

RURAL

21

The International Journal for Rural Development

3 | 2021
VOLUME 55

ISSN 1866-8011
D 20506 F



Food systems, nutrition and the SDGs

THE RURAL-URBAN NEXUS

Creating circular resource flows
in African city regions

IMPLEMENTATION RESEARCH

Leveraging the power of
network effects

NIGERIA

Community involvement in
solving the bushmeat crisis

rural21.com

Dear Reader,

By the time you are holding this edition of Rural 21 in your hands, the UN Food Systems Summit convened by UN Secretary General António Guterres will just be over. It has raised great expectations, with game-changing solutions to be outlined which will enable the achievement of the Sustainable Development Goals and, with them, a world without hunger in harmony with nature. All this is to be accomplished on the basis of a radical transformation of our food systems – food systems whose fragility has been painfully and all the more clearly demonstrated by the COVID-19 pandemic, and which are today being referred to by many as “broken”. But what are our present food systems actually suffering from? How must they be redesigned to really bear the attribute “sustainable”?

The almost 1,000 dialogues which were held in the context of the Summit, and also independently of it, show just how closely interrelated the challenges are which we face and how holistic solutions therefore have to be. Aspects include nutritious food, food literacy and nutrition-sensitive agriculture; consumption patterns and the difficult process of changing eating habits; the role of agroecology and the very different interpretations associated with the concept; the need to think agriculture, nutrition and health as one, as is also happening in the One Health approach; access to and governance of the important natural resources water and land; conserving biodiversity; empowering marginalised groups and creating equitable livelihoods; gender equality, climate change and, last but not least, developing resilience to vulnerabilities and shocks. We have already addressed all these topics in individual editions of our journal. That all of them are playing a role in this edition once again demonstrates the significance of food systems – they touch every aspect of human existence.

As can be expected, opinions diverge considerably on the direction in which our food systems ought to develop. The discussions accompanying the Summit process have

been accordingly controversial. Already at an early stage, part of Civil Society decided to boycott the Summit and instead run alternative events. Their motivations and proposals for solutions are also presented in this edition.



“The clock cannot be turned back to before the Food Systems Summit process,” Joachim von Braun, Chair of the Scientific Group of the UN Food Systems Summit, said in an interview with our journal. Has the Summit met the expectations it raised? You will soon be able to find assessments various actors have made on this on our website.

We hope this edition will give you some food for thought.

On that note, the Rural 21 editorial team wishes you inspiring reading.

Silvia Richter

You can find the latest information on COVID-19 at www.rural21.com

Partner institutions of Rural 21



Imprint

Rural 21 –

The International Journal for Rural Development

Published by:

DLG-Verlag GmbH
Frankfurt, Germany

Advisory council:

Boris Büchler, GIZ
Bruce Campbell, DEZA
Dr Reinhard Grandke, DLG
Martin Koppa, HELVETAS
Jürgen Maier, Forum Umwelt und Entwicklung

Editorial committee:

Dr Michael Brüntrup, DIE
Dr Manfred Denich, ZEF
Prof Dr Martin Qaim, University of Göttingen

Editor in chief / Berlin office:

Silvia Richter, s.richter@dlg.org

Editorial staff / Frankfurt office:

Olive Bexten, o.bexten@dlg.org
Ines Lechner, i.lechner@dlg.org
Angelika Wilcke, a.wilcke@dlg.org

Editorial assistance:

Mike Gardner

Translated by:

Christopher Hay, Tazir International Services

Cover photo:

Jürg Böthling

Design & Layout:

Andrea Trapani, DLG-Verlag

Editorial office, distribution, advertising:

DLG-Verlag GmbH
Eschborner Landstraße 122
60489 Frankfurt, Germany

Printed by:

Bonifatius GmbH
33100 Paderborn, Germany

Rural 21 is published four times a year.

The subscription rate is EUR 33.– (Germany), EUR 37.– (EU countries), EUR 51.– (non-EU countries) and EUR 8.30 per issue, plus postage.

All rights reserved. The contents may not be translated, reproduced in whole or in part, nor may information be passed on to third parties without permission of the publisher. Please direct all correspondence to the editor in chief.

The opinions expressed by the authors are not necessarily those of the publisher or the editor. The editor retains the right to make editorial changes.



CONTENTS

FOCUS

- 04 **The moment is now**
A convergence of pressing need and promising opportunity for advancing sustainable development
- 07 **Food systems – beyond the buzz**
- 10 **Why food systems transformation is crucial for achieving the SDGs**
- 13 **“Transformation needs effective institutions”**
Interview with Joachim von Braun, Scientific Group of the UNFFS 2021
- 16 **“We cannot leave the battleground to corporations and market interests”**
Interview with Shalmali Guttal, Focus on the Global South
- 19 **Fair, healthy, global – helping to reshape our food system**
German NGOs’ alternative “Food and Democracy” dialogue series
- 21 **The future of Rösti and Fondue – Switzerland’s contribution to the food systems dialogues**
- 24 **Putting food systems analysis into practice**
The example of Ethiopia’s Wag Himra Zone
- 27 **Nutrition-sensitive agriculture and improved nutrition in mountain areas – rural service providers as catalysts**
- 30 **Wind of change – the growing momentum for agroecological transitions**
- 33 **The Transformative Partnership Platform on agroecology**
- 34 **“Agroecology is the future”**
Interview with Maria Tekülve, BMZ

SCIENTIFIC WORLD

- 37 **Rethinking the rural-urban relationship based on nutrient recycling**
Experience from the RUNRES project

OPINION

- 40 **Leveraging the power of network effects**

INTERNATIONAL PLATFORM

- 42 **Engaging the community in solving the bushmeat crisis**
Insights from Nigeria

THE MOMENT IS NOW

A convergence of pressing need and promising opportunity for advancing sustainable development

Two major summits addressing food and nutrition are being held in 2021. Our authors argue that this offers a golden opportunity to boost action towards improving nutrition and enhancing food systems, especially in the context of the Sustainable Development Goals, all of which are ultimately affected by the issues on the summit agendas.

By Stella Nordhagen and Lawrence Haddad

Food systems are fundamental to improving nutrition. Encompassing all the people and activities that contribute to producing, processing, transporting, supplying and eventually eating food, they influence diets by shaping what food is available and accessible, as well as how desirable and convenient it is perceived to be. While aspects outside the food system – such as water, sanitation, and hygiene systems and health services – are critical, optimal nutrition for the human population simply cannot be achieved without a food system that makes sufficient safe and nutritious food available to all.

Beyond their influence on nutrition, which directly affects attainment of Sustainable Development Goals (SDGs) 2 (Zero Hunger) and 3 (Good Health and Well-being), food systems are also central to the achievement of numerous other SDGs. For example, through the livelihoods they maintain – including an estimated 500 million smallholder farms, supporting about two billion people, plus employees and entrepreneurs throughout the post-farmgate value chain – they contribute to reducing poverty (SDG 1) and providing decent work and economic growth (SDG 8). Well-functioning school meal programmes can increase school attendance, enabling greater educational attainment (SDG 4). Food systems use energy and environmental resources and emit greenhouse gases and other pollutants – but also create opportunities for resource conservation and regeneration and climate change mitigation, making their sustainable management central to achieving SDGs 12 (Responsible Production and Consumption) and 13 (Climate Action). Their ability to damage biodiversity but also to conserve it similarly gives food systems a crucial role in achieving SDGs 14 and 15, on life below water and on land. And women are key actors throughout any food system, which means that food systems are one promising in-road for improving gender equity (SDG 5).

Indeed, given the essentiality of food systems to all of human life, connections can be drawn between food systems and every SDG – as well as the targets and commitments established in the UN conventions on climate change, biological diversity and combating desertification.

