



What will we eat tomorrow

Food Smart Cities
leading the transition
to sustainable food

Acknowledgements

This publication would not have been possible without the active cooperation of Rikolto's partners and allies across the globe. We are extremely grateful to all the representatives of consumers, farmers, private companies, international organisations, financial institutions, civil society organisations, municipal governments, national authorities, researchers and others who kindly set aside time to answer our questions and contribute their expertise to this documentation exercise. The full list of people interviewed is available at the end of the book.

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Belgium

partner in development

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About the publishers

Rikolto

Rikolto is an international network organisation with over 40 years of experience in Africa, Asia, Europe and Latin America. We build bridges of trust and trade between the food industry, governments, research institutions, financial institutions and farmers' organisations around one central question: 'What will we eat tomorrow?' We plant and harvest new solutions, making the food system more transparent, so it is easier for consumers to make a sustainable choice. For this, Rikolto works with 9 municipalities, over 70 private companies and 105 farmers' organisations, reaching over 102,000 farming families and thousands of citizens and consumers across 15 countries. Together, we want to change the recipe of our food system.

This was not our first collaboration with Eos. In 2018, we worked together on 'Food for the Future' – a co-creative project looking for ways to feed the growing global population in a sustainable way. Eos then investigated the 'tracés' of quinoa, seaweed and pulses, along with a special "Food for the Future" newspaper highlighting some of the most inspiring ideas and initiatives that came out of the project. When the idea later emerged of writing a publication on our Food Smart Cities' approach, Eos were the natural candidate to take on this challenge with us.

Charlotte Flechet

Rikolto, International Food Smart Cities Coordinator

EOS Tracé

Eos Tracé is a digital platform on which you can learn about the story behind everyday food items in the supermarket. On www.eostrace.be, you can follow the path ("tracé") of a food product, from cultivation through processing, transport and consumption to waste processing. You can read about the product's impact on the environment and your health, as well as about social aspects or animal welfare. With the help of science, our researchers and journalists separate facts from fables. So you can choose what to eat based on greater insight and nuance. Different from what the press, marketing and gurus tell you. What are the circumstances of the farmers who grow cocoa beans or pineapples, for example? The reason why we investigate the story behind the everyday food items we encounter in the supermarket is to provide information. We want to help consumers make more conscious choices.

So far, Eos Tracé has investigated the “tracé” of more than 25 products. From chicken meat to salmon and from drinking water to chocolate. By now, we dare to call ourselves the number one database for the conscious consumer.

At first glance, this neutral, informative attitude towards food chains has a completely different starting point from that of Rikolto. As an NGO, they are emphatically trying to improve the world. By intervening in these chains, they strive for more sustainable food production and consumption and thus for a better income for family farms.

Yet indirectly, our ideals overlap. With Eos Tracé, we too have an eye for pioneers who want to make the food industry more sustainable. We highlight what they do through articles, videos and podcasts. Whether it's a research group using apple residue to make sustainable leather, or a bioengineer producing the world's most sustainable fish through a hydroponic system. We look to the future and show what a more sustainable world could look like.

We were intrigued when Rikolto asked us to write articles about their brand-new global Food Smart Cities programme. As part of the initiative, pioneer cities are supported in taking up the immense challenge of providing their inhabitants with sustainable and affordable food, now and in the future. What steps are they taking? Which different contexts play a part within these cities? These are questions we sought to answer during our visits. The challenge Rikolto presented us with wasn't easy. We were beaten around the ears with umbrella concepts such as resilience, inclusive business, transition and multi-stakeholder processes. And instead of talking to scientists about their results – as we usually do – we regularly met with policymakers who set out plans for the future.

Logical, of course, for a project in its infancy. In any case, it was inspiring to see how farmers, citizens, teachers, civil servants, civil society organisations and commercial partners all care about safe, sustainable food, not only for themselves, but for everyone.

The results are wrapped up in this book. In Dutch, the language in which we wrote the texts, but also in six other languages. So that cities can learn from each other, to become the best version of themselves.

Marieke van Schoonhoven

Coordinator of Eos Tracé

Eos Tracé is part of Eos Wetenschap





Introduction

Food as the solution, cities as the lab.

What is a *Food Smart city*? Is it just another buzzword, or is there more to it? As far as we are concerned, it is the latter. And this book is proof of it.

The answer to this question is not straightforward. The very meaning of “smart” varies from city to city and from person to person. For Rikolto, food smart cities are cities that are actively addressing the challenge of ensuring sufficient, safe, healthy food for their citizens, while ensuring that the environment is safeguarded and that all actors involved in the food supply, from producers to vendors, make a decent living out of it. In a nutshell, a Food Smart City is a city that uses food as a lever to solve the problems of our time. But what does it look like in practice? How do cities translate these principles in their own reality? Because different contexts call for different approaches, we wanted to share concrete examples of how – step-by-step – cities around the world and their citizens are shaping the food system of tomorrow.

Food is at the crossroads of some of the most critical challenges we face: climate change, food security, loss of biodiversity, healthy diets, rural and urban employment and resilience to name but a few. Today, the global food industry employs more than 1 billion people and generates about 10% of global GDP. Unfortunately, agriculture and food are also a major cause of climate change: the IPCC estimates greenhouse gas emissions from the global food system make up between 21 and 37% of all human greenhouse gas emissions. But at the same time, agriculture has the potential to offset and capture about 20% of annual emissions through improved soil management techniques. In low-income countries, food expenditure in cities can reach 2/3 of household expenditure. As a result, 1 in 4 people live in a situation of moderate to severe food insecurity.

And none of these challenges will get any easier to overcome... By 2050, there will be nearly 10 billion people in the world, of which 2 out of 3 will live in cities. All those people will have to coexist, live, work and eat together on a limited surface area.

But what if food was a solution to all these challenges? And what if cities served as a laboratory to discover the food system of tomorrow?

In the future, 80% of all food is expected to be consumed in cities. Urban agriculture will only be able to deliver a limited share of that food. But cities can obtain a large share of their food from surrounding areas: 40% of the world’s farmland is located within a 20-kilometre radius around cities.



Cities are more agile in their decision-making and can act faster than other levels of government can to experiment with innovative solutions. As frontrunners, they can influence other cities and actors to follow their example. Cities have a close relationship to their citizens and can involve them in decision-making, leaving the door open to new forms of participation, in which citizens become co-owners of urban food policies.

From potential to reality

Do we take our dreams for reality? No, because what we describe above, is already becoming more real every day.

Between March and August 2019, three journalists from the Belgian journalism platform EOS Tracé – Marieke van Schoonhoven, Dieter De Cleene and Melissa Vanderheyden – visited partner cities of Rikolto's "Food Smart Cities" programme to discover initiatives making safer, healthier and more sustainable food accessible to citizens. During each visit, they met with dozens of actors: government agencies, food vendors, market authorities, civil society organisations, business associations, food processors, export companies, consumer associations, researchers, politicians and regular citizens. This book features their stories from 9 cities in Vietnam, Belgium, Tanzania, Indonesia, Ecuador, Honduras and Nicaragua. Here is what they tell us.

In Vietnam, Marieke van Schoonhoven leads us to the traditional food markets of **Hanoi**, where vegetables are being sold that are often barely traceable and that do not comply with any official product standard. Based on discussions with city authorities and Dang Xa cooperative, she investigates the potential of a Participatory Guarantee System (PGS) – a community-based certification mechanism – as a possible solution to bring safe, healthy food to Hanoi's markets. She then takes us behind the scenes in **Da Nang**, to discover how the city became the first in Vietnam to adopt a Food Smart City strategy.

In Belgium, Dieter de Cleene takes us on a tour of **Ghent**, the first city in the world with an official meat-free day. Six years ago, the city adopted a food policy to help it achieve its climate objectives. Now, implementation is well underway, as shown by initiatives such as Foodsavers Gent, which aims to reduce food waste by redistributing food to less-fortunate groups. De Cleene also gives us an overview of the GoodFood@School programme, which aims for all schools in Flanders to adopt a sustainable food policy by 2021. In **Leuven**, Marieke van Schoonhoven describes the birth of Kort'om Leuven, a new distribution platform that distributes sustainable, local food to catering businesses and supermarkets in the city.

In Honduras, Rikolto colleagues Selene Casanova and Aäron De Fruyt introduce us to *El Consorcio Agrocomercial de Honduras*, a consortium of eight farmer organisations that supplies about 90% of all vegetables for local supermarket *La Colonia*. Not only does this model enable a large number of consumers in **Tegucigalpa** to be fed with reliable safe vegetables, it is also highly beneficial for farmers, who have seen their income increase by an average of 59% between 2014 and 2017.

In Tanzania, recent research revealed high levels of exposure to agrochemicals among the general population. To overcome this, **Arusha** City Council, the Tanzanian Horticulture Association, the Tropical Pesticide Research Institute, Rikolto and other partners are working together as the Arusha Food Safety Committee. Dieter de Cleene reports on how the partners are developing a new model to encourage market vendors to sell safe food from nearby producers while ensuring fair prices for all.

In Indonesia, authorities are faced with a tragic paradox: up to 35% of children suffer from a shortage of nutrients while at the same time, the country is the second biggest producer of food waste per capita in the world. Marieke van Schoonhoven shares the story of how grassroots groups and civil society organisations in **Solo** are developing a system to redistribute and transform food waste, based on Indonesia's centuries-old tradition of sharing with others. She also introduces us to the programme that promotes healthy school canteens, an initiative that aims to encourage healthy eating habits among children.

In Ecuador, Melissa Vanderheyden looks into how Quito's food strategy contributes to strengthening the resilience of the Ecuadorian capital. Caught between mountains at an altitude of 2,800m, **Quito** largely depends on the rest of the country for its food supply. With over 3,600 urban gardens scattered around the city, urban agriculture may be the solution to feed the city in a sustainable way, especially in the event of an emergency.

In Nicaragua, we only have five years left to save **Jinotega's** Lake Apanás, threatened by sedimentation and environmental degradation. Selene Casanova introduces us to the MASLAGO initiative, a group of 17 organisations that came up with an Action Plan for the environmental, economic and social sustainability of the lake according to an integrated landscape management approach.

With this publication, our hope is to inspire more cities and actors to start initiatives to improve the quality and sustainability of food. Such a transformation isn't easy, as the stories in this book demonstrate. There is no such thing as a standard approach for all cities. Customisation is key.

Moving towards sustainable and inclusive food systems is not a linear process and it may even feel like there is no end to the obstacles along the way. The make-or-break factor will be our ability to learn and to adapt in complex environments. Through trial and error, today's changemakers are paving the way for the next generation to ensure that healthy and sustainable food is accessible to everyone, now and in the future.

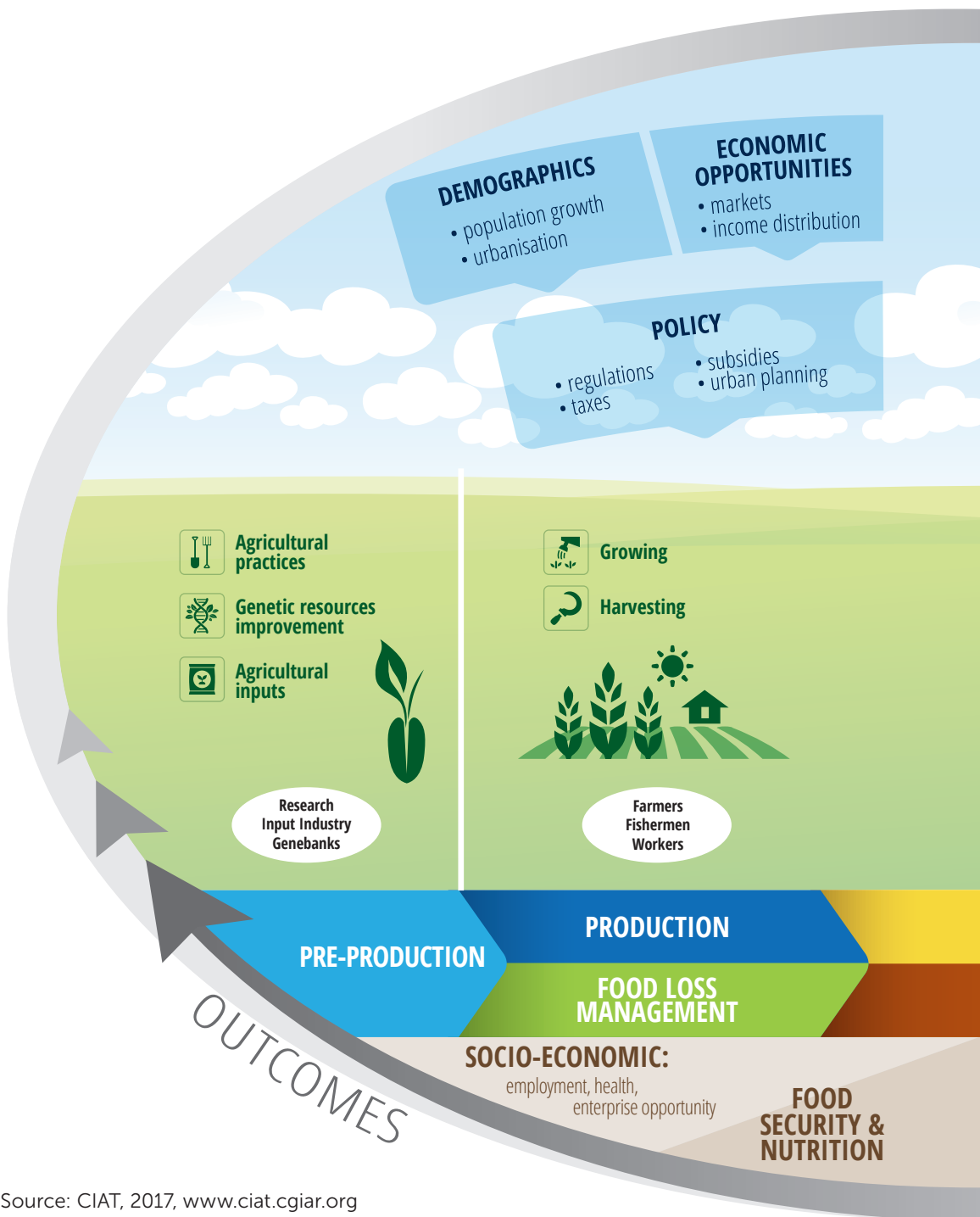
I hope you enjoy reading these stories as much as we enjoyed discovering and writing about them.

"When we dream alone,
our dreams are just dreams.
But when many dream together
it is the beginning of a new reality."

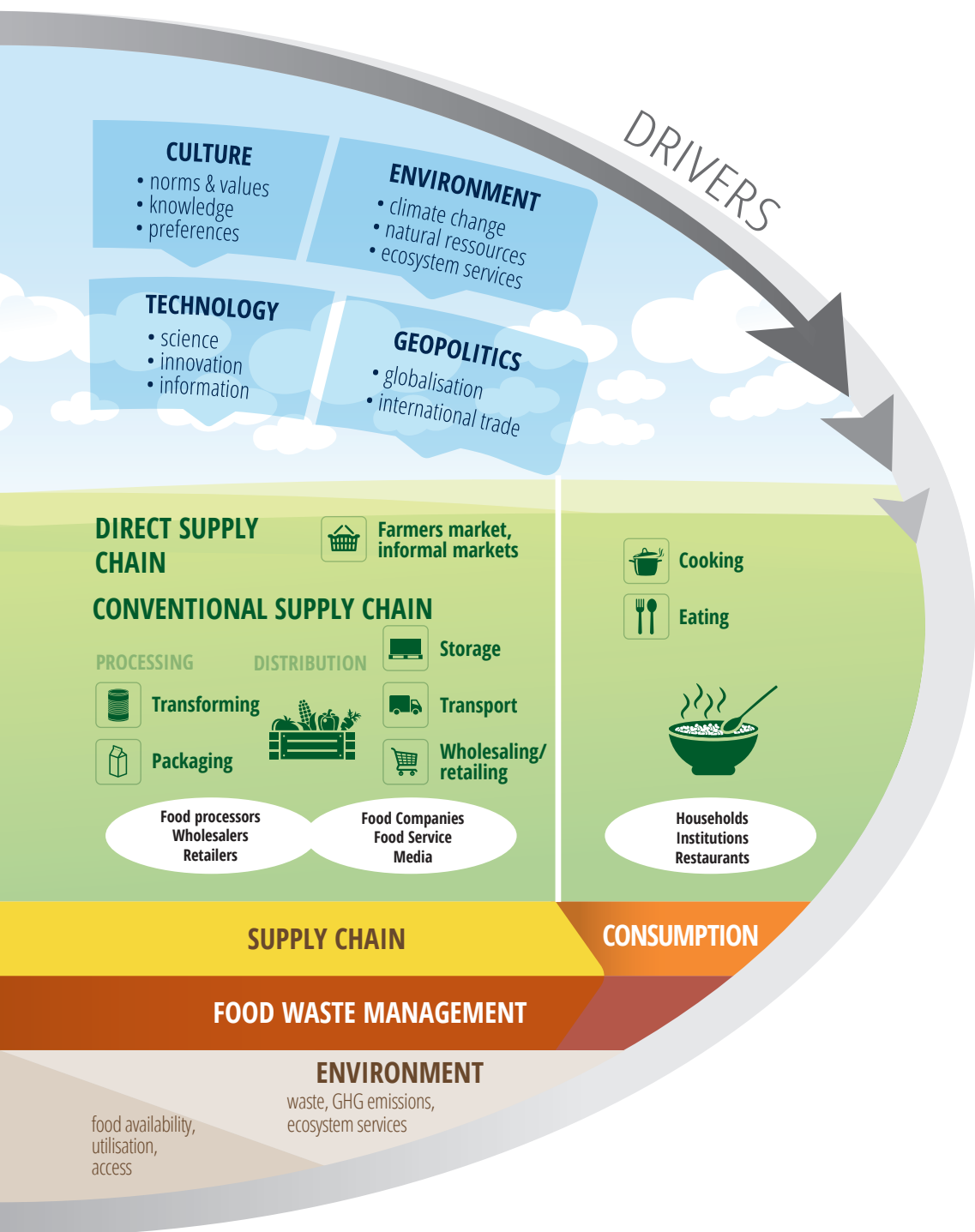
Friedensreich Hundertwasser

The food system

Drivers – activities – actors – outcomes



Source: CIAT, 2017, www.ciat.cgiar.org





Rikolto's Food Smart Cities programme...

In 2013, the city of Ghent became the first city in Belgium to adopt a food policy. 'Gent en Garde', as it was called, contains five strategic goals to pave the way for a sustainable food system for Ghent. The strategic goals were the result of intense discussions among a wide range of actors – facilitated by Rikolto and Levuur – and the starting point for the formulation of a policy framework in 2016. This was a rich learning process for Rikolto, and it became the first step of a global programme that is now being implemented in 7 countries and expanding, with an annual budget of almost 2 million euros.

In 2015, 137 city mayors gathered in Milan to discuss two of the most pressing issues of our time: food security and sustainable development. At the end of the conference, the Milan Urban Food Policy Pact was signed, signifying the mayors' commitment to developing sustainable food systems that are inclusive, resilient, safe and diverse.

Among the early signatories were three cities with which Rikolto already had a long history of collaboration: Tegucigalpa (Honduras), Quito (Ecuador) and Ghent (Belgium). In October 2016, the idea of a joint international initiative on "Food Smart Cities" emerged from a discussion in the sidelines of the United Nations Conference on Housing and Sustainable Urban Development (Habitat III) in Quito.

The seed was planted and the international "Food Smart Cities" programme soon expanded to new cities and regions: Da Nang (Vietnam), Solo and Depok (Indonesia), followed by Arusha (Tanzania) and Leuven (Belgium).

United by a shared interest in developing more sustainable urban and rural food systems, these cities are working in partnership with Rikolto's regional offices and other stakeholders to introduce policies and practices that contribute to fair, sustainable and healthy food systems, and to ensure that healthy food is available for all their citizens.

Rikolto's Food Smart Cities programme

The overall goal of the Food Smart Cities programme is to support city-regions in implementing both policies and practices that contribute to **sustainable, fair and healthy food systems**. To do so, Rikolto and its partners are working towards four objectives:

1. To include smallholder farmers, women and the youth in sustainable urban food chains under fair trading conditions;
2. To increase the affordability, availability and acceptability of safe, sustainable and healthy food to city-dwellers;
3. To reduce the environmental impact and increase the resilience of urban food systems;
4. To set up participatory governance mechanisms for urban food systems.

To achieve this, we take a **three-tier approach**.

- **Level 1: Pilot projects with cities.** Together with our partners, we develop and disseminate innovative and scalable practices at the city-region level that contribute to sustainable, fair and healthy food systems.
- **Level 2: Learning cycle.** We facilitate the documentation and sharing of experience and peer-to-peer learning among cities, in close collaboration with strategic allies.
- **Level 3: Influencing the international agenda.** We share our experiences from the field to advance the political agenda in favour of sustainable food systems and inclusive rural-urban food chains. In particular, we aim to contribute to discussions on the Milan Pact, the New Urban Agenda and the Sustainable Development Goals.

The Milan Urban Food Policy Pact

The Milan Urban Food Policy Pact (MUFPP) is an international pact signed by 205 cities around the world, representing over 450 million people. The pact includes a framework for action that touches upon 6 themes:

- 1) governance,
- 2) sustainable diets and nutrition,
- 3) social and economic equity,
- 4) food production,
- 5) food supply and distribution, and
- 6) food waste.

The cities who sign the Milan Pact commit themselves to working towards inclusive, resilient, safe and diverse food systems that provide healthy and affordable food to all people, within a human rights-based framework. The pact is one of the main legacies of the Expo 2015, hosted by Milan on the theme "Feeding the Planet, Energy for Life".

Together with our partners, we are implementing pilot projects in **5 domains**:



1. Assist cities in developing and implementing **local strategies and policies**, and setting up innovative policy mechanisms to advance sustainable urban food systems.
2. Develop **inclusive business models** between urban retailers and peri-urban farmers, and foster closer ties between cities and the countryside.
3. Enable schools to adopt sustainable catering practices and promote **healthy and sustainable food in schools**.
4. Support city-regions to improve food safety and develop effective and engaging **local food safety mechanisms**.
5. Empower consumers to make **healthy and sustainable food choices**.

In a nutshell...

Da Nang:

- We assisted Da Nang Food Safety Management Authority in drafting its **Food Smart City Strategy**, based on an analysis of Da Nang's food system and policy environment.
- In 2017, we signed a 5-year **memorandum of understanding** with Da Nang's Department of Agriculture & Rural Development to work towards a safe and sustainable food system.
- In 2019, we launched **3 pilot projects on Participatory Guarantee Systems**, with the idea of institutionalising the system at city-level.

Hanoi:

- Since 2009, we have supported the development of **safe food supply chains** in 7 provinces of Vietnam and enabled consumers' access to certified and traceable products.
- We developed a **Participatory Guarantee System toolbox** with training manuals on PGS, BasicGAP (Basic Good Agricultural Practices) and participatory training methodologies.
- We are cooperating with Hanoi's Plant Protection Department to convince the city's authorities to include PGS in their **policy portfolio**.

Tegucigalpa:

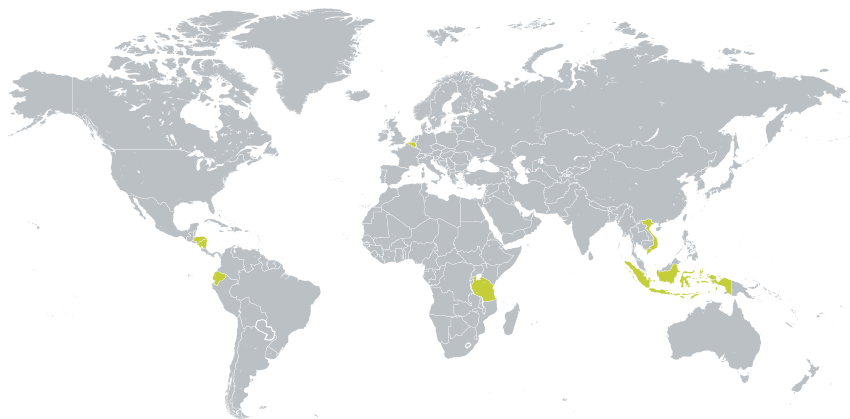
- In 2015, we started working with *El Consorcio Agrocomercial de Honduras* to strengthen its **business model** with the supermarket *La Colonia*.
- In 2017, we facilitated the establishment of a multi-stakeholder platform, "**the Inter-Institutional Committee for an Urban Agri-Food System**", to improve nutrition, diets and the sustainability of Tegucigalpa's food system.
- In 2019, Rikolto began leading a technical team to develop a **diagnosis** of Tegucigalpa's food system using the RUFSA methodology.

