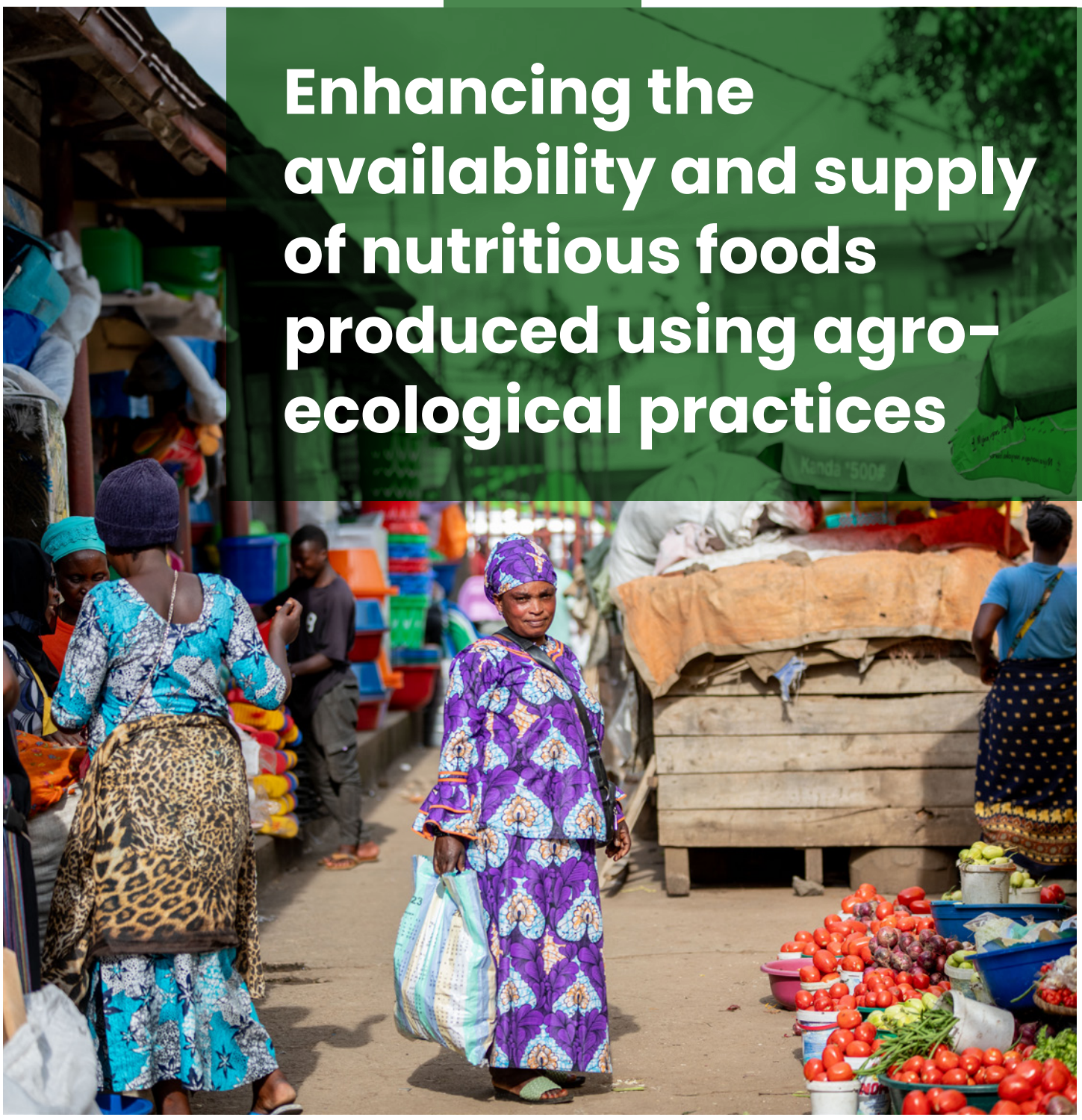
NUTRITION *in* CITY ECOSYSTEMS

Availability, Production & Value Chains leaflet 1

Enhancing the availability and supply of nutritious foods produced using agro-ecological practices



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The current food system is failing to produce and deliver high-quality diets to meet the nutritional needs of more than 8 billion people worldwide. About a third of the world's population suffers from some form of malnutrition, and many countries face a triple burden of malnutrition, meaning the coexistence of overnutrition, undernutrition and micronutrient deficiencies.

The challenges of failing food systems get further aggravated by more and more people moving to cities. In city settings, poor diets often result from a mix of factors, including shifts in the food environment, e.g. easier accessibility to highly processed foods, and changing perspectives and behaviours toward more convenient food. Similarly, degradation of natural resources and pollution often go along with rapid and unplanned urbanization.

Secondary cities are geographically defined urban jurisdictions or centres performing vital governance, logistical, and production functions at a sub-national or sub-metropolitan region level. Generally, the population of secondary cities ranges between 10–50 % of a country's largest city.

Source: World Bank

The Nutrition in City Ecosystems (NICE) project works to improve nutrition and reduce poverty by increasing the supply of and demand for nutritious food produced using agroecological practices in six secondary cities across Bangladesh (Dinajpur and Rangpur), Kenya (Bungoma and Busia), and Rwanda (Rubavu and Rusizi). The NICE project works closely with local governments at secondary city level and aims to facilitate locally led actions to improve nutrition through agricultural, food, and health sector collaborations and public-private engagements, with strong emphasis on the role of women and youth entrepreneurs *(see › Project Factsheet)*.

Activities for increased and improved production and demand generation for participatively selected food value chains are at the core of the NICE project: Besides organizing smallholder farmers around so-called Farmers' Hubs and enhancing training on agroecological and good agricultural practices, public nutrition education and social behaviour change campaigns targeting consumers are run. Additionally, stakeholders involved in food system governance are empowered and supported to better collaborate. Peer-learning and information sharing sessions are other important components of NICE aiming at empowering and inspiring individuals active in food systems with knowledge and skills to drive meaningful food system transformation.

This leaflet presents more information about the efforts NICE runs in and together with its partner cities to foster availability and supply of safe, nutritious food produced using agroecological practices *(Figure 1)*.