A unique opportunity: Two summits, overlapping goals

For those who care about improving nutrition and achieving the SDGs, 2021 offers a rare opportunity for galvanising action to improve nutrition and make food systems more sustainable, resilient, equitable and supporting of health. The year features not one, but two summits that can contribute to these goals. The United Nations Food Systems Summit (UNFSS) will take place in September, virtually, and the Nutrition for Growth Summit (N4G) is currently planned for Tokyo in December. The Summits have several key differences. N4G is one of a series of quadrennial summits linked to the Olympics. Historically, N4G has focused on improving (mostly financial) commitments to supporting nutrition; these come from domestic sources, overseas development assistance and foundations, as well as innovative financing mechanisms. Private-sector commitments have also been leveraged, and for 2021, there is a greater focus on understanding how business investment and practices can safely contribute to improving nutrition. N4G is organised by a host country government (Japan in 2021, following its hosting of the Tokyo 2020 Olympics) and historically supported by development donors. N4G aims to reduce malnutrition in all its forms (i.e. undernutrition, including stunting, wasting, and micronutrient deficiencies; overweight/obesity; and diet-related non-communicable diseases, such as diabetes). Food systems are one of five routes seen as leading to improved

nutrition; the others are nutrition interventions delivered via health systems, stronger financing and data for nutrition programme scale up, a stronger focus on fragile and conflict-affected contexts, and improved accountability mechanisms.

The UNFSS, in contrast, is a one-off event convened by the UN Secretary-General. UN member states play a central role, and the process is supported by five thematic working groups (known as Action Tracks and Levers), an independent Science Group and a large group of designated Champions. According to organisers, the UNFSS process was intended to reach out to those whose voices are not normally heard, aspiring to be a 'People's Summit' that engages a broad range of grassroots stakeholders. One channel for doing so has been organising a series of country and independent dialogues to bring together stakeholders around specific food system issues or within specific contexts; as of late July 2021, over 1,200 of these had been organised, on every continent but Antarctica. While N4G's goals are nutrition focused, the UNFSS sees transformed food systems as a way to advance the entire SDG 2030 agenda and aims to contribute to achieving a set of ambitious, intertwined goals including the reduction of hunger and malnutrition in all its forms, improved food safety, enhanced biodiversity, reduced greenhouse gas emissions, reversing environmental degradation, reducing food loss and waste, stronger livelihoods, greater equity, improved resilience and reduced vulnerability. Improving gender equity, empowering youth, and respecting the knowledge and rights of Indigenous Peoples are all noted by organisers as being central to the goals of the UNFSS.

In sum, N4G is a time-bound nutrition-focused campaign, specifically aiming to deliver



more money for nutrition programmes and more nutrition outcomes for the money spent through stronger programmes. The UNFSS, in contrast, is much broader: through a cross-sectoral process, it seeks to define game-changing solutions that can put food systems on a pathway towards achieving the SDGs in 2030 and to galvanise coalitions of action around those solution sets.

A pressing need

Both sets of actions are urgently needed. The world is off track to meet the World Health Assembly targets for all forms of malnutrition, diet-related non-communicable disease prevalence is rising, and three billion people cannot afford a healthy diet. In 2020, world hunger increased for the first time in five years, with about 770 million people estimated to be facing hunger – an increase of 118 million on the previous year. Moreover, the effects of the COVID-19 pandemic threaten to undo ten years of progress in reducing malnutrition by increasing rates of stunting and wasting, affecting the wellbeing and future prospects of tens of millions of children. Foodborne disease is an oft-forgotten negative health outcome of food systems, causing an estimated 600 million illnesses and 420,000 premature deaths annually and costing about 20 billion US dollars a year, and in low- and middle-income countries (where 75 per cent of these deaths occur), food safety is expected to worsen before it improves. These trends represent gross violations of the right to food, as inadequate food intake is at the core of all these forms of malnutrition and food-related illness. And while food systems do support millions of livelihoods, longstanding power asymmetries and the legacies of colonialism and conflict have given rise to entrenched inequities throughout food systems and in the drivers that influence them. Too many farmers, fishers and livestock keepers continue to live in poverty and themselves suffer from hunger, and too many jobs throughout food supply chains do not pay a living wage or offer dignified employment within which workers are treated equitably and have agency. This is particularly true for women, lower-income workers, Indigenous Peoples and minorities. Food systems work is often hazardous, and about 70 per cent of the world's child labourers are engaged in agriculture.

At the same time as food systems fail to deliver on supporting optimal human health and wellbeing, they are also degrading our shared environment and complicating achievement of the Paris climate commitments. Food production

currently uses 70 per cent of global freshwater, accounts for 21–37 per cent of greenhouse gas emissions, and releases nutrients that contribute to pollution, including eutrophication (excess nutrient content that can damage ecosystems by encouraging excessive algae growth). Food production also drives ecosystem conversion and biodiversity loss both on land and in water. Additional negative environmental impacts arise throughout the post-production stages of the food chain, including through transport and trade. Food systems are also highly vulnerable to shocks, and increased resilience is needed to ensure food and nutrition security amid pandemics, conflicts, natural disasters, and economic and political crises. Furthermore, activities within food systems contribute to antimicrobial resistance and zoonotic disease transmission – including spill-overs of disease from animals to humans, as may have been the cause of the COVID-19 pandemic.

Harnessing the moment

The need is thus great, and the opportunity is there. How can we seize this moment? We must make the most of these two summits by harnessing them to create lasting, snow-balling momentum for improving nutrition and transforming food systems. We have the opportunity to link solutions to improve nutrition to other major environmental and health challenges, to engage a broad set of stakeholders, and to set an agenda for decisive action. With different stakeholders involved in each summit, the two are complementary, and the communities behind each can gain from the other. For N4G stakeholders, the UNFSS is an entry point to find organisations, networks, and people who are potentially interested in nutrition. This will enable nutrition stakeholders to grow the movement to end malnutrition. The UNFSS can benefit from N4G because stronger health systems are a necessary precondition for improving nutrition (and reducing foodborne disease and zoonotic disease spill-overs) but will not be a strong focus of the UNFSS. The two summits of 2021 thus need each other – and nutrition and food systems need them both.

Through the UNFSS, we can hope to see new coalitions built (and existing ones strengthened) to support food systems transformation. This will include, for example, a Coalition of Action for Zero Hunger, which will seek to advance evidence-based actions to empower the excluded, support food producers and move food from producers to consumers, based on seminal work by leading research institutes.

This coalition will seek to advocate for hunger reduction, align existing resources around hunger reduction, and add resource commitments, mobilising a strong sense of collective purpose. This is one of over a dozen coalitions envisioned as emerging for the Summit, with others focused on sustainable and nutritious diets, such as the Coalition of Action for Healthy Diets from Sustainable Food Systems.

From N4G, we can expect to see continued support to scale-up proven nutrition actions. For example, we would hope to see action on wasting and anaemia, two manifestations of malnutrition that have seen little improvement in prevalence numbers in the past ten years.

Of course, summit commitments are mere platitudes if they don't translate into action – and history makes it clear that this does not happen automatically. Strong and independent post-summit accountability mechanisms will thus be needed in both cases, to track progress on commitments and ensure that all actions taken are supportive of human rights and inclusive and empowering of women, youth, Indigenous Peoples and other oft-ignored voices.

The resources and knowledge already exist to end hunger and provide nutritious diets to a growing world population while ensuring that food systems workers have equitable and high-quality livelihoods, and it is biophysically possible to accomplish this within environmental limits. Doing so, however, will require substantial and systemic transformations. These can only be achieved through political and financial commitments, leadership and action across all levels of the food system, and, perhaps most importantly, the food systems community uniting around the optimistic vision that such change is possible.