Jinotega:

- In 2017, we supported the establishment of the **MASLAGO multi-stakeholder group**, which aims for the sustainable management of Lake Apanás' sub-basin through **integrated landscape management**.

Leuven:

- Rikolto organised and facilitated discussions on the development of Leuven's "**Food Connects**" strategy.
- We are co-leading the development of a **food incubator** (Generation Food) to support start-up initiatives on sustainable food and farming.
- We are developing a **local food distribution platform** (Kort'om) in Leuven to connect producers in and around Leuven to businesses in the city.



Ghent:

- We facilitated the discussions that led to the food policy “**Gent en Garde**”.
- Together with our partners, we aim for all Flemish schools to have a sustainable food policy by 2021 as part of the **GoodFood@School** programme.
- We helped found Ghent’s **School Food Council**, a group of stakeholders from Ghent’s education and sustainability sector who discuss the upscaling of best practices among different schools.

Arusha:

- In 2018, we co-initiated the creation of the **Arusha Food Safety Committee**, a multi-stakeholder platform dedicated to ensuring access to safe food for all Arushans.
- In 2019, we conducted **baseline studies** on 3 key elements of Arusha’s food system: the local economy, food safety and access to food.
- We assist MUVIKIHO in developing an **inclusive business model** for safe vegetables. We support farmers in implementing good and climate-smart agricultural practices and quality management systems.

Solo:

- We support 7 school canteens in delivering healthy food to children and have drafted a **standard for healthy school canteens**.
- Rikolto connects private companies, grassroots organisations and vulnerable communities to **improve access to food** and reduce food waste.
- We conduct **research** on food literacy, food waste management and food consumption to inform political debates.

Quito:

- We are a founding member of the **Quito Agrifood Pact**, the multi-stakeholder platform behind Quito’s food charter and strategy.
- We supported the creation of **Yachik**, a commercial brand that enables small-holder farmers to sell their agroecological produce in the city.
- We work with UCCOPEM and CONQUITO to tackle the sustainable production of local fresh fruits and vegetables; improve local agriculture’s climate resilience; and create **opportunities for women and youth**.

by Dieter De Cleene (Eos Tracé)

Arusha – Tanzania



**Population:**

416,000 inhabitants.

**Key staples:**

ugali (corn), beans, bananas, cassava, rice, fish, grilled meat.



Arusha is located at the foot of Mount Meru and south of Mount Kilimanjaro.

**Key partners:**

Arusha City Council, Tanzanian Horticulture Association, ICLEI, AgriProFocus, Solidaridad, Trias, Tanzanian Bureau of Standards, Tropical Pesticides Research Institute, MUVIKIHO.

**Main challenges:**

Food safety, market linkages, application of good agricultural practices.



Safer food for Arusha

Supplying a growing city with safe food and rewarding farmers for their efforts. That is the challenge that Arusha faces.

“Pesticides are not the problem, the misuse of pesticides is the problem,” summarises Eric Mwesigwa. Mwesigwa is a food safety coordinator at TAHA, the Tanzanian Horticulture Association. TAHA is one of the partners with which Rikolto supports farmers in and around Arusha to produce better and safer food. The goal: gains for the farmer and the consumer.

Arusha – Tanzania



Andrea Absalum (21),
stall keeper at the central
market in Arusha



Eric Mwesigwa



Shukuru Tweve

Arusha is located in the northeast of Tanzania, at the foot of Mount Meru. It is the base camp for climbs to the Kili-manjaro and safaris to the Serengeti or one of the other numerous nature reserves in the area. The city has around 400,000 inhabitants, a number that keeps increasing every year. Fruits and vegetables for city dwellers come mainly from the immediate area.

In order to guarantee the quality and safety of the produce, Rikolto and TAHA launched the Arusha Food Safety Initiative in 2018, under the leadership of the city council. Various NGOs and government institutions have already joined the platform. Four times a year, all stakeholders meet to discuss priorities and solutions. “Everyone has their own strengths and expertise,” says Shukuru Tweve, project coordinator for the Food Smart Cities programme in Arusha. “By having everyone work together, we increase the impact. The whole is more than the sum of the parts.”



Kapelaka Jones

“We can’t do without fruit and vegetables. Our only option is to help farmers produce them safely.”

One of the parties involved is the Tropical Pesticide Research Institute (TPRI). Research by the TPRI showed that fruit and vegetables sometimes contain too high concentrations of pesticides. “Some farmers spray today and harvest tomorrow,” says Mwesigwa. “The situation is alarming.”

Too little and too much

Around 80 percent of the Tanzanian population is active in agriculture. The farms are small - a few hectares on average - and the yields low. Many farmers don’t have machines, irrigation, adequate seeds, fertilizers or pesticides. Those who do use crop protection products don’t always do so correctly. “Farmers often don’t know how to use products safely,” says Kapelaka Jones, who is researching pesticide exposure at TPRI. Jones went to see farmers to check which are the most common problems. Excessive use is one of them. “Specific products work against specific pests, but farmers sometimes mix two or three products randomly. The mixture may be more toxic but may just as well no longer be effective. To ensure that their crops remain in good condition for as long as possible, farmers often spray right before harvesting. “Some farmers are aware of the risks. “They are smart.” smiles Jones. “They reserve a small piece of land for their families, on which they don’t spray.” But this doesn’t prevent farmers and their families from being exposed to pesticides. “It is usually the women who harvest the newly sprayed products. They do so unprotected and spend a long time in the field.”, Jones knows. “Children play in the fields and among the pesticides. Empty packaging ends up in the environment.” Jones investigated the concentrations of pesticides in the blood of consumers and farmers. “We have measured disturbing values for both groups.”

Pesticide residues are not the only problem. “Food can also become contaminated with bacteria through irrigation or rinsing with dirty water,” says Mwesigwa. “A truck can transport rotten meat today, and mangoes tomorrow. So, attention is not only required for safety during production, but also during storage and transport.”

Arusha – Tanzania

Farmers who export their products must first go through a certification process to prove that they apply so-called “Good Agricultural Practices” (GAP). There is an extensive list of rules that must be followed throughout the chain as a guarantee of safe working conditions, a minimal impact on the environment and a high-quality and safe end product. There is no such code of conduct for farmers who only produce for the domestic market. Under Solidaridad’s leadership, several organisations from Arusha’s Food Safety Committee put together a local code of Good Agricultural Practices. “We can’t do without fruit and vegetables,” says Jones. “Our only option is to help farmers produce them safely.”

“A city is not an island”

Arusha signed the Milan Urban Food Policy Pact in 2015, an international initiative that build cities’ commitment to work towards a sustainable food system.

“A city is not an island,” says Rebecca Mongi, Chief Agricultural Officer in the Arusha City Council. “By signing the Milan Pact, we want to learn from other cities about how we can set up a sustainable and resilient food system.” Arusha is struggling with various problems, Mongi says. “Farmers are increasingly suffering from prolonged droughts. We expect that this will have an impact on food security in the long term. In addition, the city is expanding, and the land area dedicated to agriculture is shrinking. There is a lot of advertising around the city for building projects. Where yesterday there was a farm, today there can be a large house.”



Rebecca Mongi

The city council has prepared a “Master Plan 2035”, which defines spaces that must remain reserved for agriculture. “We also want to increase production with irrigation and greenhouse cultivation,” says Mongi. By focusing on intensive urban agriculture, the city pursues multiple goals at the same time. “We organize demonstrations and training sessions for the youth. And we provide affordable loans so that people with little capital can still invest in a small business. This way, we not only increase food production, we also create employment and help people out of poverty.”

Better price?

Everyone benefits from safe food, but how do you ensure that farmers are rewarded for their extra efforts? Are consumers willing to pay more for products that meet the highest standards? In a country where more than half of the family income goes to food, that is not obvious. For many people, the biggest concern is that there is something to eat at all.

"My products are always fresh and clean," says Andrea Absalum, a 21-year-old stall keeper at the central market in Arusha. "That's why people buy from me. Few customers ask questions about the origin or safety of what I am selling. "The central market is one of the biggest markets in the city. More than 3,000 stalls in and around the market building compete for the preference of the shoppers. In this and some other important markets in the city, the members of the Arusha Food Safety Initiative want to experiment with a kiosk model where consumers are informed about the importance of safe food and where at the same time they are offered fruit and vegetables from farmers who adhere to the local GAP standard. "Everyone can win here," says Tweve. "Farmers who are producing differently will be able to work more safely and to offer higher quality products, with less losses, a guaranteed sales market and better prices as a result. The stall keepers can benefit from the higher quality and fair prices and consumers get better and safer food."

"The products in the kiosks will be priced a little higher because of the extra costs for the farmer," says Mary Mkonyi, Country Manager at Solidaridad, an organiza-



"Everything stands or falls with a good business model. Working differently costs more money."

Mary Mkonyi,
Country Manager
at Solidaridad

tion that works towards sustainable food chains. “Everything stands or falls with a good business model. Working differently costs more money. Farmers, for example, must invest in good storage and transport.”

“The problem is that the certification process for the current export-oriented quality labels is expensive,” says Mkonyi. “As a result, small farmers are often sidelined.” The challenges are important: How do you communicate with consumers about the problem without causing panic? And how do you guarantee that farmers comply with the rules? “Such a change takes time. We cannot give up too quickly. Eventually, people will understand that this is important.”

“Involving women is not enough”

A sustainable food system also means good working conditions for men and women. Solidaridad, one of Rikolto’s partners, is committed to this. “Women often do most of the work on the farm,” says Mary Mkonyi (Solidaridad). “Many people think: if women are involved in food production, it’s okay. But that is not enough. Women must be able to make decisions, and that is where the shoe pinches. Women work in the field, but their husband decide what happens with the income to their discretion. Working together also means deciding together. We focus on that. “Solidaridad representatives talk to families about the role of women. “Because of all kinds of cultural barriers, women have too little faith in themselves. They get the impression that men are superior. We want them to see that they are just as capable of taking the lead. ”

Equally important is engaging youngsters. “Young people aren’t attracted to agriculture. This is a serious problem. We try to motivate young people with demonstration projects. Horticulture is particularly suitable for this purpose. With fruits and vegetables, you earn money quickly. This way young people see that agriculture can be an attractive way of doing business.”

Shukuru Tweve, Food Smart Cities coordinator in Arusha, confirms the importance of working with young people. “Half of the Tanzanian population is younger than 25. Those young people have a hard time finding work or starting a business. At the same time, sustainable food systems require to break from business as usual. Young people are best placed to come up with new and innovative solutions and to ensure that Arusha can live up to its commitments under the Milan Pact.”

Fair trade helps small-scale farmers to grow

With the support of Rikolto, the farmers' organisation Muvikiho helps small farmers to join forces and become smart entrepreneurs.

"In the past, I didn't use any fertilizers or pesticides." Monica Ombeni stands in her neat, undulating field full of young bean plants. "I didn't work the soil in the right way either," she says. "Now I keep a close record of everything: when I plant, how much I fertilize, what and when I spray." In the adjacent field, Nathanael Eliona shows his young tomato plants. "I now let them grow in a nursery first, before I put them in the field, with better results," he says. "And while I used to spray my plants anyway, now I first check what the problem is."

Ombeni and Eliona joined the farmers' organization *Muvikiho*, short for *Muungano wa Vikundi vya Kilimo cha Horticulture* or "Association of Horticultural Groups". Their aim is to unite farmers so that they can speak with one voice and tackle problems together. The group started in 2011 and now has 570 members.

Rikolto supports Muvikiho to promote fair, "inclusive" trade relationships. "In an inclusive business model, small farmers are respected and seen as full-fledged partners.", explains Charlotte Flechet, international coordinator of the Food Smart Cities programme at Rikolto. "when farmers are certain that they can sell their products under favourable conditions and at a fair price, it is an incentive for them to invest in sustainable and safe food production. No market, no change. And you only get fair trade relationships when farmers are informed and organized." Muvikiho organizes, among other things, training courses where farmers learn how to produce better and safer food. An agronomist assists the farmers in the field, with the results speaking for themselves: "If farmers used to get a tonne of beans from half a hectare, then now they get three tonnes", Muvikiho president Peter Chuwa says. With the support of Rikolto, the association invested in storage areas where the harvest can be kept cool. "As a result, the loss fell from forty to five percent," says Chuwa.

Muvikiho helps farmers with access to markets and credits (See "Who dares to lend money to small farmers?"). Thanks to current information about market prices, they can better negotiate with buyers. They learn about the benefits of collective sales and how to prepare a business plan. Together they are stronger, with better prices as a result. "Because they earn more, our members can invest in a house and send their children to school," says Chuwa. "And they produce better food for their own families."



Monica Ombeni



Beans for Belgium

Muvikiho has different subgroups. The tall Jeremiah Thomas Ayo who leads the Kibiu group with around eighty members, testifies about the benefits of the association. “Small-scale farmers become entrepreneurs,” says Ayo. “Before we go to our field, we know what the market wants.” That is in the first place the local market. In 2018, Muvikiho members produced 60,000 tons of vegetables for domestic consumption, but they also exported 2,000 tons to Europe. Beans, snow peas and baby corn leave mostly on commercial flights via Kilimanjaro Airport to Belgium, the Netherlands and the United Kingdom, among others. With the help of Rikolto, the farmers achieved the required Global GAP label (Good Agricultural Practices), which guarantees safe products. Previously, an export company paid for the certification process. As a result, the company was in a powerful position and could impose its conditions and price on the farmers. Now that they own their certificate, the farmers are stronger.



Jeremia Thomas Ayo

However, air transport goes hand in hand with high CO₂ emissions, and transport by sea is not an option because the vegetables are very perishable. Hence the importance to support farmers in switching to new, high-quality markets in the East African region. These are markets that also yield good prices while reducing emissions from transport.

"The international market is sometimes volatile, and the certification process you have to go through is expensive," says Ayo, who grows beans himself. "But we do get a much better price for our product." Despite the limited volume, the export market works as a catalyst. "The knowledge farmers gain about how they can grow higher quality products also comes in handy when they produce for the domestic market" says Shukuru Tweve, Food Smart Cities coordinator for Arusha. "And we see that domestic buyers also start paying better prices in order to be able to compete with exporters."

Farmers help farmers

What is the best way to grow pumpkins or corn? How do you store your grain harvest without it spoiling? Farmers learn from each other at a three-day meeting.

What is sold on the market in Arusha comes largely from the Arumeru district. Fruit and vegetables from close by and grains from a little further away. The network organization Juwame brings together all farmers' associations in the district. "Our mission is to allow farmers to switch from traditional to commercial agriculture", says Simon Ayo, chairman.

The organization does so by organizing a three-day meeting that brings together between three and six thousand farmers. Specialists in different fields teach their colleagues the tricks of the trade. Muvikiho participates with a delegation that shares experiences in horticulture and export. Others demonstrate grain cultivation or chicken breeding. "All focused on small farmers with few resources," says Ayo. The organization also invites companies to showcase their products. "Such as bags in which you can store your harvest so that it doesn't spoil, without having to spray pesticides on it."

Juwame also does lobbying. "This is how we raised the problem of counterfeit pesticides," says Ayo. "As a result, the government is now carrying out checks on sellers. We oppose unfair taxes for farmers and rules that prohibit exports. This way we try to eliminate all kinds of obstacles that hinder farmers in their work."



Arusha – Tanzania

It is currently difficult for farmers to distinguish themselves and their products from others on the domestic market “If you work better, the consumer doesn’t know it”, says Ayo. Muvikiho members are therefore curious about the effect of the new Tanzanian production standard (see “Safer food for Arusha”) and the attempts to make domestic consumers aware of the importance of safe food. Will that lead to higher prices? Ayo’s story illustrates how such a production standard can be beneficial not only for the farming families themselves but also for the entire agricultural sector. In a country where harvests are very low due to a lack of knowledge and good technology, this is not a luxury. “Thanks to the extra income from exports, I was able to send my children to university. Because they had seen what you can achieve through smart farming, they wanted to enter the sector themselves. They studied agricultural sciences and are now helping other farmers as advisers.”

“Four harvests instead of one”

Kibiu member Santaeli Solomon Kaaya shows off his almost ripe tomatoes, followed by his son, who approvingly eats some along the way. “Soon I will get my fourth harvest off the field, while in the past I could only harvest once,” he says with satisfaction. Santaeli has been using an irrigation system since February 2019. A fig tree in front of his house indicates the presence of shallow groundwater. Thanks to a pump installation powered by solar panels on the roof of his farm, Santaeli can use that water to irrigate his crops. “It was exceptionally dry this spring. But now I am no longer dependent on the whims of the weather. I can adjust my production to market demand because I know that there will be water.” As climate change leads to more weather extremes, such measures will gain in importance.

In this pilot project, Rikolto brings companies, lenders and farmers together and offers financial support. If successful, the intention is to roll out the formula on a larger scale.





Who dares to lend money to small-scale farmers?

That many small-scale farmers have little to no access to fertilizers, pesticides or other technologies is often due to the lack of money to invest in them. Nobody is eager to lend money to farmers who work in very volatile conditions. It is often a vicious circle: in order to get a loan, farmers must be able to present contracts with buyers and to be able to conclude a contract, they need money for investments. "Ensuring that farmers have access to credit is one of our duties," says Shukuru Tweve. "On the one hand we have to convince financial institutions that it is worthwhile to lend money to farmers, and on the other hand we help farmers so they can offer banks the necessary guarantees."

Farmers' organization Muvikiho initially set up an internal lending system, which has since been replaced by a cooperation with the Tanzanian National Microfinance Bank (NMB), largely in the hands of the Tanzanian government and Dutch Rabobank.

NMB does not provide loans to individual farmers but does so to groups. "We do this to limit the risk," says Arishard Msangi (NMB). "To prevent the money being spent incorrectly, we don't give large amounts at once, but pay in instalments, when investments are needed, such as field preparation or planting. Sometimes, we don't give money, but pay the fertilizer supplier directly, for example."

This seems to be an interesting formula for the bank. "There are many small farmers. This is an opportunity for us to tap into a new market.", says Msangi. "We have already reached more than 2,000 people with this pilot project. If it works out well - and it does so for the time being - we would like to scale it up."

The Arusha Food Safety Initiative



- Arusha City Council (political leadership)
- Tanzanian Horticulture Association (private sector organisation)
- Arumeru District Council (local government)
- Tanzanian Bureau of Standards (national regulatory body)
- Tanzanian Food and Drugs Administration (national regulatory body)
- Rikolto (international NGO)
- Tropical Pesticide Research Institute (TPRI - public research institute)
- MUVIKIHO (umbrella of agricultural organisations)
- Solidaridad (international NGO)
- AgriProFocus (international NGO)
- Trias (international NGO)



ANALYSIS of food safety risks throughout the vegetable chain and identification of hotspots for action

Development of a risk-based **COMMUNICATION** strategy towards consumers

Recommendation of a **PROTOCOL** for the government on how to handle the food safety of fresh fruit and vegetables

Development of a national food safety **STANDARD**, led by Solidaridad and tested in Arusha

Implementation of the **KIOSK MODEL** (*stalls in local markets selling safe vegetables as well as raising awareness on food safety*)

Advice on local **REGULATIONS** and policies on food safety

Joint development of a **PROGRAMME** to address hotspots and divide roles for the implementation of the programme

INSPIRATIONAL model for the entire country



by Marieke van Schoonhoven (Eos Tracé)

Da Nang – Vietnam





Population:
1,230,000 inhabitants.



Key staples:
rice, rice noodles, pork,
seafood.



Key partners:
Food Safety Management
Authority, Da Nang Union
of Science & Technology
Associations (DANUSTA),
Department of Agriculture &
Rural Development, Da Nang
Crop Production and Plant
Protection Department.



Main challenges:
food safety management
and value chain linkages.



Food Smart City Da Nang an example for the rest of Vietnam?

The Vietnamese city of Da Nang has had a food strategy since March 2019. Its goal is to make the transition to a sustainable and safe food system in and around the city by 2030. The ambitions of the dynamic city should set an example for other major cities in Vietnam, such as Hanoi and Ho Chi Minh City. But how do you make sure that food is safe if you do not know where it comes from?

Da Nang – Vietnam

In a meeting room on the fifth floor of a hotel in the centre of Da Nang, a group of people gather for the workshop *“Food Smart City Development Strategy for 2020-2025 with a vision towards 2030 in Da Nang”*. Participating are representatives of government agencies in Da Nang city, the food safety management authority, scientists, academics, supermarket owners, the director of a local farmers’ cooperative, the manager of a wholesale market, the first secretary of the Belgian embassy in Vietnam, Rikolto employees, and a handful of journalists from local newspapers and television. An interpreter is ready to translate from Vietnamese to English and vice versa for those present. Today, March 12, this group of people has to nail it: Da Nang must become a food smart city. We need a strategy and an action plan.

photos: Food strategy workshop



Challenges for Da Nang city

“90 percent of the food that is consumed in Da Nang does not come from the region but has to be imported from other regions or abroad. This makes it difficult to trace where fresh food comes from and whether it’s safe”, says Quach Thi Xuan, head of the Institute for Socioeconomic Development (DISED) in Da Nang. “At the same time, local farmers who produce safe food still struggle to find a sufficient market in Da Nang. So, the city has to simultaneously deal with both a surplus and a shortage of food.” With this, she briefly outlines the challenge that Da Nang faces if it wants to serve its inhabitants with safe and healthy food.

The port city, centrally located on the Vietnamese coast, has approximately 1.23 million inhabitants. The city is known for its clean environment, beaches and good public facilities. It is often called the most liveable city in Vietnam. The total surface of the region is 1,285.4 km², about the size of the Belgian province of Walloon Brabant. In 2017, about 242 km² of that area was urban and 1,048 km² rural.

Local agriculture in and around Da Nang has declined rapidly in recent decades. From 1979 to 2009, the region’s agricultural area decreased by 4,800 hectares, from 12,048 to 7,294.7 hectares. That meant the agricultural area dropped from 12.4 percent to 7.5 percent of the region’s total area – a number that appears to continue to decline, due to the rapid growth of the city. Since 2006, the number of inhabitants has grown by 11 percent per year. The city expands as more people move in from the countryside.

Da Nang is also becoming a popular tourist attraction. The city is located on a 150-kilometre-long stretch of coast, close to three other cities on the World Heritage List: Hue, the ancient capital of Vietnam; Hoi An, the town of lights; and the ruins of My Son. A little further lies Phong Nha-Ke Bang National Park, also on the World Heritage List. In 2015, the online travel website TripAdvisor ranked Da Nang as number 1 “emerging travel destination”.

All those city dwellers and tourists want safe food. Yet Da Nang is not able to produce all that food. At least 80 percent of products from livestock farming are imported. With only 100 hectares of farmland for vegetables, 90 percent of vegetables must come from further away. In addition, there are only three production areas in the region that produce according to VietGAP’s safe standards. Due to the shortage of agricultural land, 140,000 tonnes of vegetables need to be imported each year.

The vast majority of fresh food comes from nearby provinces, as well as from the Mekong delta in the south of Vietnam, the distance from Belgium to Italy.

Da Nang – Vietnam

A small share of the food is imported from abroad. All these products pass through different chains, making it difficult to guarantee that the food comes from a safe source, let alone that legal provisions for traceability and pesticide use are respected. For vegetables, the main problem is the pesticides used. In the case of meat, it is mostly microbacteria and safe slaughter, storage, and onward distribution that pose problems.