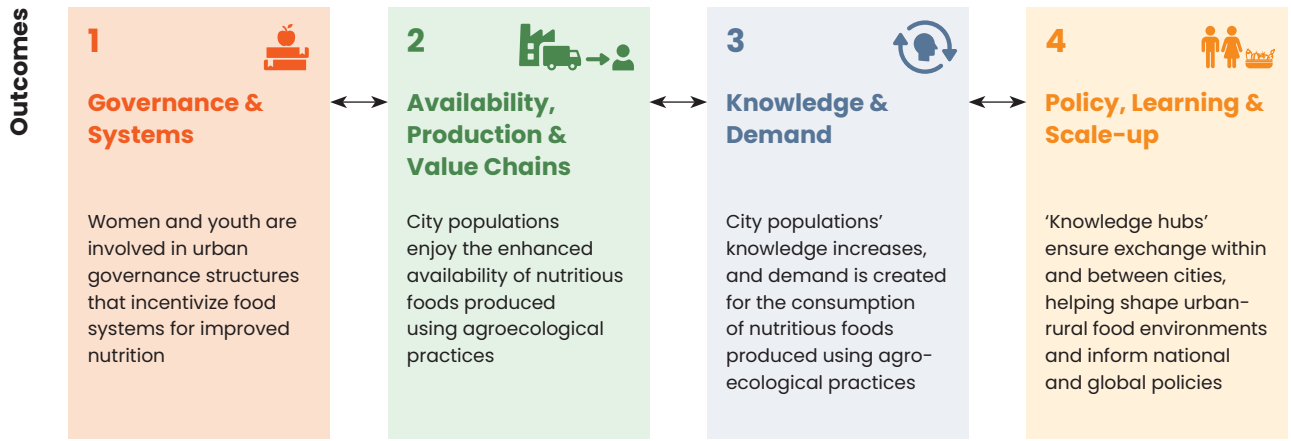


Figure 1: The four main outcomes of the NICE project

Agroecology and NICE's 5 focus agroecology elements

Agroecology is gaining traction in the discourse on achieving food and nutrition security. It is seen as a way to build resilient food systems in the face of challenges like climate change, poverty and malnutrition.

Yet, agroecology does not have a universally accepted definition, nor is there agreement on all the aspects it involves. This lack of consensus makes it difficult to clearly state what is involved in agroecology. However, the Food and Agricultural Organisation (FAO) acknowledges the diverse interpretations of agroecology and has created a framework consisting of 10 key elements to steer the transition towards sustainable food systems. Each of the FAO agroecology elements represents a core aspect of agroecology, such as promoting diversity in crops and animals, using resources efficiently, or respecting cultural traditions *(Figure 2)*.

Agroecological practices apply the concept of agroecology (utilization of ecological and social concept and principles in the design and management of sustainable agriculture and food systems) in agriculture. NICE specifically concentrates its efforts on five of the 10 main agroecology elements shaping sustainable food systems transformation: efficiency, recycling, diversity, resilience, and culture and food traditions.

Source: FAO

Nutritious foods are foods, that in the context where they are consumed and for the individuals that consume them, provide beneficial nutrients (e.g. vitamins, major and trace minerals, essential amino acids, essential fatty acids, dietary fibre) while being poor on potentially harmful elements (e.g. antinutrients, quantities of saturated fats and sugars etc.).