Stella Nordhagen is a Senior Technical Specialist with the Global Alliance for Improved Nutrition (GAIN), based in Geneva, Switzerland. She holds an MPhil and PhD from the University of Cambridge, UK, and her work focuses on issues of food systems, agriculture, and nutrition in low- and middle-income countries.

Contact: snordhagen@gainhealth.org

Lawrence Haddad is Executive Director of GAIN. He holds a PhD in Food Research from Stanford University, California, USA. In 2018, together with David Nabarro, Lawrence was awarded the World Food Prize.

Contact: lhaddad@gainhealth.org

Food systems – beyond the buzz

Food systems and the need for their transformation were already being debated before preparations were underway for the UN Summit addressing this issue. But do we all mean the same thing when we talk about food systems? And in which direction precisely should transformation go? Our authors show how far the discussion has progressed.

By Alison Blay-Palmer, Andrew Spring, Erin Nelson and Elodie Valette*

A food system is typically defined in two ways. First, it can be described based on how food moves, starting with soil, seeds and production through processing, distribution to markets onto people's plates and, finally, to waste. In more globalised food systems, these movements are regularly linear food chains with few connections between processes. In more localised regional or territorial agroecological systems, this movement of food and materials is more circular, and is often referred to as food flows.

A second perspective explores a food system's interaction with and impact on social, economic and environmental considerations. In sustainable food systems, food protects ecosystems and biodiversity, respects human rights, ensures food security, and supports fair livelihoods, different cultures and traditional knowledge. In conventional, global food systems, economic considerations have priority over social and environmental concerns, with an emphasis on efficiency, profit, ultra processing, extraction and technology.

Food system tracks

If we consider how food is grown and what people eat, food systems run broadly along two tracks. In one system, peasant farmers produce food for themselves and their communities. It is estimated that more than 500 million peasant farmers produce over 70 per cent of the food in the world. These farmers often use agroecological growing to produce more biodiverse, traditional foods that are integrated into local, regional or territorial socio-ecosystems. As too many of the farmers operate in a political system that does not support local, small-scale farming, they can face precarious circumstances and struggle to ensure their own food security.

The other track grows food in plant and animal monocultures using chemical inputs and increasingly proprietary seed as well as digital and mechanical technologies. These food systems place the burden of risk on farmers in a vertically integrated system that concentrates wealth away from farmers towards multina-

tional corporations. In many cases, such farms operate on the edge of profitability, relying on off-farm family income, migrant labour and government subsidies to keep them going. While multinational food companies have made billions during COVID-19, there is constant concern about the wellbeing and rights of millions of small-scale producers, processors and marketers.

What do/ can food systems do?

Food systems contribute to or impede resilience in the face of pandemics, climate change, other shocks and hazards. In the same way that food systems can undermine environmental and community wellbeing, they can also be spaces for change. In the case of the climate crisis, up to 37 per cent of human greenhouse gas emissions result directly from the global food system. Pre-COVID, nearly 750 million people were experiencing food insecurity in some form, with an estimated 132 million additional individuals facing undernourishment



due to the pandemic. Biodiversity for food and agriculture is declining as we concentrate our diets on fewer and fewer crops, and farm in ways that adversely impact surrounding species. Up to 577 billion US dollars in crops are at risk annually due to pollinator loss, while 23 per cent of land areas have seen decreased food productivity. On the flipside, sustainable food systems offer the potential to activate solutions to our most pressing challenges. They can sequester carbon to help mitigate climate change, foster healthy biodiverse agroecosystems, protect human rights and the land, respect Indigenous peoples' rights and enable livelihoods based on community-scale growing, processing and access. On a territorial scale, they can provide integrated, coherent opportunities for socio-economic and ecological system health.

The science and politics of food systems

There are different kinds of knowledge that inform food systems. Indigenous and traditional knowledge dates back millennia, based on an intimate co-evolution between people and the land (also see upper Box). Often the relationship to the land is tightly bound to cultural practices and traditions, with land stewardship important to cultural identity. Western scientific knowledge, on the other hand, is largely grounded in reductionist principles and is too often used as a tool to control nature with detrimental effects. While western science has brought us increased yields, it has also resulted in many negative social and environmental externalities. And, coupled with corporate food processing and marketing, it has precipitated a global health crisis through the creation and distribution of ultra-processed foods.

Politics are key to the transformation needed to move towards sustainability. There are countless multi- and bilateral agreements that foster and support the existing corporate, globalised food system with a glaring lack of respect for the Right to Food. These agreements impede, for example, public purchasing by government-funded institutions as a demand-side stabilising tool for small-scale farmers and food businesses. Siloed government bureaucracies are also challenged to navigate and enact a food systems approach as an integrated matter of health, community and environmental wellbeing. And governments and sectors across scales are challenged to work together. While food can break down these silos, this requires commitment. City Region Food Systems (CRFS) are an example of a territorial approach that uses agroecology to increase

Ka'a'gee Tu First Nation (KTFN), a small Indigenous community in Northwest Territories, Canada, work towards a sustainable food system through their traditional hunting, fishing and gathering, as well as by introducing gardening and agriculture into their practices. KTFN's traditional food system includes hunting for moose, caribou and other wild game, subsistence and commercial fishing, and gathering berries and other traditional foods from the land. This food system has allowed this community to live within the boreal forest ecosystem in a sustainable way for time immemorial. The community maintain this part of their food system through advocating for their land and other Indigenous rights, active monitoring and research on changes to their ecosystem from climate change and development pressures, and through fostering intergenerational knowledge sharing of traditional practices between youth and elders. KTFN have introduced gardening and agriculture into their food system to address food insecurity and adapt to an increasingly warmer climate. Currently, they have community gardens, a greenhouse and a composting facility. They have also partnered with researchers to explore agroecological practices that incorporate their Indigenous knowledge, support boreal forest biodiversity, maintain or increase carbon sequestration and create livelihoods that deepen their connection to the land.

Quito, in Ecuador, participated in a test of the **City Region Food Systems approach** (FAO-RUAF) to assess their food system and determine a systemic path towards sustainability. The analysis and diagnostic results promoted greater understanding of the city's food system and led to actionable changes. The work in Quito is led by the participatory urban agriculture project, AGRUPAR, through the economic promotion agency, CONQUITO. AGRUPAR provides vulnerable members of the community with urban agriculture support for self-consumption and for sale at local markets. This project successfully supports economic development and food security of Quito residents, as well as promoting rural and urban linkages. AGRUPAR not only supports individuals and families in the city, they work towards macro-level food policy changes. Many stakeholders from across the city came together to form the Agro-Food Pact of Quito (PAQ), a platform that promotes its sustainable food systems. The City's participation in the CRFS process has increased governmental awareness of its food system dynamics, influenced the integration of food in the city's resilience strategy and its Vision 2050 consultations, helped build the first food strategy in all of Ecuador, and supported Quito in moving towards sustainable food system transformation.