Most Vietnamese prefer to buy their fresh produce at the traditional daily market; there, safe food is a matter of trust. But the market vendors buy from wholesalers and therefore often do not know where their vegetables originally came from.

As a result, in recent years more and more Vietnamese who can afford to do so have started shopping in supermarkets or smaller convenience stores. Prices are much higher there, but so is the guarantee that the food on sale is safe. Supermarkets such as VinMart and MM Megamarket prominently advertise vegetables with the VietGAP label for safe fruit and vegetables. VietGAP stands for *Vietnamese Good Agricultural Practices*; it is the application of production methods to produce clean and safe products, especially fresh vegetables and fruit. The products often come from Dalat, a region about 700 kilometres from Da Nang where safe vegetables and fruit are produced under the VietGAP label on a large scale: we are talking about 250 hectares that make for 12,000 tonnes of VietGAP-certified fruit and vegetables per year.

Despite increasing demand for high-quality food in Da Nang, supply is declining because of urbanisation, climate change and environmental pollution. The various actors in the food chain also struggle to find a coordinated approach to increase the supply of safe food. Lastly, the business landscape is very fragmented: most companies are very small and prefer direct profits over investments in food safety and sustainability.

It is also still difficult to get safe fruit and vegetables from the region itself and from smaller-scale farmers to reach Da Nang's city dwellers. Mr Bui Dung, director of the *Tuy Loan Safe Vegetables Cooperative*, indicates: "Every day, we produce around 1 tonne of vegetables according to the VietGAP standard, but nowadays we sell 60 percent of our products on the fresh market at a price that is 30 percent lower than vegetables of the same quality in the supermarket. Over the past seven years, forty members of our cooperative have used the methods to produce safe vegetables on a total of 15 hectares, but so far, they haven't found a market for their products. These facts are in stark contrast to the way Da Nang has to import a large amount of vegetables to meet consumers' needs."

Da Nang's Food Smart City Strategy (Da Nang – Vietnam)

The Food Smart City strategy focuses on 7 areas of intervention:



Apart from access to safe food for the residents of Da Nang, that is the second important challenge: involving small-scale farmers in the region in safe food chains, in order to increase the low annual income – around 1,330 euros per year – of the farmers around Da Nang. The VietGAP label is very expensive, so there should be a cheaper way of guaranteeing quality. According to Quach Thi Xuan, the solution should come from the local government: “It should strengthen the link between agricultural cooperatives and markets in the city and improve control on the origin of products.”

Towards safe and sustainable food

Which brings us to the city of Da Nang's food smart city strategy, discussed on March 12. Its aim is to provide consumers with safe food of high quality; support food producers and traders; and limit the negative impact on the environment in the long term.

In 2018, the city council in Da Nang approved the research project on *food smart cities*, in which the current situation in Da Nang was examined with support from Rikolto, Vietnam National University of Agriculture and the Belgian-Vietnamese Study and Consultancy Fund (SCF). The project also identified challenges and possibilities, which were then incorporated into the food strategy as far as possible. The food strategy has to ensure that everyone involved – local government, farmers, businesses, academia and consumers – heads in the same direction and that the objectives are clear to everyone. The detailed strategy *"Food Smart City Development Strategy for Da Nang 2020-2030, vision 2045"* as well as an action plan (2020-2025) were finally approved in March by Da Nang's Food Safety Management Authority.

The food strategy says a lot, but its main goal is for every Da Nang resident to have access to safe food by 2030 and also know where it comes from. (In 2019, just 9 percent of fresh food is safe and traceable by the Food Safety Management Authority). This goal will be achieved through technical innovation in the area of food safety management, among other means. Farmers and traders should also have long-term benefits from these sustainable food chains, so the impact on the environment is reduced. The food system should become more resilient to socioeconomic crises, natural disasters and climate change. Through educational programmes, new generations should be given knowledge about food safety and healthy and sustainable food. Quite a set of ambitions!

A major role is reserved for the Food Safety Management Authority of the city of Da Nang. It should transfer knowledge about food safety to producers and traders, and check and evaluate the quality of food. It should take enough food samples and perform checks; if a problem is discovered, it should issue fines to traders, shop owners, restaurateurs and food vendors. In addition, it should try to check that food products entering the city from other provinces are safe and traceable. While the Food Safety Management Authority is already doing these things, its capacity should be increased.

"We've already signed agreements of cooperation with other provinces to make the supply of food more transparent. Since traders go to different farms, buying and selling again, the infrastructure is very complicated. To date, it is still impossible to know exactly where the food comes from."



Nguyen Tan Hai of the Food Safety Management Authority

In addition, a database of safe food products is being set up together with the information and communication department. It will contain all information about food flows in and out of the city of Da Nang. Residents will help identify and provide feedback on the quality of their food. They will also receive identification codes for the different types of products and their origins, so they can identify their food and make a conscious choice. The plans for this project, however, are still in their infancy.

In achieving the goals of the food strategy in Vietnam, Rikolto focuses primarily on the local farmers of Da Nang: "Working with the city of Da Nang, our priority is making sure small-scale farmers are involved in safe food chains", says Hoang Thanh Hai, *Food Smart Cities* and Vegetable Programme Coordinator for Rikolto in Vietnam. "We focus on safe vegetables."

It may be early days, but the plan is in place and the first steps have been taken. In 2030, it will become clear whether the city of Da Nang has succeeded in providing all its inhabitants with safe food and whether it can serve as an example city for the rest of the country. The World Bank is already encouraging Hanoi to work on a local food strategy as well, following Da Nang's example.

"Becoming 'smart' is a process. It's not something you can achieve by deciding to do it. With this project, we expect to lay the foundation for our policy on food management, a policy in which the consumer is central and food safety is the core theme."

*Nguyen Thai Hai,
Head of the Food Safety Management Authority of Da Nang*

by Marieke van Schoonhoven (Eos Tracé)

Hanoi - Vietnam





Population:
7,780,000 inhabitants.



Key staples:
rice, phở noodles, pork, chicken, lettuce.



Key partners:
Plant Protection Department
(Department of Agriculture & Rural Development), CIAT, Vietnam National University of Agriculture.



Main challenges:
food safety management,
application of Good Agricultural Practices.



Hanoi wants vegetables you can trust

In Vietnam, food safety problems regularly make newspaper headlines and TV news. In recent years, thousands of people have fallen ill from eating unsafe food. How do you ensure that farmers use less pesticides? And how do you get the Vietnamese to choose safe vegetables? The alternative certification system PGS can offer a solution.

Hanoi - Vietnam

Many scents penetrate our noses as we walk through the corridors of the large, covered fresh market, popularly called “*wet market*”, in Hanoi. The pungent smell of meat that has been displayed since early morning in the section with all the meat stalls alternates with that of fermented shrimp paste, “*Mắm tôm*”, and fragrant herbs, kept fresh on trays with ice. We slalom between overloaded scooters, smoking butchers and chattering market visitors carrying full plastic bags. It is humid, the fans are humming on the ceiling and as tall Western tourists, we look around in astonishment.

We are here to talk to both vegetable sellers and buyers about vegetable safety. Are they aware of the problems caused by the abundance of pesticides used in the production of vegetables? Are they worried? And why do buyers still choose to shop at the non-transparent “wet market” instead of the supermarkets or convenience stores that have shot up like mushrooms in recent years?

“I always buy from this stall when I buy fresh vegetables for the dishes that I sell at my noodle shop. I don’t care if they’re safe, as long as they’re fresh. That’s what the customers want. I don’t go to the supermarket because it’s too far and the vegetables are also more expensive than here on the market”, says Le Van Tu (50).

A similar answer is given by Mr. Do Anh Thu (72): “I come here every day to buy my vegetables, they’re much fresher here than at the supermarket and in terms of safety it doesn’t matter. In the supermarket, they say the vegetables they sell are safe, even when they really aren’t. I trust supermarkets less than the market sellers. I know that the vegetables I buy on the market here are grown in Dong Anh district. The standards for safe vegetables are applied there. The sellers on the market also need to make a living, so I’d rather buy from them than from large supermarkets.”

Saleswoman Van Thi Thu Ha (41) says that she buys her vegetables from wholesalers. “I don’t know exactly where my vegetables originally came from. I have many customers who come to buy every day, but also one-time customers. The market management regularly performs checks. They check my health, but not the vegetables; they mainly check the meat. I do have to keep a log of what I sell. I’m not concerned about the safety of the vegetables, or the pesticides they spray. I just assume it’s OK.”

On the street, we meet vegetable seller Chu Thi Nga (51): “Follow me into the alley,” she says hastily. “I’m afraid the police will catch me if they see me in the middle of the street. I’m actually not allowed to sell from my bike. If I’m caught, I’ll be fined 150,000 Vietnamese Dong (5.70 EUR, *ed.*), more than I earn in a day. I get my vegetables by motorcycle, 18 kilometres from here. I’m sure the vegetables are safe, because I trust the farmer I buy from. I also grow vegetables myself. I sell to well-known restaurants, so they too trust the quality of my vegetables. I sell from

my bicycle because it gives me much more flexibility. I can work until I've sold everything and then I take care of my children and the household."

We do a limited sampling, but the advantages of the *"wet market"* that people mention keep being repeated: it's fresh, it's cheap, it's a habit and I trust the person who grows the vegetables (but not the certified vegetables in the supermarket).

Are the buyers right to trust their regular seller? It's unlikely. Figures from the World Health Organization show that the area of the Western Pacific, of which Vietnam is part, is number two in the world for food-borne diseases. Independent research surveys have found that around 10-40% of food in Vietnam is contaminated with microbes or parasites which can cause foodborne diseases, with unacceptable levels of pesticides, heavy metals and antibiotic residues being commonly present. However, this doesn't mean that food with these characteristics will necessarily make people sick (World Bank, 2017).

One of the reasons why there is indeed a major problem with food scandals in Vietnam is that illegal pesticides are smuggled across the Vietnamese border with China. These are then sold very cheaply on the local market. In addition, Vietnamese farmers are often small-scale, poor farmers. Usually, their land is smaller than one hectare and the harvest is just one of several sources of income for a family. It is difficult for these farmers to gain access to reliable information about how to use chemicals safely, so they use them liberally to ensure their harvest will not be affected by pests. As a result, a lot of vegetables on the market contain unacceptably high amounts of residues.

Certifying safe vegetables

Le Thi Kim Oanh, head of the Plant Protection Department in Hanoi, says that the first time there were plans to curb pesticide use in vegetable farming was in 1990. "Since then, the percentage of farmers using fewer toxic pesticides has increased from 25 percent to 60 percent. Farmers also more often wear protection while working, so they've become more aware of the risks of pesticides. In addition, since 2009 we've been focusing on certified vegetable production. Today, the city has 200 hectares of VietGAP-certified vegetables and 30 hectares of organic vegetables (VietGAP stands for Vietnamese Good Agriculture Practices)."



Le Thi Kim Oanh

Hanoi - Vietnam

That may seem like a lot, but out of Hanoi's total agricultural area for vegetables, which is 12,041 hectares, it is a mere 2 percent. For all of Vietnam, the ratio is 81,500 hectares of VietGAP-certified vegetables compared to an estimated total agricultural area of 735,000 hectares, or about 11 percent.

Despite the support by the Vietnamese government, the result in the past ten years can be described as rather modest, because VietGAP is an expensive, labour-intensive and complicated certification scheme. It is based on checks by a third party, making it expensive to obtain a certificate. The vast majority of farmers, who own less than one hectare of land each, cannot afford it.



Nguyen Tuan Khanh

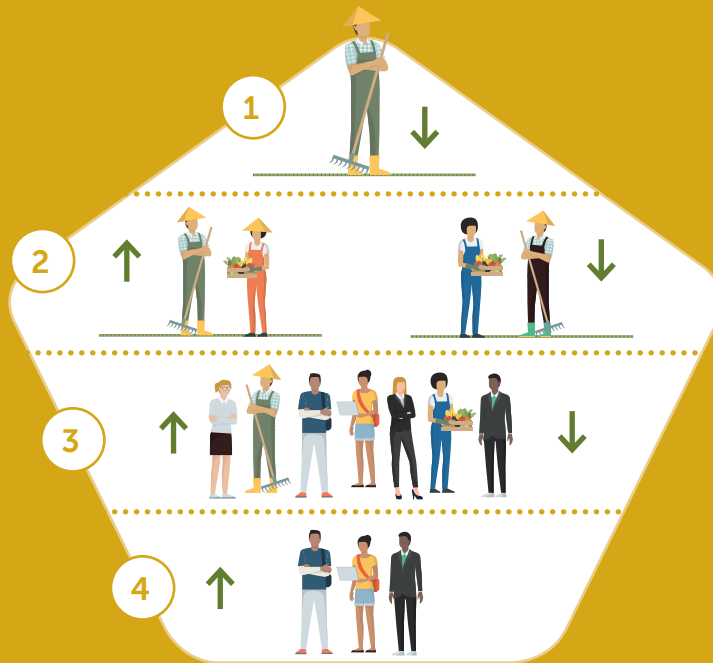
This is evident, for example, in a statement by Nguyen Tuan Khanh, director of the agricultural cooperative in Dang Xa, which is part of Hanoi's rural area. "The cooperative consists of 104 members, each cultivating their own piece of the total of 130 hectares of agricultural land. On that land, they grow mostly vegetables, but also fruit and rice. A total of approximately 2,600 tonnes of produce is harvested each year. We grow for consumers in Hanoi and export a small share of our cabbages to Japan. Of the vegetables we harvest, 5 to 10 percent we sell to private companies, such as school caterers, for example."

The farmers in the cooperative have been trained in growing safe vegetables for a long time now. "Our vegetables used to be VietGAP-certified. The government paid the costs of certification, but they stopped doing so in 2014. That's why we no longer have VietGAP. It's too expensive."

However, the farmers and the management still adhere to the principles of BasicGAP, which are based on VietGAP's most important control points. The farmers keep track of when and what they spray and what they harvest and sell. The management keeps track of the condition of the field by conducting analyses of the irrigation water and soil. They register which farmers are members of the cooperative and what they produce. They are also responsible for purchasing equipment for the farmers and keep track of what they sell to each farmer. Finally, they check who takes part in which training courses.

To ensure all these BasicGAP requirements are met, PGS (Participatory Guarantee System) is a good alternative certification mechanism to the expensive VietGAP. PGS differs from third-party certifications in a number of ways. As the name reveals, farmers as well as consumers directly participate in the controls, as do retailers and

Participatory Guarantee System (PGS)



1. FARMERS:

- Produce food according to a food safety standard
- Commit to complying with PGS rules
- Participate in inspections

2. FARMERS' GROUPS:

- Support members to apply the standard
- Check whether members comply with the standard
- Conduct mutual inspections & write reports on other groups

3. INTER-GROUPS (FARMERS, AUTHORITIES, BUYERS AND SOMETIMES CONSUMERS):

- Develop plans for mutual inspections & evaluate inspection reports
- Sanction groups that do not comply
- Manage certification applications

4. LOCAL COORDINATING COMMITTEE (INCLUDING FARMERS' LEADERS, AUTHORITIES, BUYERS AND SOMETIMES CONSUMERS):

- Carries out random inspections and tests
- Reviews inspection reports, issues certifications
- Supports market linkage





the government. This means farmers also control each other; this is done reliably, because either all members of a farmers' group get certified or none of them. PGS is also a lot cheaper and far less of an administrative burden.

At Dang Xa farmers' cooperative, fifty farmers, divided into three groups, started with PGS last year. "After one year of working with PGS, we already see a difference," says Nguyen Thi Nhi. "The bond between the farmers has grown closer, because if one person makes a mistake, this has consequences for the rest of the group. Our yield has also gone up. Farmers have learned techniques in PGS workshops and are also more inclined to help each other in applying them. They also work together according to a production plan based on the season and customer demand."

The Plant Protection Department notices the same benefits of PGS. "After learning about PGS, we started two pilot projects with Rikolto in 2018, including those at Dang Xa," recounts Le Thi Kim Oanh. "PGS is certainly more suitable for small-scale farmers' cooperatives than VietGAP, because so many farmers are involved. Unlike with a large agricultural company, it's difficult to control all of them individually. We notice that vegetable traceability increased during those pilot projects, as did the trust of the consumers eating the vegetables. The number of private companies that buy from these cooperatives has grown from 112 to 208, and the quantity of vegetables from 15 to 42 tonnes per day. If farmers sell to companies through contracts, they are paid 10 to 20 percent more for their vegetables than without PGS."

Markets crucial for sustainable change in behaviour

PGS sounds like Columbus' egg, although it is still in its infancy. That also means it suffers its infancy diseases. Finding a market for those safe vegetables is not that simple. Nguyen Thi Nhi: "Today, only 5 to 10 percent of vegetables are sold through contracts with companies. Selling to companies is more attractive for farmers. It makes them less dependent on the volatile prices on the market and allows them to sell their vegetables at a fixed price, at least for a while. And the farmers, who are often elderly, don't have to stand and hawk their vegetables at the market, as the vegetables are picked up by the buyer. However, it's not easy for farmers to produce according to the demand of such a private customer, while also ensuring a constant quality."

For the vast majority of vegetables, the benefits of steady customers do not yet apply and farmers still have to sell on the market by themselves. There, they have to convince their suspicious customers that their vegetables are produced safely and certified according to PGS – which their customers have often never heard about. The vegetables are also not yet labelled. That would entail an extra cost, which would increase the price of the vegetables, which are already more expensive than regular vegetables. PGS is also not yet officially recognised by the government as a certification mechanism. So, farmers often don't see the added value of PGS in the price they get on the market.

Le Thi Kim Oanh comments on this: "Based on the first results of our pilot projects, we intend to expand the PGS model in the future. At the moment, there are 35 initiatives in the start-up phase in Hanoi, which don't yet work fully according to PGS. We want to let these initiatives gain market access by showing companies that there is a demand for safe vegetables and convincing them to lead by example. By 2020, we want to provide market access to fifty cooperatives of vegetable farmers, for example to school canteens, catering companies, supermarkets and the hospitality industry. At the same time, we advise the city council to set up PGS chains between certified farmers and markets. If we succeed in this, we can continue by communicating this certification system to customers and putting PGS on the market, so confidence can continue to grow. This is how we plan to increase the production of safe vegetables in the city."

by Aäron De Fruyt (Rikolto in Belgium)

Tegucigalpa – Honduras





Population:
1,157,000 inhabitants.



Key staples:
corn tortillas,
rice, beans,
plantains,
cheese, eggs.



30-40% of the population in Tegucigalpa
buys food from the supermarket.



Signatory of the Milan Pact.



Key partners:
Office of the Mayor of the Central District, Consorcio Agrocomercial de Honduras, Association of Honduran Municipalities (AMHON), *La Colonia*, Zamorano Pan-American Agricultural School, FUNDER, FAO, National Autonomous University of Honduras.



Main challenges:
organic waste management, healthy food consumption, application of good agricultural practices.



Inclusive trade between rural and urban areas

De Mi Tierra: the consumer chooses Honduran

"The consumer is always the smartest of the class" says Abner Zuniga. We are sitting at the table with two gentlemen from the supermarket chain *La Colonia* in Tegucigalpa, Honduras. Along with Walmart, it is the largest supermarket chain in the country. He goes on passionately: "Only the consumer knows exactly what price he wants to pay for which products: he makes the comparison with other supermarkets and the informal market in no time at all. Every time the consumer goes shopping, he evaluates whether this price is commensurate with the guarantee on food safety, the taste, the shape, and the texture."



Miguel Arita

Miguel Arita, responsible for the purchase of vegetables, nods affirmatively. "It is only consumers who decide whether they want to pay this price for a product from Honduras. Do they opt for quality and food safety or do they prefer an imported product?" And what have they seen? The Honduran consumer chooses home-grown products. The campaign "De Mi Tierra" has to give those products extra attention. Intrigued, we asked them about a special collaboration that has provided a splendid example of an "inclusive business model" for several years. Nowadays, 90 percent of the vegetables *La Colonia* puts on its shelves are purchased from Honduran farmers.



Cesar Maradiaga

La Colonia now has 50 stores throughout the country. By the end of 2019 this amount should increase to 55. It is estimated that today in Honduras, around 3 million people (about 30 percent of the population) do their shopping in the supermarkets. "With a growth of 5 to 6 stores per year, *La Colonia* is therefore looking for producers who are able to keep up the pace in the long term," says Cesar Maradiaga, manager of the *Consorcio Agrocomercial de Honduras*. "As family farmers, we can only achieve this through a solid plan of action! The *Consorcio* would like to design that plan."

Beyond competition towards cooperation

Many small ones...

The *Consortio Agrocomercial de Honduras* is an alliance of eight independent small and medium enterprises (SMEs) that are managed by farmers. The aim is to work together to strengthen the position of small-scale producers on the national and - to a lesser extent - international market. The eight cooperatives of fruit and vegetable producers are HORTISA, PROVIASA, La Meseta, Tropical Yojoa, ECARAI, APROLHF, Vegetales Lencas and VERYFRUP. They are spread all over the country.

The *Consortio* wants to provide common and comprehensive answers to a number of problems faced by the companies. Formal markets (e.g. supermarket *La Colonia*) have stricter requirements than informal markets. This used to result in a high proportion of products rejected: at *La Colonia*, for example, up to 40 percent of the fruit and vegetable supplies were rejected because of quality problems. For supermarkets, the high-quality supply from Honduras was insufficient: a study from 2006 shows that up to then, over 80 percent of the vegetables consumed were imported from abroad.

Moreover, producers were faced with instability (and therefore income uncertainty) for several reasons: short-term contracts with the formal markets, fierce competition among the many SMEs selling similar products, uneven demand for vegetables during the year, and non-compliance with contracts by the buyer, among others. In addition, the delayed payment by the supermarket (1-2 months after the sale was made) caused uncertainty and a shortage of working capital for the suppliers.

"Small-scale family farmers have been facing major challenges for years," tells Cesar Maradiaga. "They don't have access to funds. They are often far away from the capital and from each other. Cooperation was essential to implement change on a large scale." Moreover, investing in family farming today appears to be a major risk for banks. As a result, private investors must be sought over and over again, and they play by their own rules.

"Don't forget," he adds, gesticulating, "that the eight businesses used to be competitors. This resulted in mutual cannibalism which led to falling prices." In addition, the farmers suspected that formal market contracts were often broken for fallacious quality problems, in order to switch to a cheaper competitor.

Tegucigalpa – Honduras

... make a big one!

In 2012, on the initiative of FUNDER (*Fundación para el Desarrollo Empresarial Rural* / Foundation for Rural Enterprise Development), the enterprises decided to enter into a partnership and to form an alliance. In 2011, the international NGO Rikolto, together with the *Consorcio*, started a pilot project to support them in strengthening their production capacities, collection and post-harvest processes (with specific attention to quality and volumes, to meet the requirements of formal markets), collective marketing strategies, and general advice in business, management and administration.

In the meantime, the *Consorcio Agrocomercial* de Honduras can already account for many achievements. Today, the supermarket chain *La Colonia* is their most important customer. Thanks to a highly effective production process, the rejection rate was reduced from 40 percent to 5 percent. A fixed price range was agreed, which stabilized prices and income. New markets, such as the city of San Pedro Sula, were explored. A collective brand name for the products was created and registered: *El Agricultor*. As a result of the collaboration, the amount of imported vegetables in the supermarket decreased by 90 percent. Who wins? The consumer, the supermarket and the Honduran producer. "Because on the formal market, the price the producer receives for his product easily increases by 100 to 200 percent," Maradiaga confirms. "And above all, prices remain stable."



The Supermarket, the Alliance, the NGO and ... the Bank

However, such an increase in quality also requires investment. A third partner in this unique collaboration was found in FICOHSA, a credit bank. FICOHSA supplied 60 percent of the necessary investment. As a bank, it is first and foremost looking for a profitable and reliable investment. A collaboration between the supermarket and the *Consortio* achieved the confidence threshold of the bank. "It is also important for the bank to think in the long term", adds Cesar Maradiaga. "Don't forget that banks also are looking for the social added value of an investment." FUNDER and *La Colonia* each also put 20 percent in the pot. Moreover, this cooperation with a financial institution also acts as a safety latch. Suppose either *La Colonia* or the *Consortio* would want to sink the ship for whatever reason, FICAHSO will not let that happen.