Source: GAIN

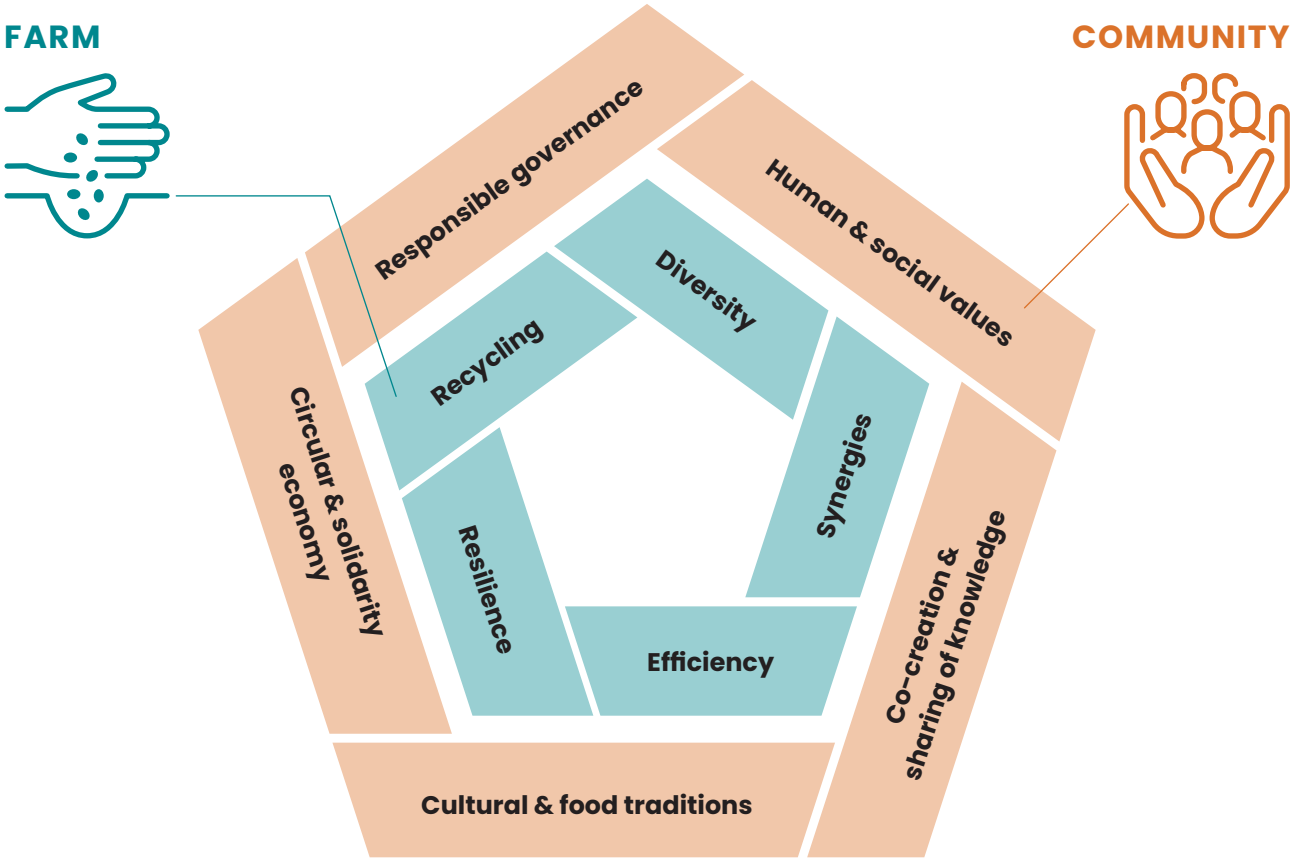


Figure 2: The 10 key elements of agroecology labelled as farm- and community-level elements – Farm elements generally associated with farm management practices – Community-elements linked to the organization of the broader social context in which farming takes place

Agroecology is a crucial part of the NICE project's work. All the elements shown in *Figure 2* are incorporated into the NICE project at varying intensities. Still, NICE mainly focus on 5 of the 10 FAO agroecology elements. 4 farm elements: Diversity, Efficiency, Recycling, and Resilience; and 1 community element: Cultural and food traditions *(Figure 3).*

		How does it manifest in a food system?	Examples of activities we do in NICE Kenya
FARM elements	**Diversity** Diversification is key for agroecological transition to ensure food security and nutrition while conserving, protecting and enhancing natural resources	• Diversity of crops, animals, trees, and farmers' activities products and services	• Crop rotation demonstrations with nutritious crops such as the 4-crop rotation schedule: potato, legumes, African leafy vegetables, brassica • Diversification of farming activities through introduction of oil press for groundnuts as processing and value-addition technique
	Efficiency Innovative agroecological practices produce more using less external resources	• Efficient use of external inputs (such as energy, fuel, fertilizers, seeds, and more) • Efficient management of pest & diseases • Maximising production to fulfil household necessities (e.g. food, education, health costs, and more)	• Training on seed storage and re-planting to improve farmers' agency to conserve varieties • Organic pest management training such as applying ash brew to reduce use and reliance of pesticides • Processing equipment for the community to reduce waste such as a solar drier for drying vegetables
	Recycling More recycling means agricultural production with lower economic and environmental costs	• Recycling of biomass and nutrients, water saving, management of seeds and breeds, renewable energy use and production	• Promoting alternative soil inputs through composting training • Recycling fishpond water to use as nutrient-rich (due to fish droppings) plant irrigation water
	Resilience Enhanced resilience of people, communities and ecosystems is key to sustainable food and agricultural systems	• Stability of income and production, capacity to recover from perturbations (e.g. from the climate or economy), presence and accessibility of support from the community, banks for credit, and insurance	• Capacity building to diversified production systems to improve farmers' stability by incorporating small livestock, vegetable gardens, and agroforestry • Introducing improved locally adapted varieties/breed to future climate conditions such as poultry breed Kienyeji
COMMUNITY element	**Cultural & food traditions** Supporting healthy, diversified and culturally appropriate diets, agroecology contributes to food security and nutrition while maintaining the health of ecosystems	• Appropriate diet and nutrition awareness, emphasis on local or traditional identity and awareness creation • Use of local varieties and breeds and traditional knowledge for food preparation	• Organisation of nutrition education/campaigns with a focus on the consumption of nutritious local foods held in schools, hospitals, and Farmers' Hubs

Figure 3: Description of the 5 agroecology elements NICE is focusing on

How does NICE work towards a supply of nutritious food produced using agroecological practices?

Figure 4: A typical Farmers' Hub in Bangladesh where farmers meet and exchange

Nutrition is inherently embedded in the agroecology elements. By applying the FAO's agroecology elements to local conditions, food systems deliver improved nutritional outcomes. To understand local nuances, NICE combines collected data on the local food systems and direct engagement with local communities.

Participatory processes with city officials and experts from different sectors (agriculture, health, education), local businesses, farmers, civil society, and consumers, led to the selection of nutritious food value chains and agroecological interventions *(Figure 3)*. Agroecological interventions in NICE are differing in each city, as farmers and other value chain actors have distinct needs relating to their specific context.

For more insights into the decision-making process guiding our interventions, please refer to › *this leaflet.*

Selection of foods and value chain opportunities	**Data collection among farmers**	**Participatory prioritization of activities**
Purpose: Focusing on nutritious foods and knowing in what parts of the value chain there are intervention opportunies	**Purpose:** Knowing farmers' resilience levels, including understanding their familiarity with agroecological practices	**Purpose:** Giving local voices precedence in decision-making through farmer workshops and local NICE team intervention voting

Figure 5: NICE's pathway to the definition of agroecology interventions

What role do the NICE Farmers' Hubs have in supporting farmers to practice agroecology?

The Farmers' Hubs Model

A Farmers' Hub is a **'one-stop-shop' that provides a comprehensive range of goods and services to farmers to empower and support smallholder farmers,** enabling them to enhance their agricultural practices and improve their livelihoods. A Farmers' Hub typically serves between 150–200 farmers within a community, tailoring the offer to the unique challenges and requirements of the local agricultural landscape and farming system. **It operates as an independent business entity,** typically owned by a young person working in agriculture with an entrepreneurial mindset.

To ensure the success and sustainability of Farmers' Hubs, **each Farmers' Hub owner is mentored** by a Network Manager familiar with the local market, suppliers and agricultural practices. This mentorship helps the Farmers' Hub owners to effectively manage their operations, expand their reach and better serve the farming community.

The NICE project has made significant effort in establishing Farmers' Hubs across Bangladesh, Kenya and Rwanda. Currently, a total of 240 Farmers' Hubs have been established. The Farmers' Hubs play a crucial role in raising farmers' awareness about agroecology through training programs, demonstration plots and advisory services. Furthermore, the Farmers' Hubs foster access to non-synthetic inputs by identifying, testing and linking with suppliers of alternative solutions. This approach increases the availability and affordability of biopesticides and biofertilizers where possible. Furthermore, the Farmers' Hubs also facilitate the aggregation of produce, strengthening farmers' market influence and implementing quality control measures. This ensures that the agricultural products meet food safety standards and contribute to a steady supply of affordable, nutritious foods produced using agroecological practices.