Cuba is widely recognised as a global leader in the development of agroecological food systems. The **Project to Strengthen a Local Agricultural Innovation System** (or PIAL for its initials in Spanish), housed by the National Institute of Agricultural Sciences, plays a large role in supporting Cuba's transition to agroecology. PIAL began in 2001 with a focus on participatory plant-breeding – a methodology that involves local farmers sharing heirloom seed varieties with each other, experimenting on their farms, and increasing the genetic diversity of their crops. The Cubans quickly realised they could use the same participatory methodology to support farmer-led innovation and knowledge-sharing in other areas of their food system as well. By 2021, the PIAL programme was operating in 75 municipalities across the country, fostering participatory generation and sharing of agroecological innovations that preserve seeds, water, soil, and biodiversity, support small-scale farmer livelihoods, and provide healthy food to communities. The programme has a strong emphasis on gender empowerment and social equity, and it encourages active participation and leadership from women and youth as well as men in agricultural communities. It has helped build human, social, cultural and natural capital in Cuba, and has contributed to many sustainable food system outcomes, including: increased crop and dietary diversity valuing locally-adapted seed varieties and traditional foods; climate change mitigation, e.g. through reduced reliance on carbon-based agricultural inputs; decreased agrochemical use; improved resilience for agroecosystems, families and communities, e.g. through diversified on-farm species and varieties as well as new income sources; greater social equity in farming households and communities; and increased collaboration between small-scale farmers and scientific institutions.

social inclusion and provide food security to vulnerable groups (see Box in the middle).

Building sustainable food systems

Designing and planning for sustainable food systems happens best when processes are participatory and empowering for all citizens, but particularly for those most left behind, including indigenous, women, youth, LGBTQ+ and disabled people. Their active participation creates community-defined food systems that uphold the Right to Food and address different peoples' needs and priorities. Examples of inclusive engagement include participatory frameworks for certification, risk assessment, plant-breeding and research (also see lower Box).

Regional/territorial approaches build the foundational sustainability pillars of social, economic and environmental considerations into local contexts, enabling inclusive participation and addressing place-based issues. Using a regional or territorial lens for food systems also considers soil and water quality, and biodiversity, allowing for a closed-loop approach to available resources. This cycling of resources is relevant economically as sustainable food systems reduce input costs and create a multiplier effect, increasing the amount of money generated and spent within local economies.

Moving forward

This year presents a unique convergence for food systems as the development of the Global Framework on Biodiversity, COP 26 and the UN Food Systems Summit (FSS) all build to

the autumn of 2021. Within the FSS process, not only is there pressure to reform agricultural subsidy programmes but also an increasing interest in how to scale up agroecological principles and practices. This convergence is important as, while agroecology thrives in some communities despite detrimental trade and subsidy programmes, it can be adopted and supported more widely through global knowledge sharing networks amongst small-scale farmers, pastoralists, Indigenous folk, fishers and others.

While bringing agroecology into the mainstream could be a pivotal moment for food systems, it also risks (re)defining and co-opting the concept. If this happens, the central connection to the environment, community and a more equitable economy could decouple agroecology from its holistic foundations. As a case in point, the UN Committee on World Food Security (CFS) recently passed the Policy Recommendations on Agroecological and Other Innovative Approaches. While agroecology was originally proposed by the civil society mechanism within the CFS, due to the insistence of other key actors, the guidelines were bundled with high-tech solutions, such as climate-smart agriculture.

The FSS has begun to incorporate agroecology into its 'game changing solutions' despite it being absent from earlier iterations. Through the five different Action Tracks of the Summit, solutions have

been raised to help implement and scale up different elements of agroecology. The tie between the CFS and the FSS can be seen most vividly in Action Track 3's Solutions Cluster on 'Transformation through Agroecology and Regenerative Agriculture'. While Action Track leadership has integrated findings of the CFS, how this will be championed at the FSS is still to be seen.

Alison Blay-Palmer is the UNESCO Chair on Food, Biodiversity and Sustainability Studies at Wilfrid Laurier University in Canada.

Contact: ablalpalmer@wlu.ca

Andrew Spring is the Executive Research and Partnership Lead with the UNESCO Chair.

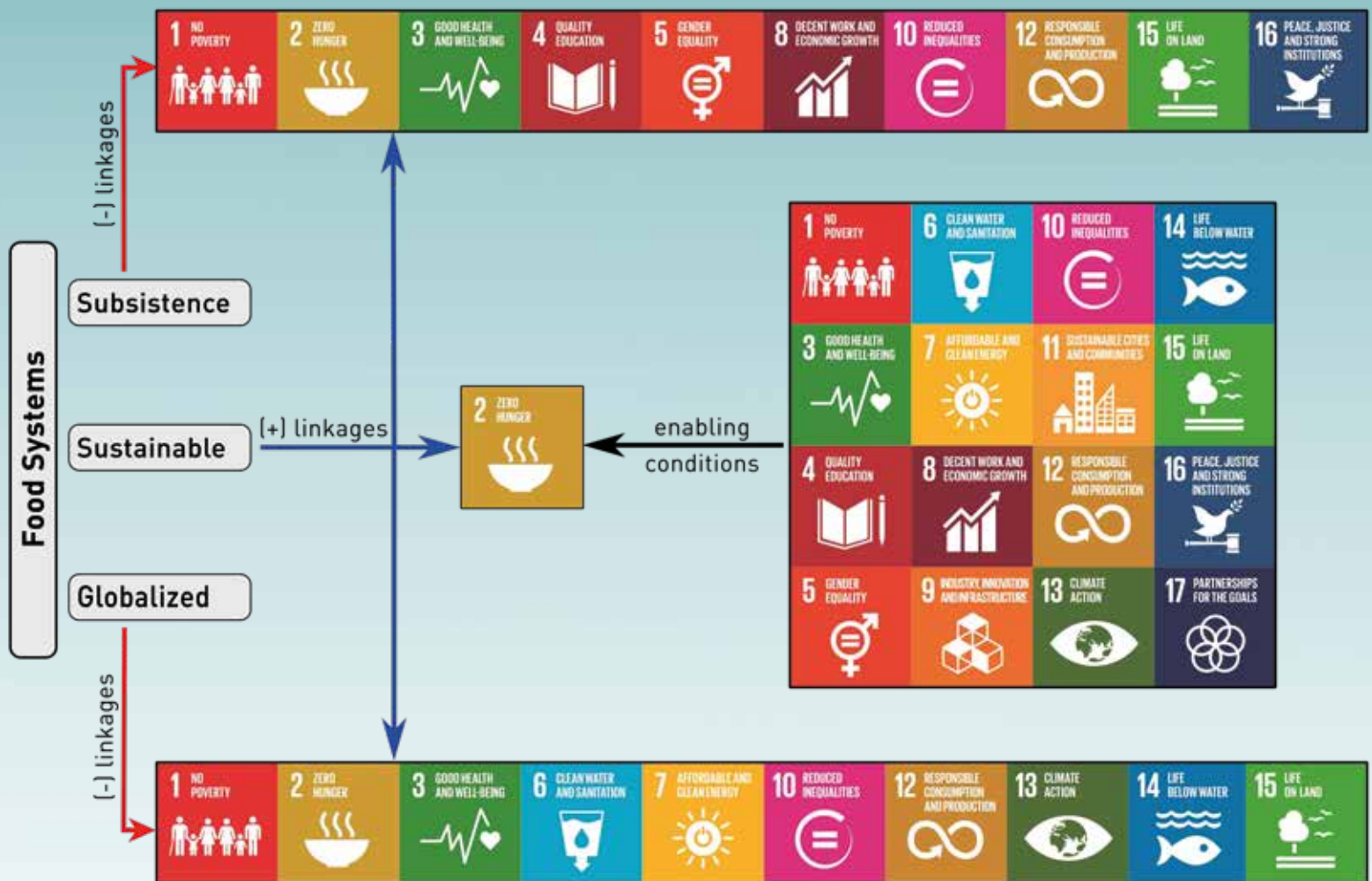
Erin Nelson is Assistant Professor, Sociology and Anthropology, at the University of Guelph, Canada.

Elodie Valette is a geographer at the French Agricultural Research Centre for International Development (CIRAD) in Montpellier, France.