La Colonia also invests in staff. By now, the supermarket employs five technical experts whose full-time job is to visit farmers' organisations and guide them towards more efficient and higher quality production processes. "Rikolto's involvement with FUNDER and the entire partnership was also very important", Maradiaga concludes. "Rikolto contributed by paying the technical advisors and helped to setup a logistics system. Indeed: how do you get all these vegetables to the capital as efficiently as possible?" In addition, Rikolto also regularly advised the *Consortio* on communication, management and honest administration.

And the city government?

"The City Council of Tegucigalpa has not had a very direct voice in this partnership", says Annabell Guzman of Rikolto. Yet, it is an essential third factor in the inclusive business framework that Rikolto uses: *Capable Farmers* (the *Consortio*), *Willing Buyers* (*La Colonia*) and... an enabling environment (policy). "We create such an *enabling environment* in different ways," Guzman tells us. First, the NGO is working with the city council to develop a platform to stabilise the prices that producers receive. Today, no authority outside the market has any control over this. The collaboration between the *Consortio* and *La Colonia* shows how things can be done differently. Second, the challenge of food safety is also to be tackled at the city level. They want to do this through a better logistical approach and possibly also by providing storage facilities in the city. A third challenge for the city is the diet of its inhabitants. "Honduras occupies the second place in Latin America when it comes to unhealthy food", Guzman emphasizes. "With this urban platform we also want to tackle that issue in the coming years."

Tegucigalpa – Honduras

What the future can bring.

The future may have even more in store for the *Consortio Agrocomercial*. In neighbouring Nicaragua, a special cooperation was established between an alliance of 4 farmers' organisations and Subway. The alliance supplies fresh vegetables to 24 sandwich shops across the country. Because of the enthusiasm of both Subway in Nicaragua and *La Colonia* in Honduras, discussions are underway between the *Consortio Agrocomercial*, Rikolto and Subway in Honduras to inaugurate a possible cooperation in the future.

The vegetables of the *Consortio* are not only sold on the formal market though. We met Abraham Silva at the *Feria del Agricultor*, the farmers' market in Tegucigalpa. Every Friday and Saturday, producers from the various regions of Honduras come to the capital to sell their vegetables, fruit, meat and fish to city dwellers. Abraham is the son of Pasito, the chairman of the vegetable company HORTISA. Abraham studies physiotherapy at the University of Tegucigalpa and is here every week to sell the vegetables from the company, which is also a member of the *Consortio Agrocomercial*. "Whoever comes to buy here is mainly concerned about food safety," Abraham tells us.



Abraham Silva

"Take this tomato. It looks nice and healthy, but nobody can see how many chemical products have been used in the production process. Supermarkets require safety certificates, but here at the farmers' market, it is less strict. Our company, and by extension all member organisations of the *Consortio Agrocomercial*, guarantee a safe product. And people know that." He laughs: "My tomatoes are just as tasty and beautiful on the inside as they are on the outside!"

A new generation of farmers?

Abraham is 24. "Do I still see myself farming in ten years?" Abraham nods enthusiastically. "Certainly!" He explains to us that he owes his studies to agriculture. Once graduated, he will not leave the field for good. "Agriculture is a beautiful craft. I study physiotherapy because that is how I want to help people too. But my heart stays on the field. It's in my blood." Reynaldo Julián Avila also feels the same way. He is a farmer and technical advisor at PROVIASA, another vegetable company member of the *Consortio*. We take shelter from the afternoon sun under a tree, with a view of Tegucigalpa. Reynaldo studied automotive mechanics in the capital, but due to the economic crisis, there are no more jobs in the sector.



Reynaldo Julián Avila



"That's why I decided to return to my village," Reynaldo says. "It is not far to Tegucigalpa: with a two-hour drive I can visit my friends there." Does he still dream of a career as a car mechanic? Reynaldo seems very determined: "No, never! Why should I give up this job? I have complete freedom, I breathe the healthiest air in the country, and I can offer my family a safe future."

Women and children...

Yet he sees few young people around him making the same choices. What is stopping young people from choosing a future in the field? "Of course, it's not the sexiest job. Moreover, the fact that the 'faces' of the vegetable companies are often elderly may not be attractive to young people." Reynaldo experiences it first-hand: he does not have many young colleagues in PROVIASA. We asked him how this could change. "First and foremost, I think parents should teach their children more about agriculture. My father is also a farmer: he works a few kilometres from here. Yet I had to learn everything by myself when I returned from the city to the countryside. As a child you have a natural curiosity: it is a pity not to use that interest to master all the tricks of the trade."

For women, too, it is not always easy to play a role in the management of a farmers' organisation. "Don't forget that *machismo* is still strong in Latin America," Annabell Guzman from Rikolto tells us. We drive through a hilly coffee landscape to a meeting of some women farmers from vegetable company *Lenca Vegetales*. "Especially in rural areas, it is not easy to have a voice as a woman, let alone to use it." A group of women from *Lenca Vegetales* is now organising themselves as a women's committee in order to market their own products. There is interest from an unexpected actor: The Subway sandwich chain is currently in talks with the women's group. And they are particularly interested in an innovative agricultural technique: Hydroponics.

How to farm in a changing climate?

Heavy Blows

There is an urgent need for renewed agriculture. Climate change is already taking its toll in Honduras. When we meet producer Felix Zelaya, it is extraordinarily hot. “We are here at an altitude of 1,600 meters,” he says. “We used to wear jackets and hats at this time of the year. Now I am here in my T-shirt.” Indeed, Felix’s 6-year-old son is chasing a few chickens, also in shorts and a T-shirt. Mosquitoes bother us in the warm afternoon sun. But the effects of climate change extend beyond clothing choices and mosquito bites. Agriculture, in particular, receives heavy blows. New pests and diseases thrive better in a warmer climate. Honduras, the largest coffee producer in Central America, was hit very hard in 2012 by the fungal disease “coffee rust” (*Hemileia vastatrix*). In addition, winters are becoming tougher, summers are becoming warmer and sudden heavy rains are surprising the farmers. Felix’ harvest was also hit hard. “When 70 percent of my harvest was destroyed, I was forced to look for other horizons. A future in agriculture seemed too uncertain at that time.”



Felix Zelaya

Felix’ story is not an exception. In recent years, 70 to 80 percent of basic food crops such as corn and beans were lost in Central America. Migration due to climate change translates primarily into a flight from rural areas. Farmers and investors are seeing the growing risks in the sector and prefer to play it safe. People try their luck in the cities. But a growing population and a limited labour market rarely lead to more prosperity. Crime and unemployment go hand in hand in Tegucigalpa. Today, 55.32 percent of the Honduran population lives in an urban environment. Year after year, the population in urban areas is increasing by 2.75 percent. Tegucigalpa represents 22.73 percent of the national population. The Central American migrant caravan to the United States therefore also has its roots in a food system that is out of balance. A study indicated that half of the migrants who are trying to migrate to the United States, noted that food insecurity played a role in their decision. “So, we have to take a close look at our production process if we want to make the food supply in Tegucigalpa and the rest of Honduras *future-proof*,” says Annabell Guzman.

Greenhouses of hope

Yet, Felix did return to the countryside. "I had to. This is the village where I grew up: my mother, my wife, and my children live here." Felix is a cooperator of the *Vegetales Lencas* company, with headquarters in Marcala: the land of coffee and friendship. Las Crucitas, where Felix cultivates a piece of land, is located about 90 km from Tegucigalpa. He talks enthusiastically about the pilot project that he has seen come about in the last three years: his own greenhouse with a hydroponics system. According to him, hydroponics can ensure the future of vegetable cultivation in Honduras. A strategic partnership was established between Rikolto, the *Consortio Agrocomercial* and the Luxembourg-based company, ADA, specialised in microfinance, which provided the necessary start-up capital.

"It is a radically different form of agriculture", Walter Pereira adds enthusiastically. Walter works as an agricultural technician at *Vegetales Lencas*. "People no longer plant the seeds in the soil, but in a tube structure through which water flows. That water contains all the nutrients that the plants need to grow into a healthy and nutritious product." This has many advantages: water consumption is reduced by

What is Inclusive Business?

Rikolto uses the six principles of the LINK methodology, developed by CIAT



Chain-wide collaboration

Effective cooperation between the actors in the chain who share a common goal



Effective market linkages

New relations between all chain actors, leading to a stable market and constant supply



Fairness & transparency

A fair and transparent policy with fair prices and shared commercial risks



Equitable access to services

Including credit, technical support in the field and market information



Inclusive innovation

Not 'for', but 'with' farmers



Measurement of results

Indicators and concrete follow-up plans



Tegucigalpa – Honduras

up to 50 percent, the use of chemical products is reduced to a minimum, and the growth cycle is shortened - down to 15 days in the case of lettuce. But above all, the crops are better protected against wind and weather.

"The term hydroponics is an umbrella term", explains German Flores. Flores is an agricultural engineer and, as a Rikolto representative, closely monitors the pilot projects. He tells us that there are two techniques for hydroponics. Neither of them works with soil. Instead, they extract their nutrients exclusively from flowing water. You can grow the crops in two ways: on the basis of water only or by means of a substrate. This substrate can consist of sand, coconut fibres, volcanic rock... Larger plants such as tomatoes or sweet peppers have a solid substrate where deep roots can grow. The substrate only serves as a grip; it does not contribute any nutrients.

"We are still in our infancy with this," Walter Pereira tells us. "But we are the first family farmers in Honduras to use this type of equipment." The farmers gained technical knowledge during two inspirational trips to Guatemala and Belgium, in collaboration with the province of West Flanders. During these trips, organised by Rikolto, the producers were immersed in the world of hydroponics. "Now we are the pioneers," says Pereira proudly. "NGOs, farmers' organisations and even academics come to see our pilot projects."

"At *La Colonia* we have high hopes for hydroponics," says Miguel Arita. "Certain products are very vulnerable to the effects of climate change. Lettuce is one of those. Thanks to hydroponics, the *Consorcio* ensures a stable supply and we don't have to worry about having empty shelves in our stores due to poor harvests." Moreover, it offers many possibilities for the future. Currently, 80 percent of the strawberries are imported from Guatemala. Strawberries are a perfect crop to grow with hydroponics systems. "Hopefully we will soon be able to present fresh, Honduran strawberries to our customers", concludes Abner Zuninga. Annabell Guzman nods: "Hydroponics will play a very important role in the food supply for a growing urban population in the coming years: it is efficient, environmentally friendly, and food safety is unparalleled."

The path is there, now it must be paved.

Yet, there is still a long way to go. "Strawberry seeds are hard to find in Honduras," says German Flores of Rikolto. Fortunately, the *Consorcio* can count on the help of the academic world. This is where *La Universidad Zamorano* comes in. The University of Zamorano is internationally renowned as one of the continent's most specialised agricultural schools. The university is located in Honduras and wants to be a leader in innovation. The University's expertise and technical knowledge are indispensable for making hydroponics a success story. As an international authority, it is much easier for Zamorano to obtain good quality seeds. In addition, they can

investigate whether the soil, climate and conditions of Honduras are suitable for the seeds and whether a high-quality product can be grown. "The collaboration with *Universidad Zamorano* is a gift from heaven," nods German Flores.

The *Consortio Agrocomercial* still faces a number of challenges internally. "We are writing a success story. That much is certain", says Cesar Maradiaga. "But hubris is punished!" The self-sufficiency of the *Consortio* is one of the greatest challenges the farmers' organisations will continue to face in the coming years. A solid management structure and smooth administrative operation will soon have to be established. Today, a large part of the financing of the *Consortio's* workforce still comes from the NGO Rikolto. In order to be fully independent, a solid financial plan is desperately needed. "Moreover, we are all human beings", Maradiaga adds with twinkling eyes. "That is why it is very important to avoid problems with power relations and internal feuds and to always keep in mind the higher, common goal."

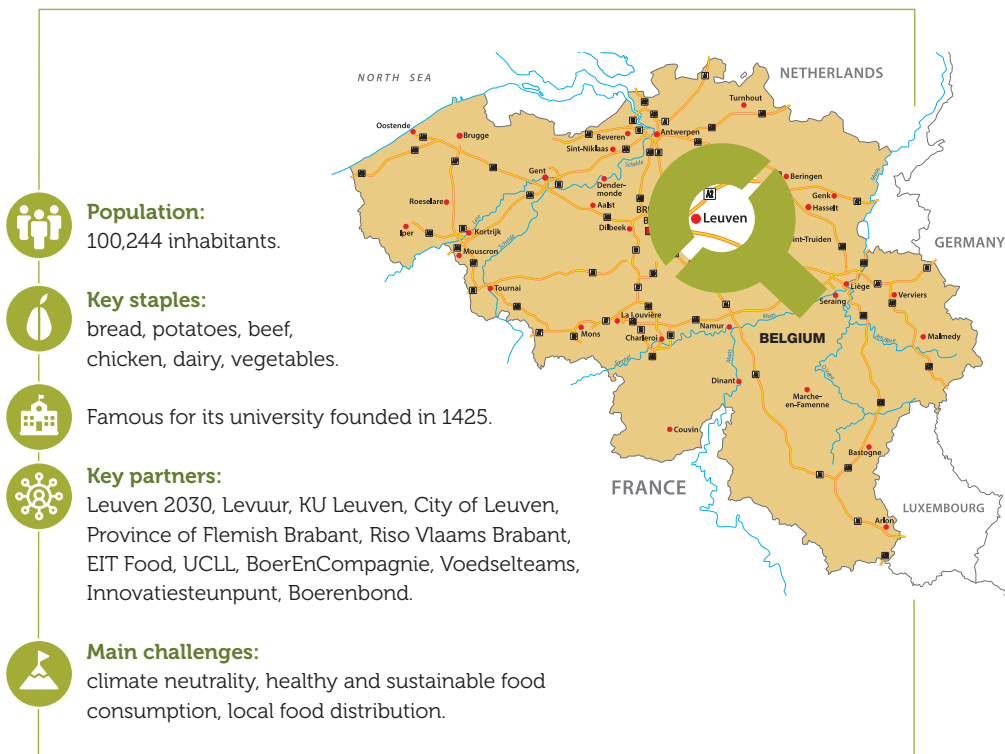
"As for hydroponics also, it would be premature to consider that we won the game", says German Flores of Rikolto. "There is still a lot of work to be done." In the future, the temperature in the greenhouses will be better controlled by means of shadow screens. "This is the most delicate part of hydroponics", says Felix Zelaya. "If the outside temperature suddenly rises, obviously the same will happen inside the greenhouse. That can be disastrous for the crops." The biggest challenge in hydroponics remains that things can go wrong at any time. An unnoticed power outage can cause an entire crop to fail.

Annabell Guzman looks at the future positively. "There will always be challenges on the road", she nods, "but this is really a success story." 9 out of 10 enterprises in Honduras fail within three years, but the *Consortio Agrocomercial de Honduras* will be celebrating its tenth anniversary soon. The innovative hydroponics method already shows that it will offer a firm answer to the consequences of a changing climate and will be able to feed the growing urban population in coming years. "For Rikolto, the story of *El Consortio* is an example of how we want to approach our food system: by setting up collaborations between the private sector, farmers' organisations, knowledge and financial institutions, city authorities and NGOs. Together we're designing another world."

by Marieke van Schoonhoven (Eos Tracé)

Leuven - Belgium





Leuven backs food 'from around the corner' for everyone

In the Belgian town of Leuven, a short chain platform is being established, aimed at ensuring the town's inhabitants eat more local produce. Why have asparagus flown in from Peru if you can also grow them a stone's throw away, in Haspengouw? This can make agriculture more sustainable, and for farmers this means getting a better price for their produce. A piece of cake? Not really. You have to get everyone on board to make this work for the long term.

Leuven - Belgium

Three men sit around a conference table and watch a large screen with a spreadsheet showing all kinds of foods and numbers. "We still lack tomatoes; 300 kilograms is not sufficient. Apples and pears, more than enough." Speaking is Patrick Pasgang. He is a consultant of *Innovatiesteunpunt* (Support point for Innovation), and with his expertise in starting up various short chain initiatives in Flanders, he is the ideal man to help support the short chain platform Kort'om Leuven. The other persons present are Joris Aertsens, collaborator of Rikolto, who steers the ambitious project, and Nick François of *Boerenbond* (Farmers' Union). "I try to use the Boerenbond's network to motivate farmers to work together at Kort'om Leuven", says Nick.

A few months before launching Kort'om Leuven, these men met to assess whether there is enough supply from local farmers who wish to offer their produce to local consumers through the platform.

Straight from the farmer to your plate



Joris Aertsens

Aertsens clarifies, "The intention of the local platform is to become a central pivot for local produce in a radius of forty kilometres around Leuven, and for professional buyers in and around the town. We collect products with the farmers and deliver them to supermarkets, local shops, hotels, restaurants and industrial kitchens, among others. We strive to supply a varied range: potatoes, vegetables and fruits, dairy, meat and processed meat, but also local products such as marmalade, cookies and chocolates. Both conventional and organic products are welcome, and both small- and large-scale producers. Until now, 60 producers have shown interest in cooperating with Kort'om."

Thanks to Kort'om Leuven, producers find their way almost straight to the consumer. Which is why the initiative is considered a short-chain: a distribution model that is gaining adepts in Flanders. Farm shops, farmers markets, CSA companies, neighbourhood farms (*Buurderijen*), vegetable subscriptions, *Voedselteams*... they all start from this short-chain principle, in which the farmer or producer is in direct contact with the buyer. A report of VLAM (the Flemish centre for marketing for agriculture and fishery) shows that the market share of short chains increased by 5 percent in 2017. This increase is mainly due to improved sales in farmers markets and neighbourhood farms. Sales on farmers markets in Flanders have increased by 6 percent, nearing 11 million euros.

Short-chain sales are therefore a way of broadening that is gaining importance. According to data from Statbel, in 2016, 2,404 companies (10 percent of all farms) were involved in one or more forms of 'direct sales'. Of these, 10 percent (234 companies) were exclusively selling directly and 19 percent (446 companies) were selling between 50 and 100 percent directly. For 72 percent, the share of direct sales in their total sales was less than 50 percent.

Although it is increasing, the market share of the short-chain still remains limited. Compared to other fresh-food distribution channels, the market share of farm shops is only 0,8 percent and 0,15 percent for farmers' markets. So, in total, the share of the short chain remains stuck around 1 percent.

And that is where Kort'om Leuven comes peeping around the corner. "Our ambition is to scale up the principles we find in the short chain. At the Flemish level, we want this 1 percent to mount to 5 percent of short-chain sales", says Aertsens. "Which is also why we work with the usual distribution channels, like supermarkets and restaurants. Those give us the potential to scale up. This is a pilot project, with the idea that this may also be interesting in other cities."

"In other regions we also see these types of initiative, such as Vanier in Ghent, for instance, '*Lekkers uit Pajottenland*' (Goodies from the Pajotten region) and Fresh From the Farm in the Kempen area. Those are already functioning well and contribute to that higher percentage", complements Patrick Pasgang of Innovatiesteunpunt.

A more sustainable Leuven

Kort'om Leuven also fits perfectly within the Food strategy of Leuven (see *box – Food connects*). The strategy was established in 2018 with the City of Leuven and other actors, and it supports the development of alternative food distribution systems such as Kort'om Leuven, aiming at making the food system in the city more sustainable.

Or, in the wording used in the strategy: *"The food chain is transparent. The benefits and costs are fairly distributed between all the players in the chain. There is a large mix of high-performance distribution channels for products from the region, both via the short chain and via local traders, the hospitality industry, catering and retail. Sustainable local food is recognisable and accessible on every corner of the street and is affordable for everyone."*

There are many ways in which Kort'om Leuven can contribute to a more sustainable food system in Leuven. "In principle, all producers can join, but we communicate in a very transparent way about how the company works", Aertsens says. "We also want to develop a scoring system to inform buyers and consumers about

how sustainable a company is, based on a number of criteria such as climate, animal welfare and water use. With that score we want to encourage consumers to choose more sustainable products, which in turn stimulates producers to produce in a more sustainable way. Partners such as Innovatiesteunpunt and Voedselteams are there to help farmers. Our survey shows that half of the interested farmers hope that Kort'om Leuven can help them make their enterprise more sustainable."

"That way, Kort'om Leuven also fits into 'Leuven 2030', an ambitious plan to make Leuven climate-neutral by 2050", Pasgang adds. "Agriculture really needs to be more sustainable and that involves more than just reducing the number of kilometres that food travels."

Preventing food waste

In terms of sustainability, a short chain can also prevent food waste, Pasgang says. "Wholesalers usually work with an AB system: at night, a restaurant must order before 10 p.m., and delivery is then made at 5 a.m. in the morning. A short chain often works with an AC system: you order today, tomorrow it is harvested and the day after tomorrow your order is delivered. That is good for quality, as it means you always have fresh products. In an AB system, the wholesaler must predict what will be sold, on the basis of which they purchase at an auction or from a farmer. That results in stocks often waiting for long periods in the fridge; after a week they are no longer fresh and become waste. In an AC system, you can harvest exactly what is ordered. In that part of the chain you don't have to waste any food. That is also a gain for the farmer."

Determining prices yourself

Another major advantage of the platform is that farmers can determine their own price. "Within a certain margin, that is.", Aertsens nuances. "if they were to charge more than 30 percent on top of the price they charge for conventional sales, they would have to explain why. If producers ask substantially more than through other channels, there is a real danger that we price ourselves out of the market. Half of the interested producers indicated that they expect to get a better price for a product with Kort'om Leuven."

Indeed, the price they receive today for their products is a problem talked about among Belgian farmers. "A farmer is a price taker, not a price setter. So, often he receives for his product what the buyer, such as a wholesaler, gives for it. And this is something we can help with a bit in this project. Even though a large company

probably will not be able to sell everything locally through a short chain”, says Nick François of Boerenbond. “Especially if there is a surplus on production, for instance in the tomato season, prices fall very sharply. Through this platform, farmers will then be able to ask at least their cost price”, says Aertsens.

François adds: “The workload also becomes less heavy for farmers who already sell through short-chains; they no longer need to make deliveries themselves to the hotels, restaurants and cafes. In addition to the larger sales market and larger margin that you can take on a product, it also ensures that your income is distributed. It is wise not to put all your eggs in one basket, but to generate income through different channels. And it is good for the visibility of the agricultural sector. If you can ensure that the consumer is closer to the farmer, this increases respect and knowledge about food and also increases the willingness to pay the right price.”

Stumbling blocks

Even so, it is not self-evident to establish a well-functioning platform and have short chains flourish in a town. In Ghent, the distribution platform ‘Vanier’ was started in April 2018, and Leuven can learn from it. Pasgang, who has contributed to many short chain initiatives, indicates: “In Ghent, the platform had to start rather quickly, at the request of the client, the City of Ghent. As a result, they had a relatively small range of products in the first phase, which meant that certain products that customers asked for were not available. If you experience that as a buyer, you may not be making another purchase. That is why we are taking more time in Leuven to prepare ourselves. Hence the spreadsheets in which we try to estimate whether supply and demand match each other sufficiently.” However, setting up such a project remains a challenge. Several similar projects had already started but had to stop. On the one hand because the organization of logistics revealed to be difficult and on the other hand because of the cost structure behind it.

“I have seen examples where, on top of the price of an article, 10 percent was charged for logistics, paid by the farmer,” says Pasgang. “That is not feasible in a short chain. In the wholesale distribution sector, there is an additional cost for logistics of between 3 and 12 percent, but in the short-chain sector, you have to charge at least 20 percent. That is because volumes are much smaller, so instead of a large truck you need smaller means of transport – you want to avoid driving around with half-empty trucks, because that is neither sustainable nor cost efficient. So, you need enough customers and enough demand from the right actors. You can’t get there with just a few small restaurants, because then you have to transport too many small quantities, and transaction costs are relatively high. We certainly also need large buyers, such as industrial kitchens, for example.