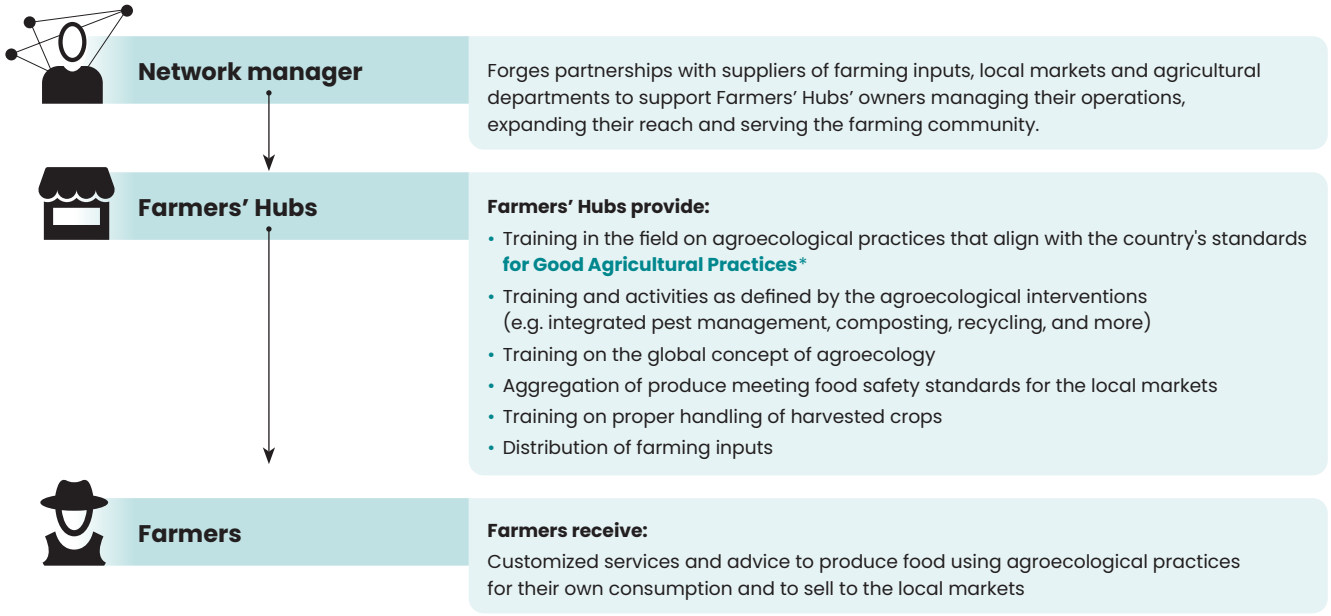
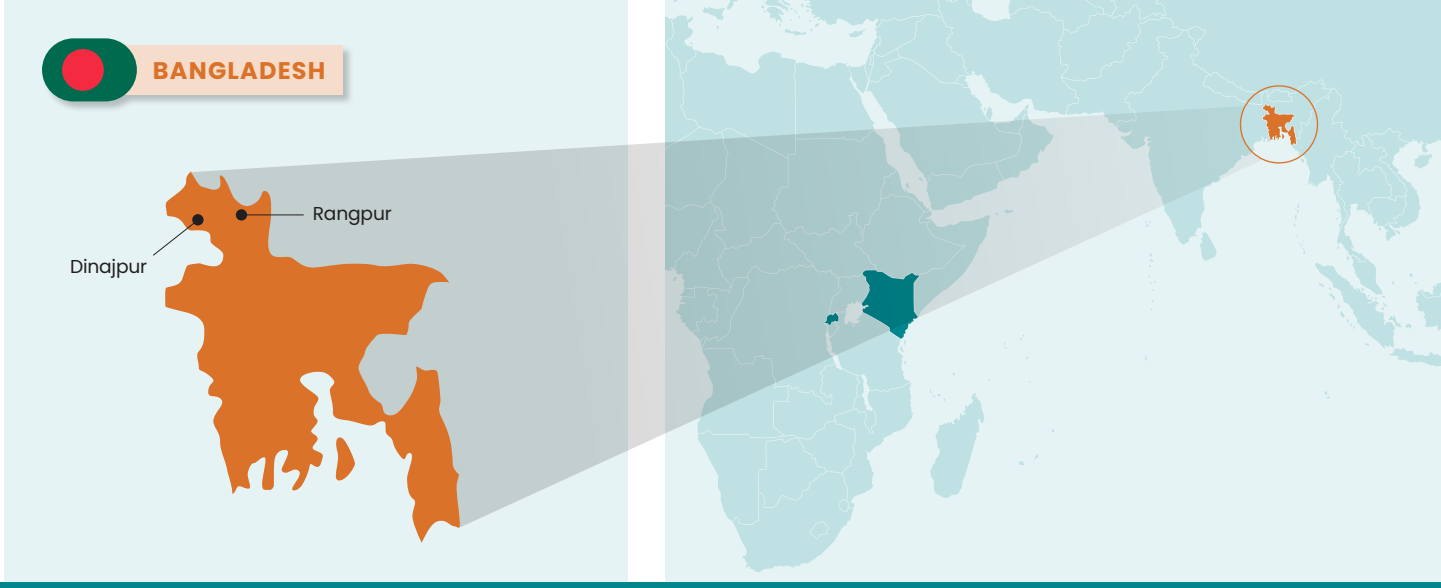


Figure 6: The NICE Farmers' Hubs model

** Good Agricultural Practices (GAP) are a collection of principles to apply for on-farm production and postproduction processes, resulting in safe and healthy food, while taking into account economic, social and environmental sustainability. Agroecology and GAP share common ground in agricultural and post-harvest handling methods, yet agroecology stands out for the much broader and more radical integration of sustainability. Yet GAP can provide a practical entry point for transitioning farmers to adoption of agroecological practices, which is crucial for realising long-term sustainability.*

A glimpse of what we do in Bangladesh



In Bangladesh, the NICE project focuses on the following value chains:

in Rangpur and Dinajpur

- Brinjal
- Bitter gourd
- Sweet gourd
- Cucumbers
- Tomatoes
- Drumsticks
- Zinc-enriched rice
- Mango
- Eggs

Figure 7: A young couple running a Farmers' Hub in Dinajpur

Together with the local governments of Dinajpur and Rangpur, NICE initiated and supports existing interventions as presented in the table below, stemming from participatory decision-making processes. These interventions encompass both, tangible measures (such as the introduction of reusable crates to minimize post-harvest losses and preserve nutritional quality) as well as sharing practical knowledge (such as effective composting techniques), all aligned with one or more of NICE's 5 focus agroecology elements.