** With contributions from Carla Johnston, Johanna Wilkes, Laine Young, Barbara Benitez, Heather Reid and Amanda Di Battista.*



Photo: Jörg Böthling



Why food systems transformation is crucial for achieving the SDGs

Our current food systems not only fail to end malnourishment, but also exhibit substantial ecological impacts. Thus they are an obstacle to achieving numerous Sustainable Development Goals (SDGs). Our authors have a look at the context and explain how these negative impacts can be converted into positive ones.

By Prajal Pradhan, Tek B. Sapkota and Juergen P. Kropp

For transforming our world, the United Nations adopted the 2030 Agenda for Sustainable Development in 2015, consisting of 17 goals and 169 targets to be met by 2030. However, achieving the SDGs remains a challenge despite progress made during the last five years. Moreover, the COVID-19 pandemic has exacerbated this challenge by negatively impacting most of the goals. Here, we highlight why transforming food systems is crucial for meeting the 2030 Agenda and how this can be reached.

Food systems can have positive and negative linkages to SDGs, depending on their characteristics (see Figure). Food systems across the

globe range from traditional subsistence to globalised modern ones, with sustainable food systems lying somewhere in-between these extremes.

How food systems and SDGs are interlinked

Subsistence food systems consist of smallholder farmers with low productivity due to limited applications of agricultural inputs, mostly in low-income countries. Supply chains are relatively short with minimum food processing. Only a tiny amount of food is imported or exported. A substantial proportion

of the population in developing countries is engaged in these food systems. However, many people suffer from poverty because of lower yield and limited agricultural incomes, resulting in negative linkages with SDG 1 (No Poverty) and SDG 8 (Decent Work and Economic Growth). Diets consist of staples with variations in their diversity across seasons shaped by food culture and tradition. Smallholder farmers' production might not be enough to feed themselves throughout the year, resulting in undernourishment (SDG 2). Poverty and undernourishment make ensuring Good Health and Well-being (SDG 3) and Quality Education (SDG 4) for all particular challenges. Women are primarily re-

sponsible for unpaid domestic and care work, including farm labour, with negative linkages to SDG 5 (Gender Equality). Low farm incomes also increase gaps between smallholder farmers and other professions instead of leading to Reduced Inequality (SDG 10). Inferior harvesting, processing, storage and transport infrastructures result in significant food losses targeted to be halved by SDG 12 (Responsible Consumption and Production). With only limited resources and knowledge, smallholder farmers continue to cultivate marginal land and use unsustainable practices, causing negative linkages to SDG 15 (Life on Land). These food systems are also vulnerable to environmental and economic shocks (e.g. weather extremes and price spikes), triggering conflicts within and between countries (SDG 16 – Peace, Justice and Strong Institutions).

Globalised food systems involve intensive production in certain areas, and populations in other regions depend mainly on imported food. Farms are highly productive thanks to the applications of a vast amount of agricultural inputs (e.g. feed, fertiliser and pesticides). Supply chains are relatively long, with processed and ultra-processed food. High-income countries mostly have these food systems. The need for massive investment means that marginalised farmers become less competitive. This negative linkage forces the farmers to abandon their farms and lose their livelihoods (SDG 1), resulting in inequalities within and among countries (SDG 10). Diets consist of a large share of animal-source, processed and ultra-processed food, sugar and sweeteners, mainly for low- and middle-income populations. These unhealthy diets and limited physical activities result in overweight and obesity (SDG 2) and the associated burden of non-communicable diseases (SDG 3). The intensive production and excessive use of agricultural inputs leads to air, water and soil pollutions with negative linkages to SDG 6 (Clean Water and Sanitation), SDG 13 (Climate Action), SDG 14 (Life below Water) and SDG 15. Required agricultural inputs and extended supply chains depend on fossil energy, making food systems emission-intensive, which clashes with SDG 7 (Affordable and Clean Energy) and SDG 13. However, their agricultural emission intensity could be lower than in subsistence farming. Although food losses are low owing to adequate infrastructures, excess food availability results in significant food waste on the consumer side (SDG 12). These food systems also lead to biodiversity losses because of overfishing (SDG 14) and deforestation (SDG 15) to bring cheap food to the global market.

Key action points for the transformation of food systems

1. Sustainable intensification increases food production, ensuring the long-term potential of agricultural resources (e.g. soil, water, plants and livestock) and maintaining their environmental functions. These practices include sustainable tillage, precision resources management, crop residues and cover crops for soil protection as well as cropping system diversification. However, as these practices are not adopted widely, countries should promote them.
2. Transitions to more sustainable and healthy diets, i.e. more plant-based with minimum animal-source food, reduce global mortality and agriculture-related GHG emissions. Therefore, countries need to facilitate diet changes through policy instruments and soft measures, including taxes on unhealthy foods and subsidies on healthy ones.
3. Avoiding food loss and waste saves resources used to produce food, reduces food systems' environmental impacts and enhances local, regional and global food security. Various technologies and soft measures are available to reduce food loss or waste.
4. Connecting producers with business is key to sustainable food systems. Linking young farmers to sustainable finance and private sector leaders to access needed finance and mentorship will transform these youths into competent and confident business leaders.
5. Regional and local food systems will ensure food availability during difficult times, enhance local employment, especially for women and youth, and reduce food transport emissions. Thus, countries can promote the regionalisation of food systems by implementing appropriate policies, subsidies, and carbon tax (see Box on page 12 as example).
6. Social protection and empowerment are required for vulnerable populations to ensure their food security in difficult times. Disruptions in food systems caused by climate change, weather extremes or conflicts can result in food insecurity. Social protection includes food subsidies, cash transfers, agriculture insurance, farmer's pension and employment guarantee, and universal income. Empowerment actions should focus on marginalised social groups, women and youth.
7. Urban and peri-urban agriculture can increase the resilience of regional and local systems. Urban and peri-urban agriculture contributes to food availability and accessibility, reduces poverty, improves nutrition, provides a series of ecosystem services, e.g. reducing heat stress and carbon sequestration, and fosters the circular economy.
8. Investment in research, innovation, and extension services needs to be increased, particularly in agroecological approaches, sustainable production practices, game-changing emerging technologies, locally appropriate business model development and financing mechanisms. Countries should invest in building their capacities for integrating data, analytics, and assessments, supporting evidence-based policies to ensure food security.

SDGs and food systems transformation

Transforming food systems towards more sustainable ones is crucial to converting the negative linkages of food systems with SDGs into positive ones. Sustainable food systems deliver nourishment for all with profits for the entire range of actors, broad-based benefits for society and positive or minimum ecological impacts. Being profitable for all the actors, these food systems eliminate poverty (SDG 1), foster economic growth (SDG 8), and reduce conflicts (SDG 16). Diets are more diversified, sustainable and healthier, and cause minimum greenhouse gas emissions (SDG 13). They consist of a high share of coarse grains, pulses, fruits, vegetables, nuts and seeds with a calorie threshold. Most foods are seasonal and regional, with short supply chains. Sustainable and healthy diets for all people end hunger and malnourishment in all forms (SDG 2), preventing health burdens (SDG 3), positively linked with Quality Education (SDG 4).

These food systems also provide equal opportunities for all, ensuring gender balance (SDG 5) and reducing inequalities (SDG 10) thanks to fair trade and gender-sensitive approaches. Sustainable land and water management practices result in positive linkages to water quality (SDG 6), land restoration and biodiversity conservation (SDG 15) as well as soil carbon sequestration (SDG 13). These food systems have minimum ecological footprints, positive environmental impacts, and low food loss and waste (SDG 12). They also leave some land for clean energy (SDG 7) and exert less pressure on aquatic and marine lives (SDG 14).