We are also able to offer added value. For example, for supermarkets that increasingly focus on local purchases and notice that buying from different individual farmers is not easy. There is already a lot of demand from that angle."

"We have received a start-up grant through Flanders Circular, but after two years we have to be self-sufficient," says Aertsens. "We need a turnover of around 12,000 euros per week for this. This is to be able to pay for a coordinator, but also to have efficient logistics. With the number of farmers showing interest, we are well above that. We estimate that they can deliver 60,000 euros worth of products every week, but we have yet to see whether all those farmers will actually join us when we start the distribution. And we still see some gaps in the chain such as tomatoes, for instance."

"There must also be enough customers. It would be good if we could start with six supermarkets, 25 catering establishments and a few industrial kitchens," says Pasgang. "It's nice that we have a subsidy to set up the platform, but after you have set up something nice, you have to see that it can continue to exist, even without subsidies. That is why you must ensure that all players are informed as soon as possible about Kort'om Leuven and that you get them included in your story. So, you have to put a lot of effort into communication, publicity and, for example, a recognisable logo. You have to create a community of farmers, buyers and people who want to buy locally."

According to Aertsens, Kort'om Leuven will certainly focus on the community around the platform. "We want to have an exchange and positive dynamics between consumers, producers and buyers, for example by organizing open farm days, a taste market or a "pop-up restaurant day" on a farm. This is where interested consumers and customers can get in touch with the farmers and their products."

The platform will be tested from mid-November 2019, and it will become clear whether the thorough preparations will be sufficient to turn Kort'om Leuven into a success. "We don't expect it to work perfectly from the beginning. It won't be profitable for a few months, but the project is supported by many different parties: Voedselteams, Boerenbond, many other civil society organisations, the City of Leuven and the province. If all of them give it publicity, there is a bigger chance of success. We hope to be able to surf along on the wave of enthusiasm that is now clearly there, and to write a success story in the long term."

BOX – Food connects

Since 2018, the City of Leuven has a local food strategy, titled Food Connects. Michèle Jacobs, Participation Officer of 'Leuven 2030', is one of the initiators and authors of the strategy. She explains the importance of the food strategy.

Can you tell us how the food strategy came about?

"The seed of the strategy was planted at the end of 2014. Together with Stef Steyaert, participation expert at Levuur, we organized the first 'yard meeting' with Leuven 2030."

"Leuven 2030 is an organisation that was founded more than five years ago by citizens, companies, civil society organizations, local government, and knowledge institutions. Together we wanted to take steps towards a climate neutral city. Different roads are taken to reach that goal. One of those is to set up climate yards. These are projects that grow from the bottom up around various themes that lead to a climate-neutral town: mobility, buildings, food... We noticed that there was a lot of dynamism and interest around the topic of food.

This is how this 'yard meeting' came about. We initially wanted to set up a 'food circle' around Leuven, which would enable us to become more self-sufficient in the area of food. This did not quite get off the ground, as we lacked a large strategic framework to tackle it in a structured way, according to long-term objectives.

In the meantime, a food strategy had already been developed in Ghent, 'Ghent en Garde', with partners such as Levuur and Rikolto. There we saw the impact such a strategy could have. Together with someone from Samenlevingsopbouw and Levuur I started developing a food strategy for Leuven. Rikolto quickly joined in and we also established a link with the local government. They wanted to subsidize us in the area of process management and contributed with their substantive expertise."

What is unique about this food strategy compared to that in other towns?

"The fact that the city has such a small role in the strategy is unique in Flanders and Europe. In Leuven, the strategy is supported just as much by the other actors: citizens, companies, civil society organizations, hotels, restaurants, cafes, schools and knowledge institutions. That is thanks to the participatory process we



Michèle Jacobs



Stef Steyaert

Leuven - Belgium

went through, that enabled us to take everyone's input into account and to make everyone responsible. This mobilization of actors is one of the most important merits of the strategy. It creates ownership, involvement and dynamics.

We have also focused on respecting balances. For example, we have not opted for organic instead of conventional. That is why, in the steering group, we have included major players like Boerenbond, KU Leuven and the City of Leuven. By staying in the middle and not choosing sides, you can connect. The title of the food strategy was not chosen by accident. All actors must join and become more sustainable, step by step."

What is the purpose of the strategy?

"What we mainly wanted to do with that strategy is to get actors moving. It is not a concrete action plan, but we do know what to work on. All the needs of the different actors are mentioned in the strategy. This then gives rise to concrete ideas from the different partners to work towards these strategic objectives."

So, what happens next?

"The strategy is now in place, and the intention is for the city council to get to work on the objectives it contains. Fortunately, the current city authorities are also fully behind the strategy and willing to implement it. The role of the city now is to provide resources and to create a context for the implementation of the food strategy. For me, that context is a network organization, specifically around food. There must be a number of people in the cockpit who ensure that all the necessary actors in Leuven are brought together around certain strategy themes, such as short chains or food waste. And they have to start realising things in practice.

However, it is not only the role of the city to take steps. Implementing the strategy is also the role of consumers, the distribution sector and so on. Everyone has their own responsibility."





Food connects: Leuven's strategy

The food strategy focuses on all aspects of the food chain, including production, consumption, processing, distribution... With seven clear strategic objectives, Leuven will have to get to work as soon as possible to make its agriculture and food system more sustainable and contribute to a climate-neutral city.

1. **Promoting healthy and sustainable food:** Leuven's food strategy is aimed at all its residents. Together, they are opting for healthy and sustainable food. This is only possible by focusing on education and raising awareness.
2. **Bringing consumers and producers closer together:** By building bridges between food producers, food processors, distributors and citizens, the food strategy ensures that everyone's efforts are appreciated.
3. **Giving space to sustainable food production:** Local food production is stimulated and Leuven residents are given a good framework to start doing this themselves. Front and centre is food production with respect for people, the environment and society.
4. **Commitment to sustainable agriculture:** In Leuven, farmers are valued for their role as sustainable producers.
5. **Making sustainable food products accessible to everyone:** Nutrition is a connecting force for greater social cohesion. The food strategy pays special attention to people in socially vulnerable positions.
6. **Preventing food loss and reusing surpluses:** Valuing food means reducing food losses and waste.
7. **Stimulating innovation for sustainable agriculture and food:** Everyone experiments and contributes to innovative experiments for sustainable agriculture and food. Scientists and professional farmers serve as a role model and provide inspiration.

by Dieter De Cleene (Eos Tracé)

Gent - Belgium





The struggle for sustainable food

With its food strategy ‘Ghent en Garde’, Ghent wants to establish a sustainable food system. The city itself strives to set a good example as much as possible.

“Food systems are an important lever to push our planet in the right direction,” says Katrien Verbeke of the Department of Environment and Climate of the City of Ghent. “Cities can play an important role in this because they are flexible and can switch quickly.” In 2013, Ghent launched its food policy plan “Ghent en Garde”. The document puts forward five strategies for a more sustainable food system.

Gent - Belgium

Striving for a shorter, more visible food chain is one of them. "All too often food is something we simply consume without considering who produced it, and in what way it was produced," says Verbeke. "That is at the root of many problems." Making the producer visible has several advantages. "It gets the consumer thinking. And the producer sees the local market as an alternative to wholesale and the world market. This way, we want to contribute to a liveable agriculture with fair prices."

"As transparent as possible"

Making short-chain sales easier for producers and hospitality managers, industrial kitchens and retailers - it's with this objective in mind that Laurence Claerhout set up the online platform Vanier in 2018.

Today, the platform unites about thirty food producers who determine their own prices. In exchange for a margin of twenty percent, Vanier takes care of administration and logistics.

"Compared to a country like France, short-chain sales in Flanders are somewhat behind", according to Claerhout. "We are no longer proud of our local produce." She notices that the hospitality industry is fond of the idea, but that it is difficult to change habits. "We offer fresh products that are sometimes difficult to find elsewhere," says Claerhout. "On the other hand, we cannot always offer everything. So, we need some goodwill from our customers." Vanier strives to expand its range by involving as many suppliers as possible. There are no specific sustainability criteria (yet) that producers must meet. "In the long term, we are thinking of a system where products can be selected based on criteria that you, yourself consider to be important, such as animal welfare, the environment or social entrepreneurship. For now, we only communicate as transparently as possible about the practices of our members. That is another advantage of the short chain: you can ask questions to a producer you know."



The 5 strategies in Ghent's food policy



A visible, shorter food chain



Sustainable food production and consumption



The creation of social added value around food initiatives



Reduce food waste



Optimum reuse of food waste

The city stimulates farmers' markets – about ten, now - where consumers and producers meet. By supporting the short chain platform Vanier, the city wants to make it easier for retailers and the hospitality industry to place local products on the shelves and on the plate (see *"As transparent as possible"*). For a few years, the city also organized a short chain competition. The winners include *Urban Smart Farm*, an innovative city farm that combines fish farming with the cultivation of vegetables and herbs in containers, and the pilot project *Voedselteams@home* (Food Teams@home), which has local products delivered home by bicycle couriers. "We also try to provide a space for local food production, to protect the agriculture around the city and to adjust it to the needs of the city," says Verbeke. In the borough of Gentbrugge, members of the Oogstgoed self-harvest farm can go and harvest their own fruits and vegetables. In Afsnee, the OCMW (the Public Centre for Social Welfare) of Ghent provided 10 hectares of fertile land on which a self-harvest farm and dairy farmer work together.

Foodsavers saves food from the garbage bin

The boxes of strawberries look so good that they might just as well be in a shop. The chicory is impeccable. "The quality of the products that we receive here is astonishing", Gaetan Borgonie agrees. Borgonie coordinates the Ghent Foodsavers project and shows us around the storage area. In 2018, 600 tons of food surpluses found their way to people in poverty through this depot. According to the World Food and Agriculture Organization (FAO), every 100 tonnes of waste avoided is equivalent to 256 tonnes of CO₂ emissions saved. The yogurts and puddings in the refrigerator are not yet expired. But if expiry date comes too close, they have to get out of the store. "Once the date has passed, we will no longer distribute the products either, even though in principle they are still perfectly edible. We do not want to give people in poverty the feeling that different standards apply to them." There are also a few bouquets in between the food. "The first lady to receive flowers cried", Borgonie remembers. "It had been so long since she had received a bouquet. Since then we have been distributing tons of flowers every year."

In 2017, the City of Ghent and the OCMW in Ghent launched the Foodsavers distribution platform, which distributes food surpluses from supermarkets and companies to more than one hundred social organizations. This is how they end up at the table of vulnerable families, social grocers and restaurants. Colruyt, Delhaize and Danone are important donors. The city invested half a million euros in refrigerated storage spaces, refrigerated trucks and its own software system. The food that is recovered annually is worth six times that investment.

Reliability

With some pride, Borgonie points towards an overview of suppliers, products and customers, displayed on a large screen. "We can immediately see where something is coming from and where it is going. We have to: The Federal Food Safety Agency requires us to be able to trace a product within half an hour if someone falls ill."

Initiatives to distribute food surpluses in Flanders are often small-scale and fragmented and work with limited resources. Research from Ghent University shows that companies are therefore reluctant to donate food, in order to avoid problems with poorly preserved products. Foodsavers responds to this concern by striving to be as professional as the companies themselves. "Our reliability is an important factor in our success", confirms Borgonie. The time was right. "Everyone realises that waste is no longer an option. The companies are happy to donate, although

they prefer not to publicize the exact amount of their surpluses". It would also be too easy to point the finger only at the companies, he believes. Customers want perfect and long-lasting products. "I hate to see some people in the store evaluating and selecting."

Moreover, avoiding food waste is not the only objective of the project, emphasizes Edwin Beaumon of the OCMW in Ghent. Foodsavers now employs 25 people. Anyone who finds it difficult to enter the regular job market for a variety of reasons is given the opportunity to gain experience. "We train people for the construction sector, the hotel and catering industry, as furniture makers or bicycle repairers", says Beaumon. "Through Foodsavers, they can gain experience in distribution and logistics." The project has far exceeded the targets set out. It collects more food, employs more people and serves more charities than expected. "There is not even a demand for more food right now," says Beaumon. "Ghent is saturated."

The people from Ghent already received visitors from the Netherlands, Finland, Sweden and Korea. Kortrijk already started with a similar system. "It is to the credit of the city council that it has built this vision on a large scale and has dared to invest in this project," says Beaumon. "Hopefully it will be followed up a great deal, because what we share here is only a fraction of what is lost."



"Difficult is often fun"

In the neighbourhood of Brabantdam in Ghent, on the corner of *Glazen Straatje*, Arno De Mol runs the organic food and tea house *Lokaal*, which is celebrating its fifth birthday this year. "I want to do it as sustainably as possible", says De Mol. He mainly cooks with plants, using local ingredients. These come from self-harvest farms in Gentbrugge and Afsnee, among others, and through the Vanier platform from the region around Ghent. This is obviously more complex than ordering all your ingredients from the same wholesaler. "I make it a bit difficult for myself, but difficult is often fun. I think it is important that the farmer who grows my ingredients has a decent income."



Arno De Mol

Today's lunch menu has topinambour soup and a vegetable quiche. According to De Mol, he has come a long way. "I grew up in the village of Schellebelle", he says. "On Sunday we ate chicken with apple sauce and croquettes. Until recently, I had never seen a beetroot or topinambour up close." Through a subscription to a weekly organic vegetable box, he learned to work with local seasonal vegetables. The Days Without Meat campaign helped him take the vegetable path. "This business has been a learning experience and I don't think what I made in the beginning was very good", laughs De Mol.

The young entrepreneur deliberately keeps his prices low. "I want to keep it as accessible as possible." After taxes, he has 1000 euros left each month. "That may be a bit more in the long term, but I am already considering myself lucky. I live for this and get a lot of satisfaction out of it."

What is sustainable?

Striving towards sustainable food production and consumption is more complex than it seems. After all, what is sustainable? The city promotes the consumption of local, organic and seasonal products but what comes from close by can sometimes have a greater environmental impact than what is imported. Also, at what point is something considered local? The added value of organic farming is also open to discussion and depends on the criteria that is used to measure it. Verbeke is aware of the complexity. "However, we don't want to lose ourselves in hours of discussions about what sustainability exactly means. We know in which direction we want to go and strive for a food system with minimal impact on climate and environment."

What comes from nearby sometimes has a bigger environmental impact than what is imported.

In 2009, the city pioneered the Thursday Veggie Day initiative of EVA, a not-for-profit organization that promotes more plant-based food. On Thursdays, all restaurants serve standard vegetarian meals for city staff and city schools. Various catering businesses also offer exclusive or additional veggie options. "With the initiative, the city wants to encourage people to reduce their meat consumption", says Verbeke. "Because it is responsible for a large part of the climate impact of our food." In the meantime, the initiative is celebrating its tenth anniversary, and cities from inside and outside the country have followed suit, from Cape Town to New York. "In the beginning we received many questions about why such a thing was needed, but today the concept is fully accepted."

In order to reduce food waste, Ghent launched the *Restorestje* in 2015, a box in which you can take home whatever you couldn't eat when at a restaurant. More than 120 catering businesses jumped on the cart. The Foodsavers initiative, which delivers surpluses from retailers and companies to social organizations, has won several international awards (see "Foodsavers saves food from the garbage bin in the bracket"). Whatever still appears likely to be lost is used as well as possible, for example as food for pigs or edible snails. The effect of these small-scale initiatives on the waste stream of the city is of course limited. "They are initiatives that bring people together and stimulate new business models", says Verbeke. "That is also one of our objectives."

"Practice what you preach"

Ghent's city schools and day-care centres serve 4,000 to 4,500 meals a day, accounting for about 150 tonnes of food per month. The city strives for a menu that is as sustainable as possible.

Caterers who want to win the contract must use at least 15 percent organic products. Every extra percent earns bonus points. "Not because organic is the only good thing", clarifies Tamara Bruning, head of the Ghent Logistics Department. "But the organic label is concrete and verifiable. A concept like agro-ecology is harder to control." At present, the meals supplied by caterer Culinor contain 20 percent organic ingredients.



Tamara Bruning

"Of course, sustainable meals must be tasty and healthy at the same time."



"We also strive for fair trade as much as possible, but it must be feasible. The meals must remain affordable for all parents, which is not self-evident. Not all ingredients come from fair trade." Also, due to the required volumes, involving local producers is not easy. "We try to do that as much as possible at smaller-scale events organised by the city." Fish must be sustainably caught or farmed. "We ask for fish with the MSC or ASC label (Marine and Aquaculture Stewardship Council), or proof that the same sustainability requirements have been met." Meat is not organic because it is too expensive. "You could solve that by buying a whole cow at once, but that would entail extra work." Thursday is, of course, Veggie Day. But there is a veggie option every day. About 10 percent of the children choose that. In order to limit meat consumption on the other days, experiments are being conducted with hybrid products such as burgers made partly from meat and partly from oyster mushrooms, and dishes containing pulses, so that the portion of meat can be somewhat smaller.

The city is also trying to combat waste. "An immense challenge", says Bruning. "We have measured that 36 percent of the food ends up in the garbage bin. That's like throwing out 36 out of every 100 euros. By adjusting our portions, we've already saved 18 tons of food from the trash since September 2018."

Of course, sustainable meals must be tasty and healthy at the same time. Dietitians and a taste panel ensure that this is the case. "We also interview students and refectory attendants and make adjustments based on this" says Bruning. "Dishes

we really don't get 'sold' are removed from the menu, or the recipe is adjusted. At the same time, we ensure that the children are offered a varied menu and that they can taste as many flavours as possible. That's why it's good when teachers or management join in and say it's tasty. A powerful example helps enormously."

The city finds it important to set a good example. "We no longer want tenders where the cheapest one wins. Sustainability is an important criterion. The motto *"practice what you preach"* is very important to us."

"A desire to farm"

"Yesterday still on the field, today on your plate" is the slogan of *Groenselhof*, an arable farm in Lokeren, 30 kilometres from Ghent. Gert Bracke grows chicory, asparagus, potatoes, leek, lettuce and various types of cabbage, amongst other varieties. He sells almost everything on the farm itself, and through short chain platforms such as *Boeren & Buren* (Farmers and Neighbours) and Vanier. It gives him the opportunity to place quality above quantity. "Taste is central to us", Bracke tells us in his farm shop. He consciously opts for tasteful crop varieties, even if they result in a smaller harvest. "The taste of our products is our best advertisement, for which customers are happy to pay an additional price."

"The prices you get at an auction are disastrous", says Bracke. "You get the impression that they want to barely keep farmers alive with a hunger wage. If you have to calculate with euro cents, you can't do but go for quantity." Fellow farmers also complain about this, but Bracke knows that they are hesitant because of the extra costs associated with membership of a short-chain platform. "I decided that you have to take matters into your own hands if you want something to change."

Bracke joined Vanier to expand his sales market. "Private individuals are increasingly finding their way to short-chain sales, but that is more difficult for the hospitality industry and retail." In the meantime, his products already end up on the plates of various hospitality establishments in Ghent. In the evening, Bracke takes them to a storage centre just outside the city, and they are delivered the next morning.

The fact that short-chain sale provides him with a better income is not his only motivation. "At the auction, you are just a number. This is hard work, day and night; it feels good to hear from customers that they appreciate your efforts. It makes you want to continue farming."



Gert Bracke



Sustainable food for tomorrow's eaters

With the GoodFood@School programme, Rikolto, together with Fairtrade Belgium and GoodPlanet Belgium, strives for a sustainable food policy in all Flemish schools by 2021.



The programme starts from School Food Labs: during an intensive 2-year guidance, pilot schools create good practices that can inspire other schools to get to work themselves. Guiding principles in this regard include combating food waste, reducing meat consumption, and providing sustainable fish and local and sustainably produced seasonal fruit and vegetables.

In addition to these pilot schools, Leuven, Bruges and Ghent also have a School Food Council, a multi-actor working group that develops strategies to actively encourage all other schools to do the same. In Antwerp and Hasselt, a number of actors are trying to join forces to do the same.

The Nieuwen Bosch Humaniora in Ghent and the Atheneum in Gentbrugge entered a two-year process. In Gentbrugge they opted for labelled products such as organic sandwiches in the cafeteria. The school's ambition is to become PMD-free, to install water taps and to offer the pupils a reusable drinking bottle. "You don't have to clean up any waste that you don't create", says director Sofie Vercoutere. At the Nieuwen Bosch college, students are already walking around with such a bottle, partly sponsored by the school. It is one of the few schools that still has its own kitchen. Cooking with local and seasonal vegetables turned out to be a challenge, as did offering vegetarian dishes that the students like. A vegetarian cooking course for industrial kitchens should change that. Food waste was mapped but not yet addressed. "You quickly encounter financial and practical limitations, in our case mainly a lack of manpower", says Deputy Director Ulrik De Roover. "Still, we want to try to implement changes based on what we have learned during the process. But a school is a tanker that doesn't change direction just like that".

More and more schools are opting for an external caterer. On April 30, 2019, the 8 most important school caterers, the umbrella organization of the parents' associations, *Horeca Vlaanderen*, the Union of Belgian Caterers, the Flemish Institute for Healthy Living, Rikolto and various educational umbrella organisations, together with Flemish Minister for Education Hilde Crevits, signed a charter in which they promised to commit themselves to healthier and more sustainable meals at school. Flemish Minister of Welfare, Public Health and Family, Jo Vandeuren, also supported the charter. In the next phase, a working group with the signatories under the leadership of Rikolto will work on a model of specifications with sustainability criteria for hot school meals via public tenders.



Sofie Vercoutere



Ulrik De Roover

by Selene Casanova (Rikolto in Nicaragua)

Lago Apanás & Jinotega





Population:
123,000 inhabitants.



Key staples:
corn, rice, beans, cheese,
onions, cassava.



Lake Apanás was
declared a RAMSAR
site ("wetland of international
importance") in 2001.



Key partners:
17 institutions, including
horticultural cooperatives,
private enterprises,
non-profit organisations
and research institutions.



Main challenges:
sedimentation, deforestation,
sustainable landscape management.



Lago Apanás.

The lake that feeds the cities of Nicaragua is disappearing.

60% of the vegetables consumed in the main cities of Nicaragua are produced on the shores of Lake Apanás, the third largest lake in the country.

However, sedimentation, uncontrolled deforestation and harmful farming practices are threatening the survival of the lake in the coming decade. It is expected that the shortage of water will cause unemployment and that the availability of vegetables will be compromised. This, in turn, would result in a less sustainable and less diverse diet for urban consumers.

Lago Apanás & Jinotega

About 15 years ago, farmers would sometimes hope that Lake Apanás would retreat so they could grow crops on its fertile shores. Today, the water does not even reach those places anymore. "The lake is over", says Azucena Navarro. Azucena is a producer and resident of Sasle, a community around Nicaragua's third largest lake: Lago Apanás.

Apanás is located in the department of Jinotega - three and a half hours drive from the capital Managua - and is known as a water reservoir built in 1964 to generate electricity. In 2001, it was declared a *Ramsar site* (a wetland of national importance) by UNESCO. However, over the past 30 years, the environment around the lake has deteriorated so much that *Lago Apanás* could disappear completely in less than 10 years.



Azucena Navarro

Azucena, a small woman in her 60s, continues with a strong gaze and a low voice: "In the past it never stopped raining." Azucena is vice-president of COOSMPROJIN, a vegetable cooperative consisting of 77 producers of lettuce and cabbage. On her farm, she gets 30% of her income from vegetables and 20% from milk, livestock and pig farming, thanks in part to the help of her children. Azucena's sources of income reflect the economic reality of the approximately 25,000 people who live on the shores of the lake.

An estimated 350,000 people derive their livelihood from agriculture in Nicaragua. 15,000 of them grow vegetables and 90% of these producers have a small family business, where they work on farms ranging from 0.5 to 3.5 hectares in size. 60% of them are active in the department of Jinotega. 60% of the vegetables that are consumed in the larger cities of the country are grown in and around Apanás, while only 3% of the land is used for that purpose. Out of a total of 6 million Nicaraguans, 2 million already live in the capital, Managua.