The following examples highlight some key interventions in Bangladesh:

Alternative soil fertility practices through composting	The use of synthetic fertilisers in Dinajpur and Rangpur is widespread and excessive, leading to high costs and long-term complications in soil fertility. NICE addresses this issue by introducing soil testing, enabling farmers to understand their soil's specific needs, and enabling them to apply fertilizers in appropriate dosages without excess. Recognizing the need for cost-effective and sustainable alternatives too, the NICE project promotes organic alternatives such as compost, vermicompost, and tricho-compost. These alternatives prove to be economically feasible and support microbial activity in the soil. The adoption of organic alternatives is enhancing farmers' resilience, providing them with a diversified toolkit.
Managing pests with environmentally friendly methods	In both Dinajpur and Rangpur, pest invasions form a severe threat to crops, prompting farmers to seek viable solutions. This concern aligns with the local political agenda emphasizing the urgency to enhance safe food production, reducing the excessive use of pesticides, and exploring alternative methods. Utilising sex pheromone traps and yellow sticky traps form a part of the solution. In these methods, pests are tricked through alluring pheromones placed in jars or sticked to a piece of yellow paper. Despite their simplicity, these methods have proven to be extremely effective in controlling pests. Farmers can purchase these materials at competing prices at the Farmers' Hub and receive training on their optimal usage.
Community engagement for good seed and seedling supply	Farmers in Dinajpur and Rangpur struggle to grow plants out of seeds. The seeds they use are either of low quality or the conditions under which they grow are not effective. This leads to around 20–30% loss of seedlings in the fields, which is both a huge stress and financial burden for farmers. The Farmers' Hub owner is supported by an expert to procure the highest-quality seeds available and has a nursery where these premium seeds are grown under optimal conditions, ensuring robust growth. Farmers can then buy these healthy seedlings at competitive prices and are trained to plant them at the right time under the right conditions. In this regard, Farmers' Hubs serve as pivotal spaces in strengthening community resilience.

NICE's progress in the agricultural sector in Bangladesh

since the start of the NICE project in August 2021 (until December 2023):

- **58 Farmers' Hubs** have been established serving ± 6,500 farmers
- Nearly **5,500 farmers** are trained in agroecological food production
- **63 vegetable shops** are installed in city marketplaces promoting **hygienic handling of foods** (e.g. use of special crates to prevent contamination) and actively conveying **important messages on nutrition** to buyers and passers-by
- Around **800 farmers are selling their produce** to the local market or to collectors who pick up the good directly from the farm gate

Figure 8: A local vegetable market in Rangpur

Sustainable pest management and composting with Krishna

Figure 9: Krishna standing next to a road sign on her plot of brinjal which demonstrates which sustainable farming practices she applies

Krishna Rani Ray resides in the Rajuria union in Dinajpur, Bangladesh. Among the residents of Dinajpur city, she stands as one of the dedicated local producers catering to the community's food needs. Krishna produces both, fruits and vegetables, and keeps livestock. Through the NICE project, Krishna got introduced to agroecology and safe food production practices.

Questioning the impact and quantity of chemical fertilisers she applied, Krishna found validation in the NICE project's insights and her own observations. Indeed, the fertility of her soil was declining. Additionally, she gained insights into how food safety of her fruits and vegetables was affected by the excessive application of chemical fertilisers. This realization further fueled her pursuit for alternative approaches.

"I now better understand how my prior use of uncontrolled chemical fertilisers had bad effects on the environment and worsened the soil's fertility."

As a first step, Krishna conducted a soil test to better understand what her soil needs – a step that is recommended to all farmers in Bangladesh. With the insights from the test, she is now planning a transition to reduce her reliance on chemical fertilisers and to start using alternative fertilisers such as vermicompost. Additionally, Krishna recently started the agroecological practice of intercropping, experimenting with brinjal and bottle gourd. This innovative approach not only diversifies her crop yield but should also improve the overall quality of her soils.

Besides her concerns about soil fertility, Krishna was worried about the pests that are affecting her crops. To combat this challenge, she employs a variety of integrated pest management practices.