Achieving SDGs goes hand in hand with food systems transformation by enabling required social, economic, and environmental conditions. Progress on SDGs 3–6 and 10, 16 and 17 creates social conditions for the transformation. These conditions include knowledge, technologies and resources transfer across the world based on North–South, South–South

and South-North cooperation (SDG 17 – Partnerships for the Goals). Uses of marginal land and unsustainable practices are often linked with poverty and limited livelihood opportunities. Therefore, progress in economy-related SDGs is required for transforming food systems. For example, providing social security and stable income from agriculture would encourage farmers towards sustainable land and water management (SDG 1 and 8). Besides others, proper industry, innovation, and infrastructure (SDG 9) and clean energy (SDG 7) avoid food loss and minimise GHG emissions from food value chains. Achieving Sustainable Cities and Communities (SDG 11), accounting for urban and peri-urban agriculture, will enhance the sustainability of urban food systems. Achieving SDGs 12–15 enables the required environmental conditions. For example, climate change mitigation avoids its

adverse impacts and reduces future adaptation needs. Sustainable transformation is central to turning food systems from a primary threat to a solution space for achieving the SDGs. We highlight eight action points for food systems transformation in the Box on page 12.

Prajal Pradhan is a senior scientist at Potsdam Institute for Climate Impact Research (PIK) in Germany. His research broadly focuses on understanding strategies and measures for sustainable transformation. He has been working in sustainable food systems, urban transformations, sustainable development goals (SDGs) and bioeconomy.

Tek B. Sapkota currently works at the International Maize and Wheat Improvement Center (CIMMYT) based in Mexico. His research areas include agriculture, soil science and environmental

science. He is involved in studying the management consequences of nutrient dynamics in agro-ecosystems and their effect on food security, climate change adaptation and mitigation.

Juergen P. Kropp is a deputy chair at the Department of Climate Resilience at Potsdam Institute for Climate Impact Research (PIK) and heads the Urban Transformation Research group. He also holds an extraordinary professorship for Climate Change and Sustainable Development at the University of Potsdam. Furthermore, he is an Independent member of the Board of Directors of the International Center for Integrated Mountain Development (ICIMOD), Kathmandu, Nepal. Contact: pradhan@pik-potsdam.de

References: www.rural21.com

PROMOTING LOCAL FOOD SYSTEMS FOR SUSTAINABLE MOUNTAIN DEVELOPMENT

Traditionally, mountain people from the Hindu Kush Himalayas (HKH) region grew various local crops to satisfy their dietary, nutritional, medicinal and cultural needs. They cultivated and maintained different indigenous crops such as amaranthus, barley, millet, sorghum and buckwheat as well as a range of wild fruits, vegetables and medicinal plants (see Photo). However, with the advent of the Green Revolution, most countries in the region emphasised commodity-specific, large-scale agricultural production on a commercial scale. As their food systems moved away from subsistence to globalised ones, many mountain people abandoned agrarian occupations. Instead, they relied more and more on imported food. Farmers have become reluctant to grow the local crops because of low returns, poor markets and lack of knowledge about their nutritional and environmental value. This tendency has gradually replaced the local crops with commercial ones. Given this situation, any disturbance in the market, supply chains or prices triggers huge implications on mountain people's food security. Further, the transition from subsistence food systems and traditional diets to globalised ones with high fats, salt, sugar and processed food has increased non-communicable diseases (e.g. diabetes, obesity, heart diseases and certain types of cancer) in mountain communities.

In the HKH region, there is an urgent need to promote sustainable local food systems using traditional and indigenous knowledge. For example, many indigenous crops grown in the region have immense potential to contribute to

food and nutritional security, dietary and culinary diversification, health and income generation. These locally adapted crops can grow in marginal land which otherwise remains fallow. Most of these crops are drought-resistant and can quickly adjust to harsh climatic conditions. Strengthening mountain food systems based on locally-produced food makes them resilient against supply deficit, market disturbance, price hikes and sudden changes in trade agreements among countries. However, many local crops and livestock species are currently underutilised and

not a priority of national food systems for various reasons, including lack of germplasm, local technical knowledge, adequate national policy and interest among stakeholders, together with easy availability of imported food. For making mountain food systems sustainable, it is essential to increase the production and productivity of many local crops and livestock, raise public awareness of local food and emphasise research for conservation, utilisation and promotion of local foods through appropriate policy instruments and incentives.



Intercropping of finger millet with Amaranth in Hanku village, Jumla district, Nepal. Mountain people from the Hindu Kush Himalayas region used to grow these local climate-resilient crops. Currently, they are neglected and underutilised.

Photo: LI-BIRD Photo Bank

“ Transformation requires effective institutions ”

Achieving a world without hunger is only one of the challenges which the world food system faces. In this interview, Joachim von Braun comments on the role of institutions, policy-makers, science and other factors in food systems transformation in the context and follow up of the UNFSS.

Mr von Braun, what are the main problems of our food systems at the moment?

The world food system suffers from several ills. First, it is doing an inadequate job of overcoming hunger. In fact, hunger is growing. Second, it isn't preventing malnutrition, over-nutrition and the problem of unhealthy diets, all of which leads to human suffering and high health costs. And third, it is a big part of the problems that actually undermine life on Earth, because the food systems' large greenhouse gas emissions are driving climate change, while inappropriate land use is exacerbating biodiversity reduction. In addition, the food systems in their current form tolerate exploitation of small farmers, women and children. This needs more attention too, also from the consumers of food products, who benefit from low prices based on exploitative labour relations.

We haven't been aware of most of the problems only since yesterday. Do we have the wrong institutions and the wrong policies to sustainably feed humanity?

We have known about hunger and malnutrition for a long time, but we now need to address all the complex problems of the food systems in their diverse contexts at national and global levels. That is why we are having a Food Systems Summit. The Rome-based agencies – FAO, IFAD, WFP – need more resources in order to present a meaningful follow up to the summit. Regarding institutions, we must critically assess what we have. Obviously, the mechanisms in place aren't delivering what we need. Proposing that existing institutions have to be stronger is not enough. Especially at country levels, we need effective and more inclusive institutions to transform the food systems. And at global level, for instance, the trade system lacks institutional strength, while rules and their enforcement of fairness, human rights and environmental effects in food value chains are only starting to be discussed. Appropriate mechanisms for sharing of science that help people

and planet are not sufficient either. One weakness of the Food Systems Summit process was to listen to the dogma of some policy-makers, stressing “no new institutions”. It was often motivated by vested interests of some countries or some administrations, avoiding bold assessment of deficiencies of current institutions.

You have long called for a kind of Intergovernmental Panel on Climate Change for food and agriculture at UN level to promote interaction between science and policy. Doesn't such a body already exist with the High Level Panel of Experts of the Committee on World Food Security?

An Intergovernmental Panel on Food would be desirable, but such an institution should not be a copy of the IPCC. It needs to be adapted to the food system. You asked about the CFS/HLPE. Yes, it has the capacity to address food security, but food systems require much broader capabilities, and it does not measure up to the broad and diverse science power of an IPCC. Most importantly, the food systems require strong country-level science-policy interfaces, and that isn't offered by the CFS/HLPE either. We need large, diverse, and different science inputs to assist policy, also including traditional knowledge, for instance from Indigenous Peoples. All relevant existing bodies should come together to map out a science-policy interface that serves the food systems, including the academies, universities, CGIAR, CFS/HLPE, the global academic associations such as those addressing soil science and agronomy and nutrition and social sciences.

Science was given considerable importance in the preparation of the UNFSS, which is rather unusual. Do you see this as a kind of turnaround in the assessment of the role that science can play to solve global problems?