Cabbage on the shelves of the Walmart supermarkets, lettuce and tomatoes on a Subway Submarine Sandwich, but also vegetables that are found at other national and international fast food chains and SMEs come from farmers' cooperatives that operate on the shores of the lake. With a total of 639 farmers, the COOSMPROJIN, COOSEMPODA, SACACLÍ and TOMATOYA cooperatives produce 4,000 tonnes of these vegetables every year. The bulk of this is purchased by wholesalers and retailers from the capital.

From the beginning of the collaboration between these four cooperatives in 2012, Rikolto recognized the important link between the food supply of the capital and the livelihood of the families in Jinotega.

"The organisations had a hard time putting their products on the market at fair prices. That is why we want to strengthen the organisations' business and organisational management and optimize the production models. This way, we want to guarantee healthy food for consumers, lower the impact on the environment and ensure a better quality of life for the farming families", says Guillermo Gutierrez, coordinator of the project for Rikolto. The guidance process included the introduction of Good Agricultural Practices (GAP) and Good Management Practices (GMP). By improving the quality, the aim is to ensure that the cooperatives have access to better and stable markets and that they receive better prices.

"We have changed our production systems and learned about commercial alternatives", says Azucena. "I learned about the experiences of other producers in Honduras and Guatemala. That's how I discovered that we are facing the same problems as our international fellow producers. Low prices, the climate crisis, lack of government support and limited access to technologies and innovation: we are not alone in our struggle. At the moment, we have high expectations for COOSMPROJIN, because of the recent legalisation of the commercial alliance between our four organisations. We hope that this alliance will make us stronger, that we will be able to access new markets and find ways to sell our products without intermediaries",

Although vegetable farming is important to meet the food needs of the Nicaraguan population, this sector is characterized by a lack of policies and standards at the institutional level. There is a need for a policy that regulates the quality and prices of the products.



Lago Apanás & Jinotega

“With Rikolto, we are launching pilot projects that include all actors in the chain. We do this to provide examples and encourage others to follow. Ultimately, the aim is for these good examples to be anchored in policy at the national level”, Guillermo explains. “In Jinotega, this collaboration has given us insights into the ecological, economic and social disaster that is happening around the lake as a result of incorrect farming practices, poor soil management and uncontrolled deforestation”.

MASLAGO: a landscape vision to save Apanás...

The lake has 6 major tributaries: Jigüina, Jinotega, Mancotal, Arenal, San Gabriel and Sisle. These rivers come from the highlands and hills that border most of the north-western area of Apanás, where the cultivation of vegetables is concentrated.



Norvin Palma

From Azucena’s farm, a panorama of fairy-like hills unfolds, framing a greyish lake in various shades of green and brown. Unfortunately, this beautiful geography also means that the rivers carry waste from the slopes to the lake.

In 2016, different actors started working on an action plan and a multi-stakeholder group to promote the sustainable management of the lake’s watershed landscape: MASLAGO was born. The platform uses the Integrated Landscape Management (ILM) approach, a method that brings various sectors together: agriculture, forestry, energy, fishing, animal husbandry, tourism and others in an effort to achieve collaborative and innovative solutions that alleviate the increasing pressure on natural resources.

“That year, Rikolto identified 22 organisations that had a direct or indirect impact on the area around the lake”, explains Norvin Palma. Norvin coordinates projects at *La Cuculmeca*, a non-governmental organisation dedicated to the rights of children and the environment. *La Cuculmeca* is part of the MASLAGO coordination committee. Norvin himself defines it as a group of organisations that volunteer for a common goal: the protection and preservation of Lake Apanás.

“It is a voluntary, open and safe space where you can show from your perspective the effects on the lake and discuss interventions that we can undertake together”, says Palma.

The group currently consists of 22 actors including universities, research centres, the four vegetable cooperatives, the indigenous community, farms and other organisations active in the area.

MASLAGO began its journey at the end of 2016 with a common dream. The common journey was determined by the integrated approach to landscape management. Initially, knowledge of the landscape was improved. By 2017, the group had organised a forum with all actors in the area with the purpose of exchanging information and results from their respective initiatives, enabling all participants in the platform to share their knowledge about the problem.

Following the exchange, an ideal scenario for the desired landscape was formulated, to create a common vision among the various actors. Subsequently, they drew up different interventions to implement the vision and went on with applying the plan, concluding the cycle with an evaluation.

“As the saying goes ‘Fall in love with the problem before you fall in love with the solution’. In this spirit, the members of MASLAGO identified the main threats to the lake: pollution and sedimentation.”

As the saying goes “Fall in love with the problem before you fall in love with the solution”. In this spirit, the members of MASLAGO identified the main threats to the lake: pollution and sedimentation. Pollution is caused by illegal dumping of solid waste such as plastic containers and aluminium cans originating in the city of Jinotega, among other things. In addition, pollution resulting from agrochemicals and plastic containers that end up in the lake and seep into the soil can have very serious long-term consequences for the health of the population.

“Another source of contamination is due to the common practice of bringing animals to the shores of the lake to let them drink. Their urine and droppings are polluting the soils”, says Palma.

Sedimentation is the second major threat. Every year, the Sisle, San Gabriel, Tomatoya and Jigüina rivers carry 4,000 tonnes of sediments to the lake, mainly as a result of deforestation and intensive land use in production areas.

More fishermen and less fish

In the afternoon there are always fishermen working in Apanás. When they return to the shore with their motorless boats, they moor with empty nets. The catch of the day is stored in a net that is attached to wooden posts fixed to the bottom of the lake.



Lenner Hernández

“We leave it there because the temperature of the water protects the fish better. In our houses we don’t have the right conditions to keep the fish fresh”, says Lenner Hernández, fisherman and farmer. “About 400 artisanal fishermen work here. Unfortunately, we’ve noticed a 66% decline in fish stocks over the last five years due to overfishing”.

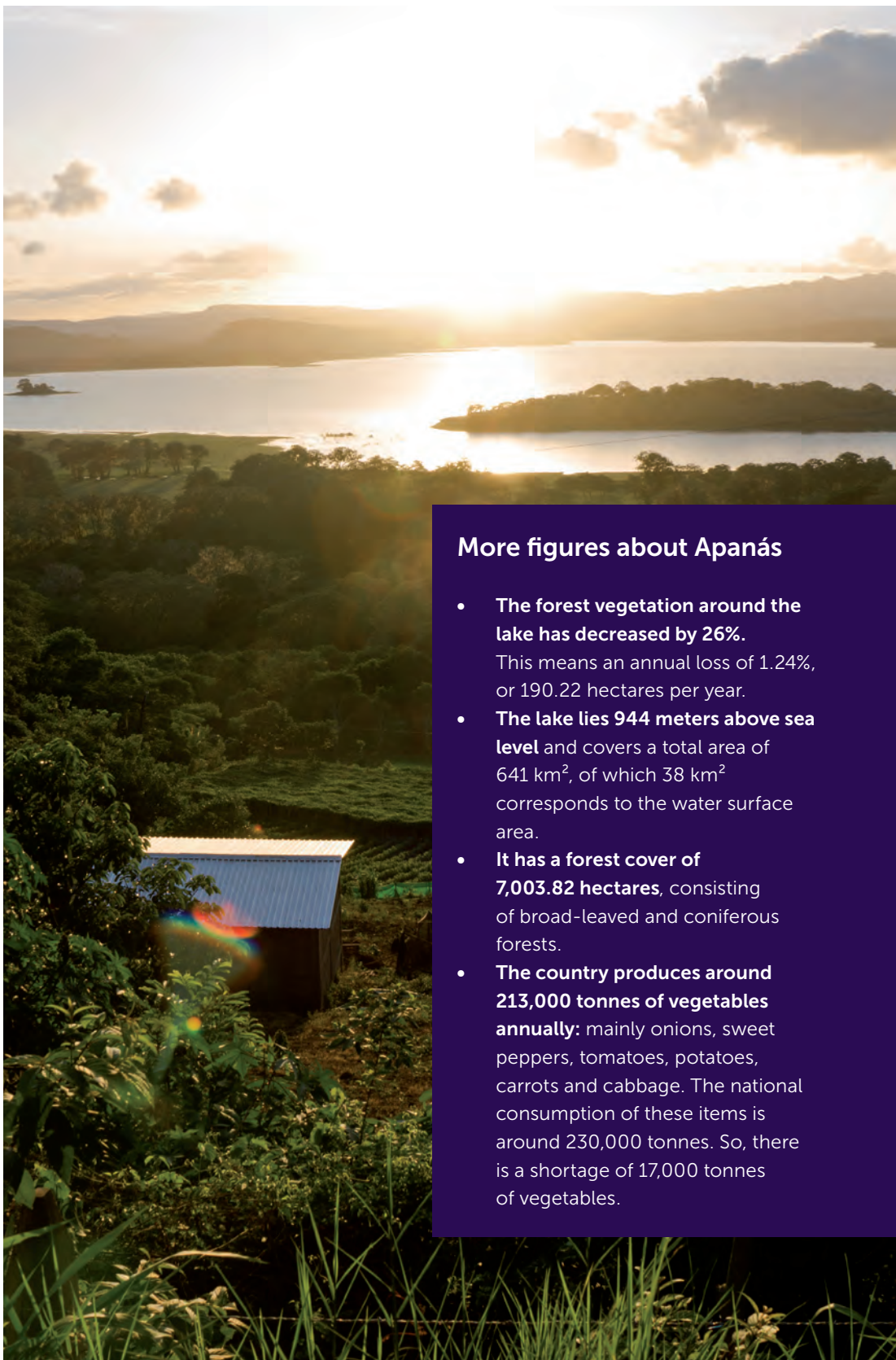
According to Lenner, high unemployment is one of the causes. “Four years ago, we worked with five people in this area - now you can see up to 19 boats at work. We don’t have rules for fishing here”, he says. The fishermen in Apanás also lack infrastructure for their boats and there are no sanitary controls. The demand for food increases alongside population growth, while the amount of fish decreases in the shrinking lake.

“In a workshop, we learned that our lake is not as clean as the rivers and that we have less fish because the lake is filling up with sediment”, Lenner continues. Fish breathe through their gills to circulate oxygen through their bodies. With so much floating sediment, their gills become clogged and adult fish are falling below the one-pound threshold considered by fishermen to be the minimum for catching and selling.

All change requires education

Reducing the erosion and pollution that threaten the lake are major challenges. MASLAGO’s member organisations have increased their understanding of the scale of these problems and now have a winning card: they are united.

The Nicaraguan Association of Agrochemical Producers and Distributors (ANIFODA) is also part of the platform. “Every year we organise a campaign to recycle empty agrochemical containers” says Flor de Maria Rivas, Executive Director of ANIFODA. “With MASLAGO we are expanding the reach of that campaign thanks to organisations such as *La Cuculmeca*, the indigenous community, the



More figures about Apanás

- **The forest vegetation around the lake has decreased by 26%.**
This means an annual loss of 1.24%, or 190.22 hectares per year.
- **The lake lies 944 meters above sea level** and covers a total area of 641 km², of which 38 km² corresponds to the water surface area.
- **It has a forest cover of 7,003.82 hectares**, consisting of broad-leaved and coniferous forests.
- **The country produces around 213,000 tonnes of vegetables annually:** mainly onions, sweet peppers, tomatoes, potatoes, carrots and cabbage. The national consumption of these items is around 230,000 tonnes. So, there is a shortage of 17,000 tonnes of vegetables.

Lago Apanás & Jinotega

Asociación Infantil Tuktan Sirpi (a children's rights organisation) and other private companies that have participated in the last two years. We also work with schools and other community actors to collect not only containers but also paper, cardboard and other polluting materials”.

According to figures from the association representing the agrochemical industry, food safety appears to be a major problem in Nicaragua. They estimate that at least 70% of the agrochemical inputs used in vegetable production belong to a category between what is permitted for human consumption and what is moderately harmful. Nevertheless, the association regards this as a positive figure.



Flor de Maria Rivas

“Farmers need more technical assistance”, continues Flor. “We have been running two programmes in the Apanás area for five years: collecting containers through collection centres in cooperatives and training producers on the appropriate use of phytosanitary substances and equipment. In addition, farmers learn to read the technical jargon on the labels to prevent poisoning due to improper handling”.

These educational and recycling campaigns are part of MASLAGO's joint interventions. In order to better understand the effects of this ecological and food disaster at the national level, studies and investigations are also being conducted. These concrete figures will be used to highlight the seriousness of the situation for the country and its inhabitants.

The *Centro para la Investigación en Recursos Acuáticos de Nicaragua* (Center for Investigation in Water Resources - CIRA/UNAN-Managua), a member of MASLAGO, conducted a study to detect pesticide residues in the most consumed vegetables in Managua.

The results speak for themselves. Of the 44 samples taken from 8 different vegetables, 82% contained pesticide residues. 36% of these contained more than the maximum level of pesticide residues established in the Codex Alimentarius and the standards of the European Union.

These figures were presented to the four cooperatives. The intention is that they will enable farmers in the group to use and share this crucial information. In turn, this will make members aware of the need to apply good agricultural practice (GAP) in their production in order to provide healthy food to the population.

Farmers and young people are leading the way

Another action to make this change possible is the start-up of 7 model farms on the territory surrounding the River Sisle. The purpose is to learn how the micro-basins that feed Apanás can be managed sustainably. These model farms are examples that demonstrate how agriculture can contribute to the conservation of the lake and the well-being of the population of the eight communities.

Farmers particularly trust other farmers when it comes to changing farming methods. If they see that something works on their neighbour's plot, they will be encouraged to try it themselves.

The Faculty of Natural Resources and Environment of the National Agricultural University (FARENA - UNA) is leading this initiative. "We analyse the challenges faced by the producers and map the farms so that they know how much land they own and how to use it. For coffee farmers, we look at how much forest cover they ideally need and what the carbon storage of their parcel is", says Marcelo Villalobos, a natural resources student. Marcelo and six other students carry out these studies with the farmers.



Marcelo Villalobos

"The students will calculate how much soil I lose every year, because I have not yet planted a natural barrier to prevent runoff from the slope. They will also give me recommendations on how I can better organise my farm", says Azucena, who is participating in this pilot project with her farm.

The participants in the trial also received special eco-stoves to reduce the use of firewood and in turn, the need to cut down trees. These environmentally friendly stoves are equipped with pumice stone as heat insulation. The outside of the stove is made of zinc or a mixture of pumice and cement. A chimney must be able to evacuate the smoke quickly. On the inside, the stove is designed to circulate the smoke by placing small oxygen inlets. This way, the iron plate, which is on top of the stove, is heated. "With the eco-stove I save time when cooking, I use 80% less wood and there is no more smoke in the house. What more could you ask for?", Azucena says enthusiastically.

Marcelo comes from San Juan del Sur, a coastal town on the Pacific Ocean, six hours' drive from Jinotega. He is clearly passionate about what he learned from the farmers in the mountainous north.

"In Managua, the many restaurants, fast-food chains and private consumers need vegetables daily. Yet, that diet may drastically change due to a water shortage here around the lake. Beans and maize, for example, require much less water than lettuce and cabbage. If all farmers were to switch to beans and maize, this would have a significant impact on the consumption of vegetables such as lettuce and cabbage in Managua". And with that, a potential impact on urban dwellers' health.

A few bumps and surprises on the road

Since the launch of MASLAGO, involving the public sector has remained a challenge. "It is critical to our mission to get them on board, as they ultimately determine the policy. Even if we denounce environmental or food anomalies, as cooperatives, NGOs or private companies, we cannot enforce policies", says Norvin Palma. "This was already a challenge before April 2018 and things have obviously become harder now".

Since April 2018, a socio-political crisis has erupted in Nicaragua, which has divided public opinion between supporters of the ruling party (*Frente Sandinista de Liberación Nacional*) and an opposition movement, represented by civil society.

After several months of confrontations, the protests have led to a number of legislative changes and an increase in taxes that have hit various economic sectors of the country. Unemployment increased and the purchasing power of the population decreased.

"If we don't live off fishing, we live off agriculture", says Jenner. According to him, poverty and the need to feed families is leading to unsustainable fishing and farming practices.

"Vegetable prices are not good at the moment. The prices of agrochemical products have increased by 30% while prices in the coffee sector have declined. We need alternatives because we know that we are eating away our children's legacy", he says.

In this uncertain context, Norvin Palma emphasizes that the MASLAGO project is not intended to solve problems between one or the other players. "It is a platform with a common goal: to improve the situation of the lake, the territory and all local residents."

Sometimes help also comes from unexpected sources. One of the surprises that came out of this process was the participation of children through the projects of *La Cuculmeca* and the *Asociación Infantil Tuktan Sirpi*. "Both organisations are involved in environmental education for girls and adolescents. They participate in recycling campaigns and are working on agroecological school-gardens. We will soon invite them to tell us how they imagine a landscape in which Lake Apanás can be sustainable, today and in the future", concludes Palma.



by Marieke van Schoonhoven (Eos Tracé)

Solo - Indonesia





Population:
500,000 inhabitants.



Key staples:
rice, chili, garlic, chicken, cassava, tea, peanuts.



Also goes by the name 'Surakarta'.



Key partners:
Gita Pertiwi Foundation, YLKI - Indonesian Consumers Foundation, Perkumpulan Indonesia Berseru, Solo Education Agency, Solo Women, Children and Community Empowerment Agency.



Main challenges:
food waste, healthy food consumption, rural-urban linkages, food policy.

School canteens in Solo aim for healthy food for every child

More than a third of children in Indonesia suffer from malnutrition, often due to an unbalanced diet. School meals are a simple and effective tool to provide all children with healthy and high-quality food.



Every school day, nine hundred hot lunches are prepared in the kitchen of the Islamic primary school *Muhammadiyah* in Solo.

"We buy our products fresh every day from regular suppliers. The rice, for example, comes directly from a farmer's cooperative in Boyolali, a region near here. And the children themselves have a say in what's put on the weekly menu – within our offering of healthy meals, of course."

A proud English teacher, who gives us a tour of the small canteen and kitchen of the private primary school, says: "We work with several breaks, so all students find a place in the canteen, in turns." He shows us the wall with certificates. "We've collected a total of 35, for various achievements, such as a hygienic kitchen, a healthy food selection and a waste-free canteen. We were the first school in Solo that fully met the healthy canteen standards. According to that standard, for example, suppliers need to have a certificate that they deliver safe food. Every three months someone comes to the school to take samples to check the quality of the food in a lab and every six months they check whether food preparation in the kitchen is sufficiently hygienic."

At the checkout, another teacher proudly tells us that the school accepts e-money. "It's faster and allows us to check that children don't spend more than the 15,000 Rupiah (*EUR 0.95 ed*) that parents pay per day for their children's lunch."

Guidelines for healthy school meals for everyone

Muhammadiyah is a textbook example of what a healthy school canteen can look like. In Solo, they are an exception to the rule. A recent study by the NGO Gita Pertiwi (2018) shows that 48 percent of the food that is offered in school canteens in Solo consists of junk food, such as fried food or chicken nuggets. Hot meals are not even regularly offered at the schools. Often, children carry a lunch box with them from home and at school they can only buy snacks rich in carbohydrates, with limited fruits or vegetables in them.

Muhammadiyah is one of the ten schools now supported by Gita Pertiwi to pave the way to healthy school canteens. "Our goal is for every child in Solo to have access to healthy food. School is a second home for children, where they spend at least eight hours a day for at least nine years. Healthy eating and drinking are therefore essential to feel good and perform well", says Titik Eka Sasanti of Gita Pertiwi. Among other things, the organisation provides training to cooks to prepare healthy meals. It also supervises schools in terms of environmental impact and hygiene according to the local "healthy canteen standard" it has drawn up with the Health Department, the Education Department and the Empowerment Office of the city. This means they go one step further than the national standard, which focuses on health and hygiene issues only.

"School is a second home for children, where they spend at least eight hours a day for at least nine years. Healthy eating and drinking are therefore essential to feel good and perform well"

Titik Eka Sasanti, Gita Pertiwi



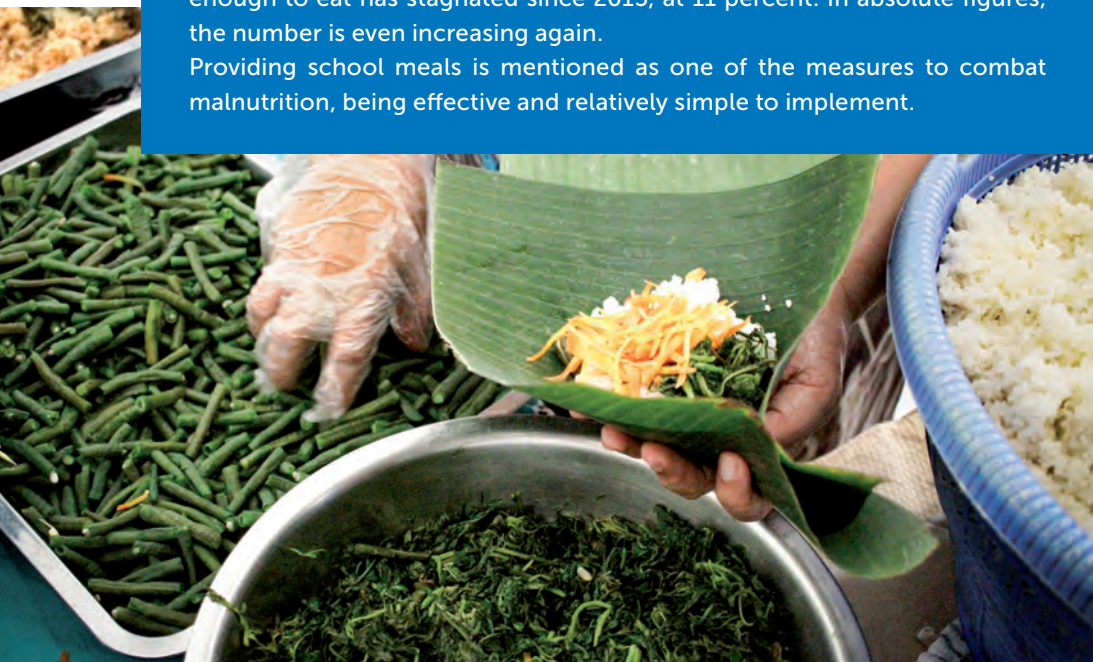
Stunting: a double problem

There is a reason why healthy food for everyone is on the agenda of the city of Solo. Today, the goal is a far cry from reality in this Javanese city and other cities in Indonesia. According to the latest figures (2018), 36.4 percent of children under five in Indonesia suffer from stunting, or retarded growth. This puts Indonesia in the top five of countries when it comes to the number of stunted children.

Stunting refers to disturbed growth and development in children due to poor nutrition, repeated infections and insufficient psychosocial stimulation. A total of 8.4 million children in Indonesia are exceptionally short for their age and suffer from chronic malnutrition. The real problem is not the stunting itself, but the reduced brain development that goes with it. Stunting also increases the risk for non-communicable diseases (NCDs) such as diabetes and heart problems.

This combination of disturbed development and the high risk of non-communicable diseases is also referred to as the “double burden” of malnutrition. The Indonesian government is aware of this, though, so in 2017, the country’s vice-president issued a national strategy to step up the fight against stunting by diversifying nutrition. In addition, a five-year plan is being prepared for 2020-2024, according to which stunting should be reduced by 40 percent. These goals have been formulated in the context of the United Nations Sustainable Development Goal 2: Zero Hunger. Unfortunately, a recent report by the Food and Agriculture Organisation (FAO), UNICEF and other aid agencies indicated that the proportion of people not having enough to eat has stagnated since 2015, at 11 percent. In absolute figures, the number is even increasing again.

Providing school meals is mentioned as one of the measures to combat malnutrition, being effective and relatively simple to implement.



"The standard hasn't been approved yet", explains Hartoyo of the Education Department. We had to defend the draft version to the city authorities, which are now looking into whether they'll endorse it or not. We expect this to happen in the course of 2020. We think they'll give their approval because, in 2016, Solo committed to becoming a child-friendly city according to the '*Child Friendly Cities Initiative*' of UNICEF. And that includes healthy food for children. Moreover, the mayor of the city, F. X. Hadi Rudyatmo, has formulated a vision to make his city '*smart*.' That initiative was named '*Waras Wareg Wasis*,' which in Javanese means something like 'Healthy, Full belly, Smart.' School canteens need to meet those three basic principles."



