for action. Several of these have since been integrated into MERMAID programme activities. Monitoring outcomes from these interventions will be essential to refine and inform future NSVC initiatives and build a case for its application in similar contexts.

Going forward, sustained investment and policy support (such as incorporating NSVC principles into provincial development plans or national nutrition strategies) will be key. There is also scope for regional knowledge exchange to foster a Pacific-wide community of practice around nutrition-sensitive value chains approaches.

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