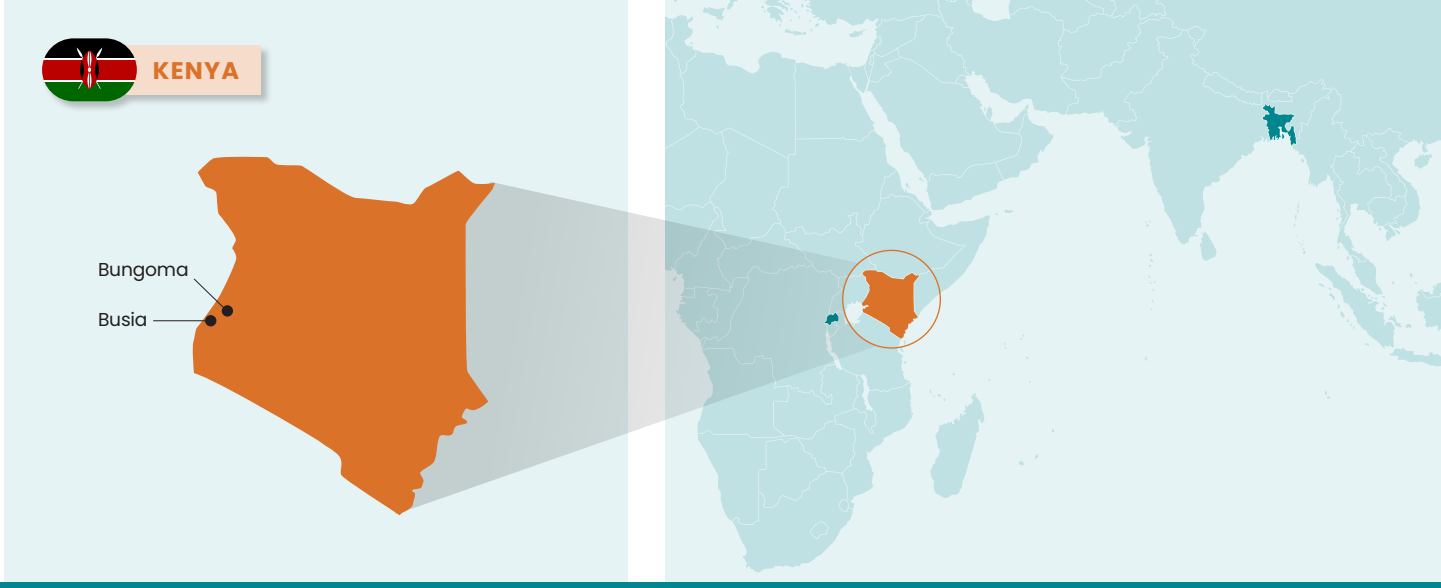
"On my land, I have sex pheromone traps and yellow sticky cards to get rid of pests in a more sustainable way. Because of these methods, my chemical pesticide use went down. My foods are safer and I am saving a lot on buying pesticides. Now, I take more pride in supplying food to Dinajpur's citizens that is safe and nutritious."

Challenges do persist in Dinajpur where plots are relatively small and tightly spaced. Pesticides are widely used. Wind and water runoff can carry pesticides from neighboring farmers to farmers attempting to shift away from chemicals reliance. Community-level transitions towards agroecological practices are therefore particularly crucial for Dinajpur's agricultural landscape – a perspective supported by Krishna.

"I hope farmer empowerment for agroecology will continue. Together we can build a sustainable and environmentally conscious farmer community."

Figure 10: Krishna next to a sex pheromone trap

A glimpse of what we do in Kenya



In Kenya, the NICE project focuses on the following value chains:

in Bungoma

- Poultry
- African leafy vegetables (spider plant and black nightshade)
- Groundnuts

in Busia

- Poultry
- African leafy vegetables (spider plant and black nightshade)
- Fish (Tilapia)
- Orange-fleshed sweet potato

Figure 11: Two farmers harvesting and sorting African leafy vegetables into NICE crates

Together with the local governments of Bungoma and Busia, NICE initiated and supports existing interventions as presented in the table below, stemming from participatory decision-making processes. These interventions encompass both, tangible measures (such as the introduction of reusable crates to minimize post-harvest losses) as well as sharing practical knowledge (such as effective composting techniques), all aligned with one or more of NICE's 5 focus agroecology elements.

The following examples highlight some key interventions in Kenya:

Nurturing soil health through green manure

An essential agroecological practice is to enhance soil health, and one effective method for achieving this is through the application of green manure. This practice involves utilizing crop residues (such as stems, leaves) as organic manure, either by placing them on the soil surface or incorporating them into the soil.

In Bungoma and Busia, NICE actively supports the practice of green manuring, offering training sessions with support from local government officials. Specifically in Bungoma, the cultivation of a traditional crop called "Mukuna", also known as velvet bean, is promoted for its role as a dedicated source of green manure. Mukuna not only helps retain soil moisture, ensuring it is released when crops need it, but also enriches the soil with essential nutrients crucial for crop growth. Meanwhile, in Busia, farmers receive training encouraging them to use crop residues from beans, maize, and sorghum stalks on the fields. In this way, organic materials are effectively reintegrated into the farming system – an effective recycling method with little to no extra costs.

Controlling pest invasions with environmentally friendly methods

Every farmer has to deal with pests eager to feast on their crops. However, escalating pest invasions often prompts the response of applying more pesticides without adequate knowledge or advise on correct use.

NICE is actively promoting sustainable pest management practices such as through intercropping techniques e.g. the "push-pull technique", where certain crops are strategically placed next to the main crop to either push away the pests or conversely attract them away from the main crop. In Busia, NICE specifically encourages the application of ash and pepper extracts, and planting of Tithonia, a flowering plant repelling many pests. A combination of these two methods can decrease pest invasions while not harming the environment and keeps the crops safe for consumption.

Composting for increased soil fertility

Substituting inorganic fertilisers with more sustainable alternatives is a priority for NICE Kenya. Livestock waste and food waste can be decomposed to offer a rich source of beneficial nutrients. Applying this nutrient-rich compost to the soil is an organic and advantageous way of fertilising lands, benefitting crop growth and overall soil health.

Composting is especially widely adopted for African Leafy Vegetables in the Farmers' Hubs in Busia. In Bungoma, NICE works on vermiculture – a composting technique using worms. This method applies the same principle: when worms decompose organic matter, the organic matter becomes very nutrient-dense, and can be applied to the soil.

When implemented correctly, recycling as an agroecological practice offers farmers the opportunity to diversify their techniques or entirely replace their reliance on inorganic fertilisers. This empowers farmers to reduce their dependence on purchasing inorganic fertilisers, granting them greater autonomy in managing and controlling the functioning of their farms.

NICE's progress in the agricultural sector in Kenya

since the start of the NICE project in August 2021 (until December 2023):

- **100 Farmers' Hubs, of which 46 female-led,** have been established serving ± 15,000 farmers
- **More than 8,000 farmers** have received training on agroecological practices such as intercropping, composting, and integrated pest management, of which ± 4,800 females and ± 2,500 youth
- **Nearly 3,400 farmers** are selling their produce through the Farmers' Hubs, choosing to shorten value chains and get better value for their produce
- **In each city, approximately 45 demo-plots have been established,** serving as practical learning plots where farmers engage in practical application and reflection of various agroecological practices using nutritious crops such as African leafy vegetables and orange-fleshed sweet potatoes

Figure 12: Farmers harvesting groundnuts

The story of champion farmer Prexides and her shift toward agroecological farming practices

Figure 13: Prexides Nangila, the Farmers' Hub owner of Prexides Farmers' Hub in Bungoma

In the heart of Bungoma, the NICE project team spoke with **Prexides Nangila,** the owner of Prexides Farmers' Hub, who has benefitted from training and support with agroecological practices and emerged as a model farmer.