Hartoyo

"The draft version of the standard Gita Partiwi has drawn up with the city departments consists of five important pillars", Hartoyo explains.

"The first deals with everything related to 'infrastructure': the facilities that are needed in a healthy school canteen, such as a large enough kitchen with the necessary equipment.

The second pillar is about 'food safety': where does the food come from, who is the supplier, and do they have the necessary certificates?

Then there's 'management': it describes how a school canteen and kitchen should be managed in a professional manner. This includes environmental aspects such as sorting waste and encouraging families to give children their own lunch box and water bottle.

The fourth pillar on which the standard is based is 'food control', in particular that controls should be carried out on a regular basis, including through sampling. The intention is not to punish if things aren't done correctly, but to teach staff how to then improve those matters.

Finally, we have 'promotion' as a fifth pillar: it refers to raising awareness about the importance of healthy food for school children, both among staff and students."

Fifteen schools in total now apply the national healthy canteen standard in Solo, according to Hartoyo of the city's Education Department. "Ten of these are private schools, with parents generally having an income that is above average, and five are public schools, attended by children with low-income parents. The latter schools receive extra subsidies, so that the added cost of healthy, safe food does not weigh upon the parents."



"We try to make healthy meals at school accessible to everyone, using local, affordable ingredients"

Dyah Anggraini,
Health Department of Solo

Dyah Anggraini of the Health Department adds: "We try to make healthy meals at school accessible to everyone, using local, affordable ingredients such as cassava, tapioca, banana and coconut. In schools where children do not have much to spend for their meals, for example, we give a third of an egg rather than a whole egg per child. And we do not provide fruit juice, but water, which is healthier and cheaper. At private schools, that would be more expensive mineral water. Both at private and public schools we apply lab tests to test the safety of food, but we subsidise these tests at public schools."

The partners who jointly established the local guidelines for healthy school canteens have a clear goal in mind. Dyah Anggraini: "If the city council approves our plan and provides more resources for the 256 primary schools, 83 technical schools and more than one hundred secondary schools in Solo, we can systematically expand the number of canteens that meet the healthy canteen standard. Our ideal scenario is that we have a legal regulation by 2030 and that every school canteen in Solo will offer safe, healthy and high-quality food by then."



School canteens are a reliable market for local farmers

"APOB stands for Asosiasi Petani Organik Boyolali, the Association of Organic Farmers Boyolali", says Mr Murbowo, head of APOB. "The association consists of seven groups of farmers who together cultivate an area of 101 hectares of rice. Of these, 30 hectares have met the national standard for organic rice since 2013. Combined, this yields 11 tonnes of rice a month, which we sell to three large buyers. It ensures that the hard-working farmers get a fair price for the rice they sell. That means they don't need an extra job to achieve a viable income.

Unfortunately, we are only able to sell 30 percent of that organic rice to those three clients. We haven't found a market yet for the remaining 70 percent. This means farmers need to try and sell most of the rice themselves, often to a *middleman*, an intermediary who doesn't pay the extra price for organically grown rice.

Finding buyers for organic rice is not easy. Many Indonesians can't afford it, and the rice doesn't yet meet the even stricter requirements for the international market. Selling to a supermarket, where more and more organic products can be found these days, means you won't receive your money until two months after the sale. At hotels, it's the same story; it can even take three months before they proceed to payment. We don't yet have the buffer to bridge that period.

Schools would be a good market for APOB, because they are increasingly investing in healthy, safe food and often need large quantities. That's why we're in consultation with Gita Pertiwi, Rikolto and the government to establish contracts with schools. The larger the market for organic rice, the more hectares can switch to organic. My dream is for all our members to produce certified healthy or organic rice, so that APOB is able to sell all rice collectively and we can make sure all our farmers earn a fair income."

A circular business model for the redistribution and transformation of food waste

Food waste is produced by supermarkets and local markets.

Food surpluses are collected from private actors by women/youth groups.

Food transformation by women and youth groups

- Food is transformed into organic fertiliser
- The organic fertiliser is used for urban gardening (own use) or sold for a profit to farmers
- The food produced is sold at local markets and in supermarkets.

Food redistribution by women and youth groups

- Food is cooked and processed
- Food is packaged
- Food is redistributed to people in need.

OUTCOMES:

- Reduced food waste
- Improved nutrition security
- Diversification of income
- Lower GHG emissions



Solo's fight against food waste

In the city of Solo, two birds are killed with one stone. By collecting food surpluses and donating them to people with a low income, not only food waste is prevented, but also hunger. For this, the city can count on the voluntary commitment of its generous inhabitants.

Every year, the British NGO Charities Aid Foundation (CAF) publishes a list of the most generous countries in the world. In the latest edition (2018) of the so-called "CAF World Giving Index", Indonesia is at the top of the list.

CAF measures the generosity of a country based on three behaviours: donating money, helping a stranger, and doing volunteer work in the month the survey was conducted. With 53 percent of respondents doing volunteer work, Indonesia obtained the highest score in the world. Donating money and helping a stranger scored 78 and 46 percent respectively. That brought the country's average score to 59 percent. Indonesia is doing just that tiny bit better than Australia, New Zealand and the United States - which achieved an average of 58 percent.

The generosity of the Indonesian population can partly be explained by the predominant religion, Islam, which encourages its followers to donate. Indeed, one of the five pillars of Islam is "zakat", the obligation to give alms to the poor, to obtain a fairer distribution of goods.

That generous mentality can be found in Surakarta, popularly known as Solo. The city has about half a million inhabitants and is centrally located on the island of Java. We visit Muryanta, who opens her house to prepare food surpluses and donate these to the less fortunate.

Food donations

It is early in the morning, almost 4:30 a.m. and the sun is not up yet, only the call for prayer by an imam blares through a speaker. We are in the kitchen of consumer organisation Konpasera, where several older women are already busy cooking. They shuffle back and forth to cook sweet potatoes, rice and vegetables. They fold the rice in banana leaves and place them in piles on a serving tray. The chicken was already prepared the night before. The women receive the food from donors. University college students bought the banana

Solo - Indonesia

leaves for them. In the past, it was customary to package food in banana leaves; the organisation Gita Pertiwi has revived this custom to prevent plastic pollution.



Mooryati

Mooryati is one of the members of Konpasera. She explains: "We receive two types of donations: food surpluses and raw food that we process into meals. For example, we received the rice from a farmers' organisation in the nearby Klaten region. They donate their broken rice grains to us, as these don't meet the standards to be allowed for sale. In terms of nutritional value, there's nothing wrong with the rice. As for food surpluses, we occasionally receive a call from a hotel in Solo, for example when there's been an event and there's food left over. We can then come and collect it."

The women themselves don't collect the food or distribute it to the less fortunate after preparation. They cooperate with the youth organisation Kala Canda for this.



Ajhi Wicaksono

Ajhi Wicaksono, an intelligent young man of 29, is also here this early. He is the leader of youth organisation Kala Canda. "We distribute the food once a week in the neighbourhood where our members live. During each food distribution, approximately one hundred vulnerable people receive a meal. These are mainly the homeless, the elderly and single-parent families. The latter are mostly single women with children. By now, we know quite well who those people in our neighbourhood are. We also go to a local health centre once a month to hand out meals."

The meals prepared the Wednesday morning of our visit are intended for the monthly food donation in *kampung Tipes*, one of Solo's 54 *kampungs*, or neighbourhoods. This neighbourhood has 9,713 inhabitants, of which 112 elderly people gather today for a meal and a monthly health check. The latter is an initiative of the Indonesian government that takes place in every *kampung*. A group of nurses and a doctor voluntarily check the health of the vulnerable people living in the neighbourhood.

Youth organisation Kala Canda has been doing food sharing, as they themselves call their donations, since 2017. "I came up with the idea when I saw an Indonesian pop star on TV in Jakarta who organised a large food distribution with food surpluses", recounts Ajhi. "That inspired me to do the same. It's also just in the genes of us Javanese to do something for others, everyone around me does the same. Together with a friend, I went looking for people who wanted to donate money or food to our project. That went fairly easy and when we first distributed meals to homeless people in our neighbourhood, we made a video of it. I sent

that to all my friends and to the WhatsApp group of which fifty people from my neighbourhood are members. Then the ball started rolling and more young people quickly joined our group. We were also approached by the NGO Gita Pertiwi, who brought us into contact with the women's organisation. We still make a video of every donation, which we then call "episode 18", for example. This is how we try to reach as many people as possible to convince them to support us and do the same."

"I posted a video of a meal distribution to a WhatsApp group in my neighbourhood. Then the ball started rolling."

Ajhi Wicaksono, Kala Canda



A platform for food donations

Gita Pertiwi is a local NGO committed to making healthy food accessible to everyone. It collaborates with Rikolto in the Food Smart Cities programme in Solo. One of the employees, Fanny, told us: "With our organisation, we try to link suppliers to the women's and youth groups that do volunteer work in Solo. We've gotten a chicken farmer to donate its unsold surpluses, for example, and a hotel has gotten involved as well. We're also talking with four supermarkets, each of which can donate 80 kilograms of food per day. In addition, we're currently setting up a platform called Care Food, to better align supply and demand to one another. We find it important that these initiatives emerge bottom-up, but if you really want to have an impact, you have to ensure that food distributions follow standard procedures, so everything runs safely. Developing such a procedure is one of the objectives of this Care Food platform. In the long run, you'll also want to scale up and ensure the initiative is widely supported. So, in addition to citizens, local authorities and commercial companies also need to support the project. We are the facilitator in this story, bringing the various stakeholders together."

This is not always easy, as demonstrated by the reluctance of some companies to donate food, for fear of reputational damage due to possible quality problems. That is why Rikolto and Gita Pertiwi want to develop a scheme with the city of Solo to encourage private companies to donate. This would also include the standard procedure for sharing food that is currently being developed within the Care Food platform.



Food sharing youth group
Kala Canda

Indonesia, champion in wasting food

With the platform that is being developed, the various parties aim for structural impact and improvement of the current situation in Solo. Because the problem stretches beyond the 500 less fortunate people that Gita Pertiwi currently reaches every week with the women's and youth organisations. Both malnutrition and food waste form immense problems. Eleven percent of the population in Solo lives below the poverty line. That is, they have an income below 401,220 Indonesian Rupiah (*EUR 25*) per month, or 11,000 Rupiah (*EUR 0.69*) per day. According to the Central Statistics Agency (BPS), the average poverty rate across Indonesia was 9.8 percent in 2018, or about 25.9 million Indonesians. That rate is less than half of what it was in 1999. In addition, a very large group – 20.78 percent of the population – lives just above that poverty line. A poverty line that, by the way, is very low. As a result, people remain vulnerable to falling back into poverty, without access to basic services.

With the decrease in the number of people living in poverty, the percentage of malnourished people in Indonesia has also decreased. Of a total population of 267 million people, this percentage was 19.4 percent in the period 2004-2006. In the 2016-2018 period, that was reduced to 8.3 percent. Although the major problem of stunting among children under the age of five – due to a long-term lack of nutrients – has also decreased in recent years, the condition continues to occur frequently. In 2012, 39.2 percent of children younger than five were too small for their age; in 2018, that was still 36.4 percent. "The Indonesian government is trying to tackle this problem by enriching rice with micronutrients such as zinc and vitamin A, as these are now often missing in the too one-sided diet. By 2024, the rate of stunted children should be reduced by 40 percent", says Anang Noegroho, director for Food and Agriculture at the National Development Planning Agency (Bappenas).

On the other side, there are the figures about food waste. Due to a growing middle class – 135 million people in 2020 – the amount of food being thrown away is also growing. A study by the Economist Intelligence Unit (2017) shows that Indonesia is number two in the world when it comes to food waste. The average Indonesian wastes 300 kilograms of food per year. Only Saudi Arabia wastes more food. In hotels in Solo, 13 percent of food is thrown away; in the catering sector, it is 10 percent; in restaurants, 9 percent. A report from the Indonesian Ministry of Environment and Forests also shows that in the period 2017-2018, an average of 53 percent of the waste from households in Jakarta consisted of food, or 11,676 tonnes in total. Similar percentages apply to other cities in Indonesia.

“The government could oblige restaurants, hotels, supermarkets and farmers to donate their surpluses, so they are no longer wasted.”

Fanny, Gita Pertiwi

The Indonesian government has therefore launched a consumer campaign to combat food waste. Noegroho says: “We use religious leaders as influencers, during their service they inform people about the consequences of food waste. We also promote smaller portions and the use of smaller plates.”

Compared to the problems they are fighting, the efforts of Gita Pertiwi in Solo (and the volunteering youth and elderly, one hotel (so far), two farmers’ organisations, a rice farm and a chicken farmer) seem like a drop in the ocean. Yet Gita Pertiwi believe they can have an impact. “We see the model we are now working with as a pilot project,” explains Fanny. “We’ll test whether it works on this scale, and then try to convince the government in Solo to roll it out further. The government could, for instance, oblige restaurants, hotels, supermarkets and farmers to donate their surpluses so they are no longer wasted.”

“To reduce food waste, Rikolto is introducing 2 models that fit into a circular economy. The first model is based on community kitchens, where retail surpluses are processed and donated or sold at a low price to the less fortunate. The second model is aimed at producing organic fertiliser from food waste. That fertiliser is then sold to vegetable growers and used in urban agriculture. To achieve this, many pieces of the puzzle have to be put together: private actors, municipal authorities, local communities and vulnerable groups, particularly women’s groups.”

Purnama Adil Marata, Rikolto in Indonesia



A hotel with a vision: Mr Bambang – Indah Palace Hotel Manager

Indah Palace, a hotel with four branches in Indonesia, is one of the first hotels in Solo to focus on preventing food waste.

"Since 2013, we've been actively working to prevent food waste, first and foremost for financial reasons. I thought it would be financially beneficial to use our stocks more efficiently. There is an oversupply of hotels in Solo, which makes for an average occupancy rate of only 40 percent. Food prices also rose sharply during that time. Thirty percent of our total costs went to purchasing food. Now, six years later, that is reduced to 25 percent. A significant difference."

"We work with minimum stocks of food. We only buy what we need for the day. That means we can only serve what's on the menu and can't respond to special requests. We explain to disappointed guests that we do so for ecological reasons." "In our hotel, we regularly organise events, whereby we are responsible for catering. With buffet meals, we try to avoid surpluses by cooking for 80 people when there are 100 invited guests. If it turns out there's not enough, we prepare more last minute."

"Per day, we end up with approximately 10 percent leftover food, which we distribute through three channels. First, we try to give the surpluses to our guests. We tell them how they can best store the food at home. If there's still food left after that, we take it to the homeless or other people with a low income. For that, we've been working with Gita Pertiwi since 2017. That's usually around 10 servings per event. In 2018, we were able to reach 800 low-income people with our surpluses. The final option is to pass on any surpluses to our staff."

"Thanks to the guidance of Gita Pertiwi, we now also know better what we can do ourselves. Today, we also reuse surpluses. If sliced fruit remains on the buffet after breakfast, we turn it into salads or smoothies. And we offer smaller plates."

"In the meantime, I myself have increasingly started to consider the environmental impact of all that food that has to be produced only to be wasted. At home, I no longer throw away any food either. Food is a gift of God. You shouldn't just throw it away."

by Melissa Vanderheyden (Eos Tracé)

Quito – Ecuador





Population:
2,007,000 inhabitants.



Key staples:
corn, potatoes, plantains,
seafood, cuy (Guinea pig).



Capital of Ecuador
Built on the flanks of
the Guagua Pichincha volcano
at an altitude of 2,800m.



Key partners:
Conquito, Municipality of Quito,
RIMISP, RUAF Foundation (Hivos).



Main challenges:
access to safe and healthy
food, sustainable food
production & distribution,
generational renewal,
climate change.



Quito puts food on the agenda

Despite their many internal differences, all the main actors involved with the food system in and around the city of Quito are joining forces for the first time. They agree that the city's food supply can be improved.



Undulating little streets, beautiful colonial buildings and lavishly decorated churches where the gold leaf and the kitsch almost hurt the eyes: that is the historic centre of Quito, Ecuador's capital. If you zoom out, as if on Google Earth, you see the city is draped between high volcanoes with snowy peaks. They follow the Andes' mountain range in a pendulum that traverses Ecuador from north to south and dots the country with 84 volcanoes. It is a fairy-tale location, but one that contains the seeds of a nightmare. Should one of Quito's volcanoes erupt, it would affect the entire city. The dangers of ashes, mudslides and even catapulted pieces of glacier would just be the beginning. An eruption would also disrupt food supply. The people of Quito get 62 percent of their food from the southern areas. The road that transports that food from field to city passes just sixteen kilometres from the crater of the Cotopaxi, a volcano that was last active in 2016. If a landslide or lava flow would destroy the road, it would take mere days for the city to be without food.

A supply chain that does not take into account the threat posed by the surrounding volcanoes is just one example of the many pressure points in Quito's food system. This is apparent from an analysis conducted by the city of Quito and RUAF in 2016. The report's verdict was harsh: hardly more than a third of the agricultural land is used optimally, the yield of edible crops is low to very low and the use of pesticides amply exceeds internationally accepted limits. The city is also highly dependent on imports from other regions, because Quito itself produces just five percent of all the food its population needs. If you include cultivation in the rest of the province, you still end up with a paltry twelve percent. Healthy food doesn't find its way to people's plates easily. While six out of ten residents between the ages of 25 and 59 are overweight, 29 percent of children suffer from malnutrition. In vulnerable neighbourhoods that number even rises to 46 percent. At the end of the chain, a pile of unprocessed waste remains, more than half of which consists of compostable material.

New perspectives

The ideal is a robust, less wasteful food system that provides every consumer with a healthy meal and each farmer with a fair income. But dreams are separated from reality by ignorance, conflicting interests and a lack of policy. To address these issues, Rikolto worked with RUAF, the Centre for Rural Development in Latin America (RIMISP) and various departments of Quito's municipal administration. The purpose of that collaboration? Getting the various actors involved in the food system to sit at the table together and work on what would later become the Quito Food Charter. "After the analysis of the food system, we were left with an abundance of valuable information. The question was: how do we convert the knowledge gathered into practical measures? That's why we invited everyone who could play a role to truly make use of that information. Academics, representatives of the farmers, national and provincial authorities, the consumer association and companies... Everyone was represented", says Alexandra Rodríguez, head of Quito's urban agriculture programme AGRUPAR. She was part of the process from the very beginning, when the platform was established. It was later named *Pacto Agroalimentario de Quito* (Quito Agri Food Pact), or PAQ for short. "I was quite impressed by the presence of all the different actors. Everyone understood that the existing problems required action, and, for the first time, we saw the challenges from each other's perspective."



Alexandra Rodríguez

Quito – Ecuador

But negotiations did not always go smoothly. Ney Barrinuevo of RIMISP testifies, “Not everyone agreed on what the term ‘food system’ did or did not include. The farmers knew little about marketing and food processing, so they were bothered by the presence of the industry. It created a distraction, they said. Some felt only organic farming was sustainable, while others also considered other approaches such as “good agricultural practices” (*GAP as defined by the UN Food and Agriculture organisation, ed.*) as sustainable, as long as they reduced the use of pesticides. There was clearly a lack of a culture of dialogue, many actors weren’t used to discussing their views with the other side.”

The ultimate goal was to prepare a text that would serve as the basis for a resolution at the municipal level – which would later hopefully become a law. Barrinuevo was responsible for drafting the text, which eventually became the Quito Food Charter. During the process, he drafted no fewer than 21 versions of the charter. Alexandra Rodríguez also still vividly remembers those meetings. “A single word, such as ‘food sovereignty’, could provoke intense discussions”, recalls Rodríguez. Food sovereignty stands for the right to healthy and culturally appropriate food, produced in a sustainable, ecologically responsible way, and the right to shape the food and agricultural system. Since 2008, food sovereignty has been part of the Ecuadorian constitution, which, incidentally, is the only constitution in the world to grant rights to nature.

For the time being there is still a gap between paper and practice. “For the consumer representatives, food sovereignty was an essential part of the Food Charter. The industry, on the other hand, said ‘We don’t believe in food sovereignty and won’t sign if it’s in the charter.’ Every word was considered and weighed. The final charter is the result of compromises and the search for – sometimes scarce – agreements. Those instances of common ground are the soul of the charter. The document does not solely serve the interests of the industry or of the consumer. It’s for everyone”, says Rodríguez. Ney Barrinuevo too is satisfied with the final result. “I have the impression that everyone supports the charter and feels represented. This experience shows that it is possible to bring two opposing parties together and develop a policy together. This way, applying it will also be easier in the end. The dialogue between the public sector, the private sector and the governing bodies at both the provincial and national level is really a step forward, given the Ecuadorian context.”

Power of the Spoon

Yet change does not only come from policymakers and producers; consumers' choices and preferences also play an important role. Julio de la Calle agrees. He is director of projects, innovation and regulation at the National Association of Food and Beverage Producers (ANFAB), an association that is also part of the PAQ. "Organic production sounds great, but locally there is hardly any market for sustainable food. We have to adjust our production to the demands of the consumers. If companies invest in more sustainable production, there has to be a demand for it, otherwise they won't get anything in return for their effort." Paola Ramon, head of Quito's Secretariat for Productivity and Competitiveness, agrees. "We need a large consumer movement. Something's already stirring, but consumer demand isn't high enough yet."



Julio de la Calle

No one believes more in the power of the consumer than radiomakers Marcelo Aizaga and Eliana Estrella. In the PAQ, they represent everyone who experiences the consequences of food policy with knife and fork each day. If consumers are so important to the industry, it should also inform them, they say. "Our radio programme '*Power of the spoon*' is more popular than sports or comedy. This shows we're filling an information gap. Just look at the TV and radio spots and the advertisements about food. In nine out of ten cases, they're pure marketing. There's nothing informative about them. How do you expect consumers to know what responsible food is?" asks Aizaga. For ten years already, they have served their listeners solid information about healthy and sustainable food, through the radio and the internet.



Quito – Ecuador

A recent survey shows loyal listeners really do follow the advice of Aizaga and Estrella and are inspired to develop healthier, more sustainable eating habits. An example of this is the purchase of agroecological products. Agroecology refers to cultivation without chemical pesticides, with multiple crops mixed together. The farmer mimics a natural ecosystem, in which crops reinforce each other's growth or keep certain pests at bay. There are currently more than seventy agroecological stores: a veritable explosion. According to Estrella, this is the result of increased consumer demand. You no longer need to scour organic markets to get a sustainable meal in Quito – you can also go to conventional shops and restaurants. Also promising are the emergence of new consumer organisations and the increasing popularity of community farming. The latter is a collaboration between farmers and consumers. Well before harvest time, the consumer contributes to the production costs of the farmer, who sets aside a portion of his harvest in return. This way, they share the risks inherent in agriculture, such as bad weather or voracious insects.

A menu determined by price and knowledge

"In 2008, Rikolto conducted a study into consumer trends. It showed that many are interested in organic, possibly agroecological food, but that the term 'agroecology' is still unknown to many", says Estrella. The fact that the market for agroecological food is small does not automatically mean there is no interest in it. Many people simply do not have sufficient knowledge.

For most residents of Quito, price is the main driver of what is put on the menu. But with good policy, healthy and varied food can be available to more than those who pay a lot of money for it or who are well-informed. That is why Aizaga and Estrella look forward to continuing to defend consumer rights in the future as part of the PAQ. They hope, for example, that marketing targeted to children will eventually be banned. "The meetings of the PAQ are a great way of keeping the various stakeholders involved. Everyone reports on what they are doing", says Marcelo. By informing the consumer, the PAQ can create a self-reinforcing effect of conscious consumers who drive change from the bottom up.

Due to a change in the city council, the meetings of the PAQ are on hiatus for the time being. Rodríguez explains: "We want the charter to become more official, but the political situation is unsuitable right now. During the two years we worked on the charter, the former city council made its contribution. In the end, the mayor didn't get the opportunity to sign the document. So, we have to rebuild that relationship with the council."