Science offers options, not solutions. But yes, this is an important change of approach. Sci-



Photo: ZEF/Bonn University

Joachim von Braun is Chair of the Scientific Group of the UN Food Systems Summit. He is Director of the Center for Development Research (ZEF) at the University of Bonn, Germany and Professor for economic and technological change at the same institution. His research focuses on economic development, science and technology policy, poverty reduction, food and nutrition security, resource economics and trade.



Science offers options, not solutions

ence has been put to task by the UN Secretary General with the appointment of an independent Scientific Group, not appointed by governments but selected by science communities. The willingness of thousands of scientists to constructively engage pro-bono in the summit process is an important signal from science, but also a positive signal of the UN's convening and motivational power. The Scientific Group consists of only 28 volunteering scientists, but its partnering scientists and partner organisations are thousands, as is documented in the Science Reader for the UNFSS published just ahead of the Summit.

Can you briefly summarise the main outcomes of the Science Days? What key points emerged in the discussions?

The Science Days for the UNFSS organised by the Scientific Group and FAO was a first of its kind. Actually, it was a Science Week from Monday to Friday in July. When we say “sciences”, we always mean both, social science and natural sciences. In about 70 sessions more than 2,000 participants from research, politics, civil society and industry came together to examine how to unlock the full potential of sciences, technology and institutional innovation to transform food systems towards sustainability. The participants also discussed: advancing science-based options for achieving more healthy diets and more inclusive, sustainable and resilient food systems; putting science to work, especially investments in institutional and human capacity, and capitalising on models and data; addressing missed opportunities and contentious issues was on the agenda, empowering and engaging key players, including youth, Indigenous Peoples, food industry and start-ups, and women; pushing the frontiers of science, especially in bio-science innovations, digital innovations, and policy and institutional innovations. The Science Days shaped the main thematic recommendations of the Scientific Group for the Summit, including means of implementation, such as innovation in finance for the food system, and capacity strengthening. Many concluded that such Science Days should be part of the follow-up assessment mechanisms to the Summit.

What role did the COVID-19 crisis and its implications play in the discussions?

The world food system is suffering from the COVID-19 shock, it cannot adequately respond to pandemics and other shocks and is therefore not sufficiently resilient. This has

played a very significant role in the priority-setting discussions in the Scientific Group, in emerging coalitions and in many of the hundreds of dialogue events for the Summit. One Health is a key initiative in which coalitions are formed. Moreover, financing the food systems transformations must connect to health systems transformations. We have emphasised that the international finance organisations must consider the connections of food and health in their actions, not finance food systems and health systems change in isolation.

How about the Pre-Summit? Where was the greatest consensus, and where were the greatest discrepancies?

The great consensus is on the goal that the food systems must be transformed to serve people and planet. That consensus is also specific as enshrined in the SDGs: to end hunger and transform systems towards nature-positive production, protecting life in terrestrial and aquatic systems, and climate neutral agriculture and waste reduction.

Discrepancies are of different natures. One serious and legitimate discrepancy is over the level of ambitions – things are moving too slowly, and reforms are too timid. Action on climate and the necessary adoption of the true cost of food accounting to cut the negative side effects of the food systems are related issues. Another discrepancy is over agroecology/ low input approaches, positioned against a technology-oriented approach to solve food systems problems. Yet, there were actually only few, albeit loud, voices at the extremes. A much broader group of research and knowledge communities emphasises locally adapted innovations that must serve sustainability. This debate needs to continue in specific contexts, and also should be better addressed in analyses and food systems modelling.

What is your overall assessment of the results of the Pre-Summit? Were there any surprises from your perspective?

The Pre-Summit did help set the agenda, but its results will have to be measured by the outcome of the actual Summit. One positive development before and at the Pre-Summit was the strongly emerging voices of Indigenous Peoples completely independently of governments and independently of NGOs. I regret that there were anti-summit positions of some parts of the NGO communities from the beginning. But these were only some parts, and not

the majority. It was encouraging to see business constructively engage, not taking lobbying positions, and the Summit process showing no corporate capture. There was robust debate and as stakes are high in any food systems transformation, robust debate is needed, and should be given sufficient time. Debate must continue in the implementation phase in structured ways. The UN can provide the appropriate frameworks for that together with science and stakeholders.

A group of scientists cancelled their participation in the Summit; IPES Food also withdrew from the Pre-Summit at short notice. Concerns have been raised that the composition of the Scientific Group is not balanced, for example that – contrary to what you remarked – social sciences are underrepresented and only one direction of science is present. Can you understand these concerns?

The frequent repetition of such complaints, and their wide dissemination through social media by some campaign initiatives, does not make them true. All doors to the summit processes were wide open to every organisation. The more than 800 special dialogues, more than 150 national dialogues and our Science Days were open to all. A careful look is warranted. Most of the few organisations that said they were cancelling their participation in Summit processes may not have engaged in the first place.

Regarding the disciplinary diversity of the Scientific Group and its partners, one only needs to look at the hundreds of co-authors of the more than 50 papers and studies developed by the Group and its partners. Anyone can find out because all materials about deliberations and outputs are on the web. There is complete transparency. Comments on research drafts were invited and welcomed.

Concerns have also been raised by civil society that the Summit as a whole is too focused on increasing production and technological innovation ...

Reality is demonstrated by the five Action Areas emphasised by the UN Secretary General. They are not at all over-emphasising production and technology, focusing rather on i) Nourish all people; ii) Boost nature-based solutions; iii) Advance equitable livelihoods, decent work and empowered communities; iv) Build resilience to vulnerabilities, shocks and stresses;

and v) Support means of implementation with finance, innovation governance. By the way, these action areas are coherent with the proposed seven priorities for innovations by the Scientific Group.

How optimistic are you that we will achieve a breakthrough with this UNFFS?

Summits can be surprising and an element of unpredictability is a positive element of the coming together at the event. This Summit was necessary because of the large food systems issues before us – hunger, poverty, military conflicts, ecology, climate, etc. That set of issues needs heads of state at the table. They must take the food systems problems seriously. The roughly 30 per cent of greenhouse gas emissions from food systems suggest that the climate agenda cannot be tackled without more significant focus on food systems. The hunger issues so much related to poverty and to military conflict are head of state issues too. Women and Indigenous Peoples have come to the forefront and their voices need to be heard. That this bigger agenda has emerged makes one optimistic, and the clock cannot be turned back to before the Food Systems Summit process, which started 18 months ago.

What makes me concerned is that the Summit lacks sufficient emphasis on the poor and hungry and their rights. Also, I see too little mobilisation of incremental finance which is needed for food systems transformation. And there is little willingness for real system change, for instance to address the huge negative effects of the food system on health and the environment that are costing us about twice the value of food in the global market. I hope that a few months after the Summit, we will not find ourselves in a situation comparable to the one after the Copenhagen Climate Summit, which failed owing to a lack of political will to innovate and to invest in climate policy action. To avoid that we need sound follow up to this Food Systems Summit, probably with a focused Mini Summit every other year, to achieve the 2030 agenda with a world without hunger in a sustainable food system. Only serious follow up – including at country level – can bring us on a trajectory towards the monumental task of achieving a well-nourished humanity in harmony with nature.

*The Science Reader can be found at:
<https://sc-fss2021.org/2021/09/14/scientific-group-relases-science-reader-for-the-unffs/>*

”

The clock cannot be turned back to before the Food Systems Summit process



Photo: Author

Shalmali Guttal is the Executive Director of Focus on the Global South (Focus). She has been working on trade, investment, debt, land and natural resource governance, and the commons for over 30 years, with emphasis on community rights to resources, women's rights, and democratisation of governance. She works with several grassroots movements on the creation and governance of natural, social and knowledge commons.

Focus is a regional policy research organisation headquartered at the Chulalongkorn University Social Research Institute in Bangkok, Thailand.