During a recent Farmers' Hub field day, farmers were captivated by a keyhole garden – an agroecological practice designed to ensure optimal crop performance through high water and nutrient retention. How does it work? A keyhole garden is a circular raised bed with a compost basket at its center. Organic materials such as kitchen waste or maize stalks can be tossed in the center basket, which decomposes over time and becomes compost. When watering the compost, nutrients from the compost seep into

the surrounding soil, and arrive at the plant. It is a low-cost and easily implementable activity, which proves to be especially useful in locations with dry climates and poor soil conditions.

In addition to overseeing her Farmers' Hub, Prexides cultivates a variety of crops such as African leafy vegetables, groundnuts, and orange-fleshed sweet potatoes. She participates in training sessions on good agricultural and agroecological farming practices organized by NICE and local agricultural officers, drawing inspiration to implement more sustainable approaches into her own cultivation and to improve her advises to her community.

Prexides implements several agroecological practices that help in managing soil fertility, such as crop rotation, use of cover crops, mulching, and raised soil beds.

"Mulching enables me to conserve soil moisture and controls any weed growth that might affect my crops. When I raise my soil beds, excess water is able to drain more efficiently, and the quality of my soils is much better, all this leads to better yields."

With the increased yield, Prexides got the opportunity to employ local youth to help her run and expand her Farmers' Hub. However, similar to any farmer, she encounters challenges as she adopts agroecological practices.

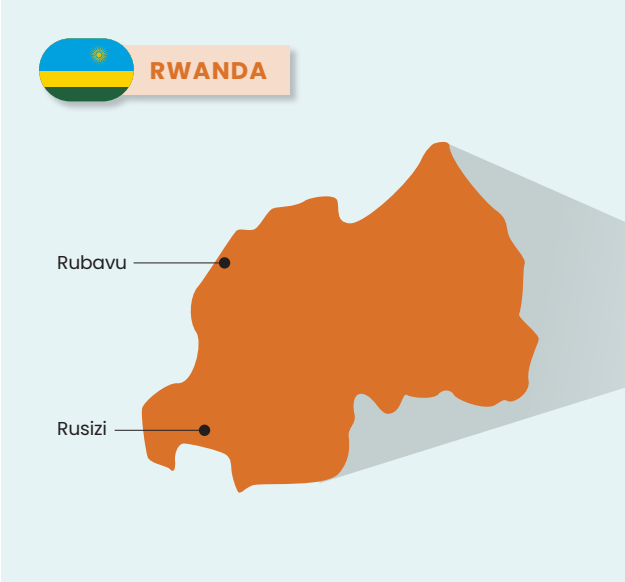
"Making consumers aware and convincing them of the extra work and higher price remains a challenge. However, through the NICE project I have been able to expand my network and find my buyers from farmers' groups who know I produce quality and organic produce."

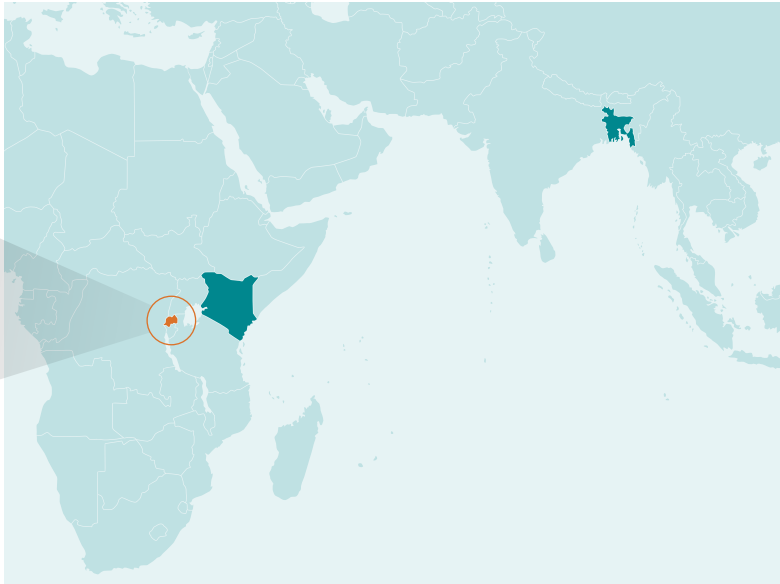
Prexides' parting shot is clear.

"Thanks to the NICE project, I am a better farmer. I would encourage all farmers to use agroecological practices in their farms as I now produce high quality, nutritious crops while preserving the long-term sustainability of my land."

Figure 14: Farmers learning about the keyhole garden at a farmers' field day held at Prexides' Farmers' Hub in Bungoma

A glimpse of what we do in Rwanda





In Rwanda, the NICE project focuses on the following value chains:

in Rubavu

- Eggs
- Fish
- Carrots
- Onions
- Cabbages

in Rusizi

- Eggs
- Fish
- Passion fruits
- Tomatoes

Figure 15: Small fishs are an important source of protein

Together with the local governments of Rubavu and Rusizi, NICE initiated and supports existing interventions as presented in the table below, stemming from participatory decision-making processes. These interventions encompass both, tangible measures (such as the introduction of reusable crates to minimize post-harvest losses and preserve nutritional quality) as well as sharing practical knowledge (such as effective composting techniques), all aligned with one or more of NICE's 5 focus agroecology elements.