Clean vegetables for everyone

New initiatives in and around Quito decrease the distance between farmers and consumers. This increases their mutual understanding and renders production more sustainable, fairer and more resilient.

Cabbage, lettuce and onions grow side by side in rows on a hill flank, overlooking the mighty Cotopaxi volcano. The piece of land on which they grow lies approximately 37 kilometres north-east of Quito as the crow flies, still in the province of Pichincha. They absorb their daily share of water and nutrients under the approving eye of farmer Manuel Sanchez. It may sound very ordinary, but it isn't. Sanchez grows his vegetables differently from the average Ecuadorian farmer. He feeds his plants a home-mixed, organic fertiliser named *bokashi*. It includes chicken manure, ash, minerals and a mix of microbes that ferment the manure. On top of that, not a drop of pesticide can be detected on Sanchez' fields. "My wife and I used to work at the rose nurseries around Quito. They use so many chemicals there. On our own farm, we make our own manure, just like our ancestors. In the past, there were no chemicals and thus no problems. Today, more and more farmers are spraying pesticides and diseases are popping up. We currently don't grow any potatoes because a disease in the region prevents the potato plants from forming tubers", Sanchez testifies.

Many techniques may be similar to those of distant ancestors, but what Sanchez does is also inspired by the modern school of agroecology. Unlike conventional agriculture, agroecology never works with monocultures. After all, the idea is for a mix of plants to function as an "agroecosystem", which is thought to be more environmentally friendly than a regular field. It does not deplete the soil quite as much, for example. In Ecuador, this cultivation method also has an enormous health benefit, because conventional farmers rarely restrain themselves when using pesticides. The *lulo* or *naranjilla*, a typical Ecuadorian fruit, receives an amount of pesticides during cultivation that is up to 28 times higher than the legal limit. The *naranjilla* is by no means an exception. The dose of certain pesticides is ten times too high for tomatoes, four times for potatoes and seven times for strawberries – and these statistics are just for cultivation in Pichincha. The farmers near the rain-forest fight insects and fungi from the forest with even more chemicals.

A short path between farmer and plate

What ends up on the average Quiteño's table is closer to those over-sprayed crops than to the vegetables of Manuel Sanchez. This makes it difficult for him to compete with conventional farmers, who produce at a lower price. Fortunately, that is not necessary. Sanchez and his wife sell their vegetables largely through Yachik, a pilot brand supported by Rikolto. The farmers of Yachik sell their products directly to the customer, so a larger share of the profit ends up with the farmer. Compare this to the normal system, in which a product sometimes passes through three to four intermediaries before reaching the market. They all pocket a share of the profit. "I used to often sell my goods through an intermediary. That earned me thirty cents per head of lettuce. Nowadays, I get fifty cents for that same head", says Sanchez. This is an important difference, considering forty percent of the population in the countryside lives below the poverty line.

The Yachik programme, still less than 9 months old, has increased the incomes of a dozen small-scale farmers by creating a niche in the commercial centre of Quito to sell clean produce directly to customers and restaurants. The Yachik market takes place every week, ensuring a steady stream of income and expanding commercial opportunities. On Thursdays, they gather in the meeting centre to clean their crops for the market, which takes place in Quito every Friday. In addition to offering logistical assistance, Yachik also informs farmers about new methods to improve cultivation and records the sales figures of the weekly market, so that the farmers

Three to five tonnes of food saved weekly

The Food Bank of Quito is an organisation that is active in the PAQ. They hope for an institutional approach to food waste in the city, because Ecuador is one of the biggest wasters in Latin America. Until that time comes, they tackle challenges on their own. "Since 2003, we've been buying or receiving food surpluses from private companies, markets and supermarkets. Some products are approaching their expiration date, others have an error in the packaging. Our volunteers make part of the products into soup or jam, for example. Thanks to them, we provide more than 9,900 people with food." All thanks to vision and perseverance. "Our founder Alicia Guevara had to call a certain company regularly for two years before they agreed to start working with us. Ultimately, they said yes." Every week, the food bank prevents about three to five tonnes of food from ending up in the bin.



can adjust their harvest accordingly. Combined with direct sales, this exchange of information contributes to a closer link between city and countryside. Direct sale is also advantageous for the customer. Products are usually cheaper if you get them directly from the farmer and the chain is more transparent. The production system can also be adjusted faster to consumer comments or preferences.

Roberto Guerrer emphasises the importance of a close bond between farmers and consumers. Together with fourteen family farms, he organises the distribution of fresh food through a store, weekly markets and a basket system. The baskets are filled with basic products and the price of a basket is determined in consultation with consumers and farmers. All with the goal of bringing both ends of the chain closer together. It also makes an important contribution to creating more awareness about sustainable food. "This year, a master's student did a survey in the neighbourhood. Of the 280 families surveyed, it turned out almost seventeen percent knew what agroecological food was. Almost half of them had first encountered agroecology through our markets. More than half said they had changed their eating habits because agroecological food is suddenly becoming more accessible through the markets", says Guerrer. Moreover, almost all regular customers notice that their health has improved since they started coming to the organic market.

Love for cabbage

The shortest distance between field and fork can be found with Quito's urban farmers. Since 2002, the municipality of Quito has been implementing the AGRUPAR urban agriculture programme. Today, there are no less than 1400 urban farmers. Some grow vegetables and fruit in their own garden, others share their city farm with a group. Fifteen of them even have an organic label, although they all produce in the same way. AGRUPAR assists them when they start the gardens and teaches them the tricks of the trade through workshops. This is bearing fruit. Olivia Esperanza shares her harvest with her granddaughter and her disabled son, who live with her. In addition, she also provides her second son and his family with fresh fruit and vegetables. "We always ate a lot of vegetables, but I really notice that these crops are healthier than those from the store. The health and even the mood of my family members have improved noticeably! My joints were bothering me, but that pain has now disappeared. My doctor confirms that." Urban farmer Dora Carrion too is satisfied. "It's an extra source of income for me. I sell my harvest to people from the neighbourhood. They tell me my fruit and vegetables are very different from what they ate before. They find the colour and taste more intense. The vegetables also stay fresh longer. To determine prices, I use Conquito's price list (*Quito's Economic Promotion*



**Dora Carrion
and her neighbour Margarita**

Quito – Ecuador

Agency, ed.). Sometimes those prices are higher than what you would usually pay for non-organic vegetables, but my customers don't mind. They like to pay a little extra for a long shelf life and good quality."

For the gardeners, urban agriculture means more than a source of healthy food. The gardens form islands of greenery in the grey city. Why does Esperanza come to the shared garden? She kneels in the earth and fondly caresses a big cabbage. "I love being outside, I love the plants, the earth. I like to sit with my hands in the mud and dust. If I didn't have to take care of my family, I would come here more often."

Resilience



David Jácome

The benefits of a short chain extend beyond an additional source of income or a nice chat with the local urban farmer. According to David Jácome, director of the resilience programme in Quito, it is part of a resilient city. "With a centralised system, in which everything is focused on certain parts of the city, the risk is also concentrated. If a disaster happens that destroys exactly those places, the entire city is in trouble. That's why it's important to spread the risk. One way of doing so is by transforming existing markets into food hubs. In these hubs, people not only sell fresh food, but there is also room for storage. Urban agriculture is also a way of spreading the risk, albeit to a limited extent. The ultimate goal is to be less dependent on the current physical infrastructure of the city. It is often vulnerable and if it breaks, reconstruction can take a long time."

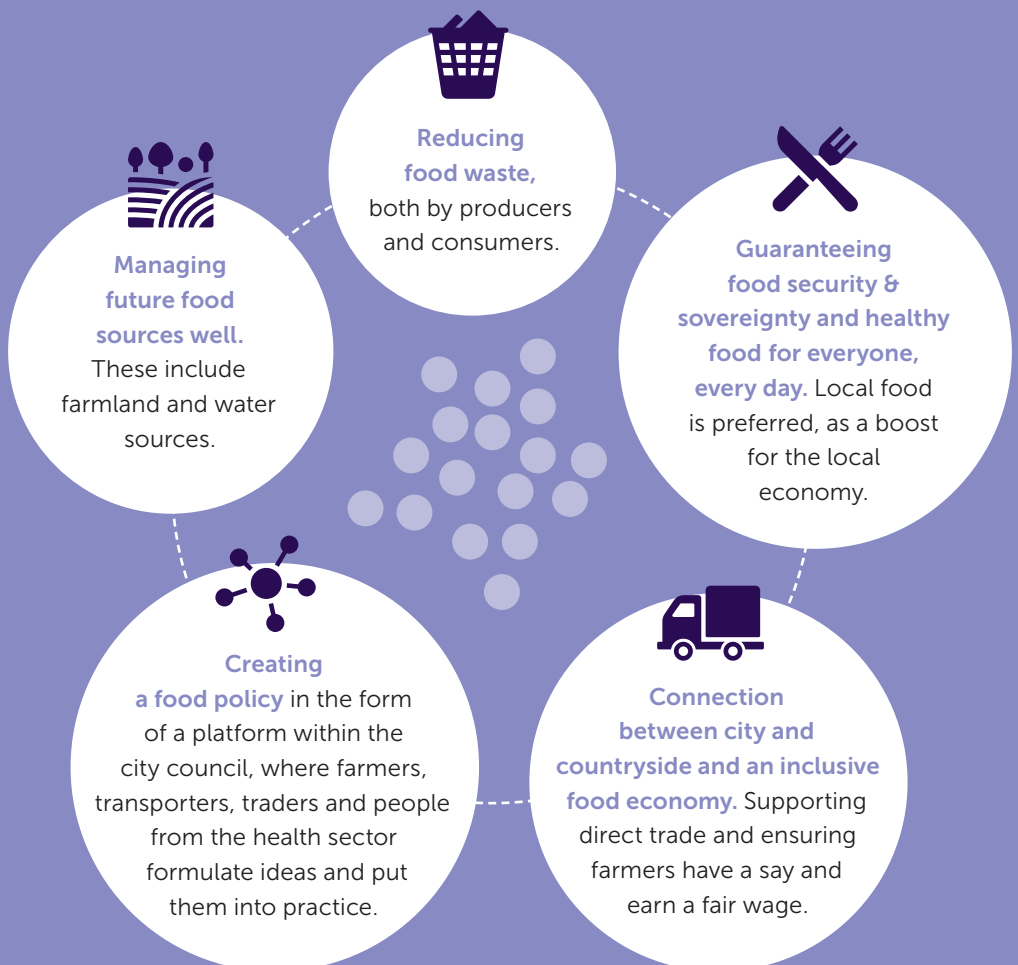
Jácome explains that the quality and resilience of the food system also influence the functioning of the city in other areas. "We have a very young population in Quito. If we want them to get good jobs later, we have to give them a good education first. But in order to learn well, they have to first and foremost be healthy. That's only possible if they eat healthily. So, the food system is at the basis of many other systems, including the social system and the education system. Well-functioning systems are more resilient after a disaster. If the food system fails, it also disrupts the other systems through those interdependencies."

Good policy can contribute to a more resilient food system by accounting for food distribution in the spatial planning of the city. Change can also be stimulated by subsidies. Financial resources to maintain markets are not a superfluous luxury, since many markets in Quito are quite run-down. For small-scale farmers, these markets are a crucial source of income. Although there is a law obliging supermarkets to obtain eleven percent of their products from family farms, in practice, pur-

chases are usually made through intermediaries. Today, the lion's share of subsidies for producers goes to the large farms around Quito. They mainly grow broccoli and roses, not exactly crops that contribute much to the local food supply. We prefer the mixed harvest of farmer Manuel Sanchez. He does not go to the market for his vegetables but lives off the varied cultivation of his own field. This way, he experiences first-hand that a person does not live on roses and broccoli alone.

The charter

Quito's Food Charter consists of seventeen points to which the PAQ stakeholders agreed. They are built around five topics.



9 cities, 4 conclusions

In this book, we travelled to 9 cities to discover how they use food as a response to the major challenges they face in terms of climate, social inclusion, health and employment, among other things. Although the contexts are very different, there are 4 shared conclusions that run like a red thread through our experiences.

Think in systems. Create new connections.

The challenges in the food system are complex and richly layered. Changes therefore spring forth from dialogue and cooperation between different stakeholders: food producers, sector federations, consumer associations, municipal services, urban planners, entrepreneurs, politicians, regulatory bodies and civil society organisations, among others. Local authorities play a key role in creating an enabling environment and bringing different players to the table to transcend conflicting interests through concrete experiments.

The Arusha Food Safety initiative demonstrates this clearly. There is no point in trying to 'fix' single elements of the food system in isolation. Instead, we need to look at it in an integrated way: working on various aspects of the system in parallel, such as food production by farmers, their access to credit, the organisation of local markets, consumer awareness and government regulations, and creating linkages amongst them. In the words of Rikolto colleague Shukuru Tweve from Tanzania *"By making cooperation self-evident, we increase our impact. Because the whole is more than the sum of its parts."*

As such, what is needed is an approach that looks at food from a systemic perspective and considers consumption as a critical entry point for change. The two stories from Belgium – about healthy and sustainable food at school (*GoodFood@School*), local food distribution platforms and the movement "I'm more than my checkout receipt" – also strongly reflect this: the necessity of working with governments and companies at the institutional level on the one hand, and of involving citizen-consumers on the other hand, as they strengthen the demand to make sustainable food the new norm.

Governance and political priorities can change with every election. To safeguard impact in the long term, the spirit of dialogue and cooperation needs to become part of the social fabric of a city.

Focus on new business models to make sustainability a reality.

We are convinced that inclusive business models are a powerful tool to put this systemic approach into practice. As we have seen in the case of *El Consorcio*

Agrocomercial de Honduras, when farmers get more certainty about prices and the quantities they have to deliver, they can build a profitable business. At the same time, they feel encouraged to strive for higher quality standards and to ensure a stable supply of vegetables to their buyers. If the costs and benefits are spread equitably, the benefits outweigh the individual stakeholders. In the case of Honduras, the inclusive relationship with supermarket *La Colonia* contributed to a drastic reduction in vegetable imports and increased investment in local agriculture.

Put young people in the driving seat.

Tomorrow's food will be eaten by today's youth. To adapt our current food systems to the future, we need to move away from business as usual and turn to young people's insight and creativity, so their innovative ideas can become a reality. If the Kala Canda youth group from Solo (Indonesia) taught us anything, it is that that next generation is ready. Young people in Solo are already changing the way we do business and the way we see our food.

Use experiments to feed policy discussions.

It is true that many of the initiatives discussed in this book are still in the "experimental" phase. Still, the dynamics of their results are already inspiring discussions at higher levels of policy where systemic changes are discussed.

In Quito, for example, it did not take long for urban agriculture to become an important component of the city's strategy to become more resilient. In Hanoi, participatory guarantee systems are now on the radar of the city's Department of Agriculture. And in Indonesia, the Ministry of Development Planning is now looking to cities as critical actors that can help achieve Sustainable Development Goal 2 – Zero Hunger.

This is necessary, because time is running out. The scale on which we apply new ideas and models must match the size of the challenges we face. That is why it is so crucial to disseminate new knowledge through exchanges between cities, learning networks and cooperation between different government departments. As emphasised by Mr Nguyen Tan Hai of Da Nang's Food Safety Management Authority *"The decision to become a Food Smart City is only the first step in a very long process."*

List of people who were interviewed

Vietnam

Tran Thi Dinh	Vietnam National University of Agriculture
Thai Thi Minh	Rikolto in Vietnam
Bui Dung	Tuy Loan Safe Vegetables Cooperative
Le Trung Chinh	Da Nang People's Committee
Nguyen Tan Hai	Da Nang Food Safety Management Authority
Nguyen Thi Nhi	Dang Xa Cooperative
Nguyen Tuan Khanh	Dang Xa Cooperative
Nguyen Van Manh	Dang Xa Cooperative
Nguyen Thi Chung	Dang Xa Cooperative
Le Thi Kim Oanh	Hanoi Plant Protection Department
Hoang Thanh Hai	Rikolto in Vietnam
Nguyen Duy Hong	Hanoi Catering JSC
Diep Hoang Thong Anh	Hoa Cuong Wholesale Market
Quach Thi Xuan	Da Nang Institute of Socio-Economic Development
Nguyen Dac Xung	Son Tra District People's Committee
Le Van Tu	Consumer
Do Anh Thu	Consumer
Van Thi Thu Ha	Market vendor
Chu Thi Nga	Street vendor

Tanzania

Shukuru Tweve	Rikolto in East Africa
Eric Mwesigwa	Tanzanian Horticulture Association
Jones A. Kapeleka	Tropical Pesticide Research Institute
Andrea Abaslum	Market vendor
Rebecca Mongi	Arusha City Council
Agrey James Mawule	Arusha Food & Agriculture Department
Alli Simbula	Muvikiho Farmer Group
Ernest Thomas Likoko	AgriProFocus
Jeremia Thomas Ayo	Muvikiho Farmer Group
Kain Mvanda	Rikolto in East Africa
Magige Makuli	Arusha Central Market
Mary Mkonyi	Solidaridad

Mital Shah	Serengeti Fresh
John Ngunjiri	Serengeti Fresh
Mussa Muviengi	Home Veg
Monica Ombeni	Muvikiho Farmer Group
Peter Chuwa	Muvikiho Farmer Group
Santaeli Solomon Kaaya	Muvikiho Farmer Group
Arishard Msangi	National Microcredit Bank
Kalist Lazaro	Arusha City Mayor
Maulid Madeni	Arusha City Director
Simon Ayo	Juwame

Belgium

Beate Jost	Student - Paridaens Instituut
Hannelore Tyskens	Rikolto in Belgium
Myrthe Peijnenborg	Rikolto in Belgium
Joris Aertsens	Rikolto in Belgium
Katharina Beelen	Rikolto in Belgium
Thibault Geerardyn	Rikolto in Belgium
Jen Willems	Rikolto in Belgium
Femke Van Vaerenbergh	Rikolto in Belgium
Irene Salvi	Rikolto International
Jan Wyckaert	Rikolto in Belgium
Peter Wallays	Paridaens Instituut
David Vierbergen	Stroom
Stef Steyaert	Levuur
Michèle Jacobs	Leuven 2030
David Dessers	Leuven City Council
Michelle Hendrickx	Voedselteams
Tamara Bruning	City of Ghent
Ulrik de Roover	Nieuwen Bosch Humaniora
Sofie Vercoutere	Atheneum Gentbrugge
Eva Van Buggenhout	Atheneum Gentbrugge
Katrien Verbeke	City of Ghent
Lieta Goethijn	City of Ghent
Laurence Claerhout	VANIER
Gaetan Borgonie	FoodSavers Gent
Nick François	Boerenbond
Patrick Pasgang	Innovatiesteunpunt

List of people who were interviewed

Gert Bracke	Farm Het Groenselhof
Edwin Beaumon	OCMW Gent
Arno de Mol	Lokaal restaurant

Indonesia

Purnama Adil Marata	Rikolto in Indonesia
Anang Noegroho	Bappenas (Ministry of Development Planning)
Titik Eka Sasanti	Gita Pertiwi
Ajhi Wicaksono	Kalacanda youth group
Bambang Gunadi	Indah Palace Hotel
Bobby Wayong	Gender-responsive village
Budi Harsanto	Boyolali farmers' group
Drastiana Nisa	Gita Pertiwi
Dyah Anggraini	Solo Health Agency
Gunarti Hastuti	Boyolali farmers' group
Hartoyo	Solo Education Agency
Mooryati	Solo Catering Association
Murbowo	APOB Boyolali Organic Rice Association
Putri Handayani	Women's group of urban farmers
Suyatmi	Vegetable vendor
Widdi Srihanto	Solo Women, Children and Community Empowerment Agency
Winarsih	Muhammadiyah 1 Primary School

Ecuador

Alexandra Rodríguez	AGRUPAR / Conquito
Carlos Sanchez	UCCOPEM
Carmen Toapanta	UCCOPEM
Cristian Medrano	La Cleta Pizzeria
David Jácome	City of Quito
Dora Carrión	Urban farmer
José Luis Guevara	Quito's Food Bank
Julio de la Calle	ANFAB
Marcelo Aizaga	Minga por la Pachamama
Eliana Estrella	Minga por la Pachamama
Margarita Baquero	IICA (Inter-American Institute for Cooperation on Agriculture)

Olivia Balcazar
Neria Armijos
Paola Ramón
Patrick Hollenstein
Pere Ariza-Montobbio
Roberto Guerrero
Christian Wahli
Ney Barrionuevo
Liseth Barriga
Nataly Pinto

Urban farmer
Urban farmer
City of Quito
Central University of Ecuador
Inspira Red agroecological farm
Agroecological Fair Madre Tierra
ANFAB
RIMISP
Rikolto in Latin America
Rikolto in Latin America

Honduras

Abner Zuniga
Miguel Arita
Cesar Maradiaga
Annabell Guzman
Abraham Silva
Reynaldo Julián Avila
Felix Zelaya
Walter Pereira
German Flores
Luis Angel Mejia
Alexis Garay
Ramon Hernández Torrez

La Colonia
La Colonia
Consorcio Agrocomercial de Honduras
Rikolto in Latin America
HORTISA
PROVIASA
Vegetales Lenca
FUNDER
Rikolto in Latin America
Vegetales Lenca
PROVIASA
PROVIASA

Nicaragua

Flol de Maria Rivas
Norvin Palma
Domingo Rivas
Enrique Picado Gonzáles
Lenner Hernández
Azucena del Carmen Navarro García
Ronald Cerro
Marcelo Villalobos
José Maria Torres Talavera
Benita del Rosario Garcia Gutierrez
Ana Maria Herrera

ANIFODA
La Cuculmeca
FARENA/UNA
COOSMPROJIN
Fisherman and farmer
COOSMPROJIN
RONAIX
FARENA/UNA
COOSMPROJIN
Comunidad Indígena
Red Ecoclub

Colophon

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Contact: charlotte.flechet@rikolto.org

Contributors from EOS Tracé: Dieter De Cleene, Melissa Vanderheyden, Marieke van Schoonhoven.

Contributors from Rikolto: Charlotte Flechet, Selene Casanova, Aäron De Fruyt, Gert Engelen, Irene Salvi and Jelle Goossens.

Photos:

ARUSHA: Samson Kapinga

DA NANG: Phan Chung

HANOI: Nguyen Tien Chuong

TEGUCIGALPA: Marco Vasquez and Selene Casanova

LOUVAIN: Tim Buelens (for the City of Louvain) and Irene Salvi

GHENT: City of Ghent (Gent en Garde), Gert Bracke and Irene Salvi

JINOTEGA: Marco Vasquez, Selene Casanova and Gerard Sagas

SOLO: Maria Serenade Sinurat

QUITO: Natalia Palomino, Marcelo Aizaga, Selene Casanova and Eduardo Naranjo

Proofreading: Madalyn Loustalot, Dale Erwin, and Eva Corijn.

Final editing: Jo Vermeersch (Rikolto in Belgium), Charlotte Flechet (Rikolto International).

Design and illustrations: Bieke Olemans (BeoDesign).

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Today, more than half of the world's population lives in cities. By 2050, about 80% of all food globally will be consumed in cities. How do we ensure sufficient and affordable food for everyone? And how do we do so without exceeding the limits of our planet?

To solve these challenges, we will need to make major changes to our current production and distribution models. All over the world, cities are experimenting to make this happen. Together with a wide range of actors involved, they are developing urban food strategies that offer new opportunities. Rural and urban farmers can help feed the ever-growing cities, improve their living conditions and make food production more sustainable, all while tackling climate change. Consumers can gain better access to healthy and sustainable food. And companies can develop sustainable and inclusive business models that benefit all actors in the food chain.

Between March and August 2019, three journalists from the digital platform Eos Tracé visited partner cities of Rikolto's Food Smart Cities programme. During these visits, they interviewed more than 130 people and discovered initiatives that make safer, healthier and more sustainable food accessible to citizens. This book tells their stories from 9 cities in Vietnam, Belgium, Tanzania, Indonesia, Ecuador, Honduras and Nicaragua.



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