The following examples highlight some key interventions in Rwanda:

Sustainable fishing, fish farming and storage for better livelihoods	The communities in Rubavu and Rusizi heavily rely on fishing and fish farming in Lake Kivu for their livelihoods and essential protein intake. However, the lack of sustainable tools hinders the efficiency of small fishermen and -women. NICE has provided traditional fishing cooperatives and unions with access to inputs such as fingerlings, fish cages, and feed. This approach enables small fishermen and -women to fish more efficiently, ultimately building stronger and more sustainable livelihoods within the communities. Additional support is provided by helping in the setup of fish storage infrastructures near the lake. This helps preserving the nutritional quality of the harvested fish and minimizes contamination risks.
Fresh and lasting nutritious vegetables from local washing stations	The challenge of inadequate vegetable cleaning infrastructure in Rubavu, causing contamination and post-harvest losses, has been addressed through the installation of a washing facility connected to a clean water source. Over 400 beneficiaries, all local farmers, manage and benefit from the washing station. Farmers pay a small fee per kilogram, which directly supports the station's operations managed by the beneficiaries themselves. In addition, the station has organically evolved into a central hub for the direct purchase of washed vegetables, effectively shortening the supply chain.
Efficient poultry keeping for eggs for sustainable livelihoods	Poultry farmers in Rubavu and Rusizi face challenges due to raising a poultry breed with a low laying rate, resulting in insufficient yields for a sustainable profit. To address these concerns, NICE supports three farmer groups, with plans for expansion, engaged in small-scale poultry egg production. NICE has introduced a more efficient laying breed and is imparting knowledge on integrating agro-ecological practices such as efficient input usage and recycling practices into poultry farming. This comprehensive approach not only improves egg yields, but it also ensures a more sustainable income stream for farmers. Additionally, it involves sharing insights on managing a sustainable business that serves the community.

NICE's progress in the agricultural sector in Rwanda

since the start of the NICE project in August 2021 (until December 2023):

- **49 Farmers' Hubs** have been installed serving ± 9,500 farmers
- **Soil erosion training** has positively impacted **190 hectares of farmland,** empowering farmers to effectively address **one of their greatest challenges**
- **400 farmers in Rubavu,** nearly half being female and a quarter younger 35 years, benefitted from a **vegetable washing station** preventing contamination of nutritious vegetables
- In Rusizi, NICE is aiding **80 youth** in initiating **sustainable egg businesses,** having provided up to 1,000 chicks of a productive breed and chicken feed as a first supportive measure

Figure 16: Farmer in a field of cabbages

Shifting toward sustainable farming practices with Gentillesse

Figure 17: Gentillesse Uwineza selling her produce at a local market stall

Near the border to the Democratic Republic of the Congo (DRC) and near Lake Kivu in Rubavu District, **Gentillesse Uwineza,** a 33-year-old married woman, resides with her family. Originally, she has a bachelor's degree in veterinary medicine but has taken courses in farming, which is now her everyday practice.

Before her introduction to agroecological practices, Gentillesse, like many others, believed she was embracing modern agriculture, relying on chemicals and rigorous pest control measures. During maize and potato seasons, her routine involved buying synthetic fertilisers, planting, and then applying pesticides and

fungicides. The fertile volcanic soil that cradled her crops presented a paradox – while inherently rich, the soil suffered from the adverse effects of the fertilisers and chemicals she applied.

"Regarding the soil fertility, it is quite good because it is volcanic soil. But we were using chemicals and fertilisers which were not compatible with the soil and killed other living beings. During rainy season, floods are invading the crops, and the bad soil makes it worse."

Today, Gentillesse is adopting agroecological practices on her farm through training supported by NICE and other local partners. Her farming methods now involve a mix of different crops in the field to avoid using chemicals and to effectively control pests that threaten her crops. For instance, when planting maize, she strategically places Napier grass around the maize plot. This Napier grass acts as a natural deterrent against pests like the armyworm. She also practices intercropping with beans, maize, and pumpkin – referred to as the "three sisters" – leveraging their symbiotic relationship, naturally optimizing their growth. In the upcoming season, Gentillesse plans to adopt even more agroecological practices for planting onions and cabbages – gradually implementing improvements step by step.

"By embracing agroecology, I first saved a lot of money I spent on chemicals and synthetic fertilisers. I am also glad I don't have a negative impact to the bee-keeping farmers around me anymore. Although I know I can't harvest the same quantity like the ones who use chemicals, I know that my land at least is free from it which is good for the environment."

Gentillesse is facing the challenge of securing a premium price for her produce cultivated using agroecological practices. Recognizing that this hurdle discourages other farmers from adopting agroecological practices, NICE is working toward addressing this issue. For example, the establishment of Farmers' Hubs as aggregation locations for direct purchasing from farmers can cut out the intermediaries, often associated with higher margins. Farmers can then receive higher returns for their efforts in agroecological practices.

All in all, Gentillesse is content with her transition to agroecology and encourages others to do the same.

"For others to consider agroecological practices, the local leaders have to step in and explain the benefits to other farmers. Soils should not become acidic and infertile as the next generations should also benefit from it. The only solution is to prioritize the soil today through agroecology."

Figure 18: Gentillesse in her field of cabbages with climbing beans in the background

NICE's continuing support to supply nutritious food produced using agroecological practices to secondary cities

NICE is dedicated to improving nutrition and reducing poverty by increasing the supply of and demand for nutritious food produced using agroecological practices. By focusing on vulnerable farmers in local communities, the project established Farmers' Hubs in strategic locations to provide farming supplies and services adapted to the local needs. The project will further continue to emphasize the benefits of agroecological practices and **takes the national good agricultural practices**, often more well-known locally by name and partially overlapping with agroecological practices, as an entry-point to prompt this transition. The practical (peer-)learning sessions through interactions with local officers, local mentors, and other farmers at the Farmers' Hubs, are considered crucial for encouraging farmers to adopt these practices.

In the future, across all countries, increased efforts will be directed towards improving the connectivity of farmers to markets where these nutritious foods produced using agroecological practices are recognized and valued. This can ensure profitable prices and consistent sales for farmers taking on the extra efforts needed for sustainable agriculture. In turn, beneficial market linkages can encourage more farmers to adopt agroecological practices. Meanwhile, ongoing participatory evaluations and planning will guide the further development of activities.

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Further information is available on the **NICE webpage:** ❯ *nice-nutrition.ch*