For more information: www.focusweb.org

“ We cannot leave the battleground to corporations and market interests ”

Large corporations are playing an increasingly important role in food systems throughout the world, also with regard to assets such as land and water. In this interview, Shalmali Guttal calls for a greater focus on the public purpose of food systems and food.

Ms Guttal, what are the main problems of our food systems at the moment?

Before getting to this point, let's talk about the positive aspects regarding food systems. There is a huge diversity of food systems in this world which were developed by people and communities in very diverse micro-climates, geographic territories, socio-economic and political conditions. And these food systems ensure the survival of the majority of the world's people – not only through the availability of nutritious and culturally appropriate food, but equally by providing livelihoods, employment, incomes and also nurturing our ecosystems, communities and biodiversity. And this isn't a romantic notion. The crises we are facing show us the interdependence between resilience, local knowledge, innovation, adaptation, health and sustainability. They also make clear that there are planetary limits, and we have to prioritise and strengthen domestically homegrown food systems which are within these planetary limits.

Another very important positive aspect of our food systems is that the majority of the world still eats seasonally. Again, there is a clear symbiosis between cuisines, ecosystems and cultures. Of course, in many urban areas, people don't necessarily eat seasonally, but seasonal foods are often our comfort foods and foods that sustain people in the long run.

And what about the shortcomings?

I would consider shortcomings and threats together. One major shortcoming – and threat – is corporate-led globalisation and the globalisation of corporate-dominated food supply chains. This has been accelerated through neo-liberalism over the last forty to fifty years, together with the expansion of globalised trade, and free trade and investment agreements that benefit big corporations and wealthy countries that are home to these corporations. There have also been changes in national and international regulations regarding subsidies, public financing and support, intellectual property rights, social security, access and security of tenure of land and forests, privatisation and so on. In the counter sum-

mit organised by the Autonomous People's Response to the UNFSS, one of our speakers mentioned a very important point. In the last thirty to forty years, which rights have actually become legally protected by hard law? It's intellectual property rights in trade agreements, not human rights. The protection of human rights – despite international human rights agreements endorsed in the United Nations – has been relegated to soft law. But such intellectual property rights benefit corporations, not peasants, fishers or Indigenous Peoples. There is also legal protection of the 'rights' of corporate investors through Investor State Dispute Settlement – or ISDS – mechanisms, but no such protection of public interest and people's' rights.

At least over the past 40 years, we have seen corporations entering many aspects of food systems: production inputs, seeds, equipment, financing, storage, distribution, processing, packaging and retail, giving them increased influence and control over our food systems. And more and more, large agri-food corporations are controlling the source of their food products through plantation agriculture and contract farming. And at least in the South, these monocultures have led to severe agrarian crises, distress migration, dispossession of rural peoples and the increased fragility of local and indigenous food systems. Agrarian distress and dispossession leads to large-scale displacements of rural populations, who are forced to migrate and work in factories, industrial farms, construction, and so on, often in slave-like conditions. So what has happened is that on the one hand, those who have nurtured and built local food systems are perhaps still working in food-related jobs, but without any agency and in exploitative conditions. They are working for large monocultural, globalised food systems. And on the other hand, the food systems which they have nurtured and which so many people depend on are becoming more and more fragile.

Another threat is that since the food price crisis in 2007–2008 and the financial crisis in 2008–2009, food has become a strategic asset. Everybody needs to eat. And food, in turn,

depends on assets such as land, water, forests and other natural resources, knowledge, technologies, infrastructure and so on. All these are being captured by large corporations and wealthy countries. The control over and capture of nature, land, water and resources are enabled by changes in regulations, and the more corporations capture land and the productive resources of a territory, the more economic power they have, which enables them to acquire political power. And with more political and economic power, they are able to influence regulations. So there is sort of a vicious cycle here that serves corporate interests and undermines public interest, especially the needs and rights of already marginalised and vulnerable people.

The UNFSS is meant to bring about solutions to turn our food system to the better. It was supposed to be a ‘People’s Summit’, with ‘the doors open to everyone’. Why did many civil society organisations, including yours, decide not to take part?

This food system summit is very different from the previous ones. It is a multi-stakeholder summit, not a multilateral summit. It is not based on human and people’s rights, but on large business and market interests. Right from the beginning, the process of organising the summit was opaque. It sidelined basic human rights actors and institutions, legitimate platforms of organised civil society and Indigenous Peoples, and even the Committee on World Food Security, which has a multilateral mandate to guide policy-making to advance the right to food. The Summit leaders talk about hunger, sustainability, climate change and peace, but conflicts, and wars and occupations are not on the agenda, and neither are the pandemic and the structural causes of hunger and climate change. Analysing the Summit structure and actors driving the Summit, it was clear to us that the reframing of narratives presented through the Summit process are a dangerous and more insidious way to allow the intrusion of corporate interests into food systems governance. In 2019, a strategic partnership was announced between the World Economic Forum and the UN Secretary General’s office. And look at the actors who were brought in to lead the Summit processes – the World Business Council for Sustainable Development, the Alliance for a Green Revolution in Africa, the Global Alliance for Improved Nutrition, EAT, the Scaling up Nutrition initiative, Food and Land Use Coalition, and a whole bunch of agribusiness corporations, all with very close links to the World Economic Forum. Another very important issue for us is the model of governance the Summit process promotes, which is multi-stakeholderism.

Isn’t it a good idea to bring several parties with different interests around the table?

The problem with multi-stakeholderism of this kind – which has been expanding over the last 20 to 30 years, for example the Round Table on Responsible Soy and Sustainable Palm Oil or the Extractive Industries Transparency Initiative – is that it does not distinguish between rights-holders, duty-bearers and business interests, that it presents all stakeholders as equal, and obfuscates power asymmetries and injustices. Can we really say that the power of rural communities or work-

ers to influence policies and regulations equals that of large corporations which have huge amounts of money, lobbying power and lawyers? Look at land disputes, and disputes between a large corporation and peasants over intellectual property rights. Look at labour disputes with workers seeking the right to organise in a plantation or in a food processing factory. These stakeholders are anything but equal. Multi-stakeholderism completely ignores such asymmetries and injustices, and allows imbalances in power to continue. And it denies rights-holders their right to be rights-holders.

So is multilateralism the system of choice?

I’m not saying that the multilateral system is perfect. Even in a multilateral system, our governments are sitting up there far away from people and negotiating. And pretty often, we do not agree with what they say. In a recent address to our Counter summit, the UN Special Rapporteur on the Right to Food, Michael Fakhri, put it very well: in the case of multilateralism, governments have power, but they get legitimacy from people to exercise that power. So there is a relationship between the rights-holders and the duty-bearers, an issue of democratic accountability – not only at the national level, but at multiple levels. In multi-stakeholderism, this is completely absent. Here, nobody is accountable. There are no clear obligations, no clear commitments and no clear liabilities. Regarding the outcomes of the food system summit, who is responsible for what? Who would be held accountable for what? Who would be liable for what? We believe that this kind of multi-stakeholderism entering the UN at such a high level is a very big threat to the multilateral system and reflects a trend of corporate capture in the UN, which we are not willing to accept.

You expressed your concerns in an open letter signed by over 550 civil society organisations and sent to the UN Secretary General in March 2020. Did you feel your concerns were being heard?

No, we didn’t. On the contrary, I would say our concerns are being wrongly presented as an unwillingness to participate. In fact, we presented an entire set of proposals to the leaders of the Food System Summit, but they were not accepted.

There has also been criticism regarding the work of the Scientific Group of the UNFSS ...

Yes, because it frontally attacks the existing High Level Panel of Experts on Food Security and Nutrition of the CFS. The HLPE has a clear mandate to serve as a global food and science-policy interface. It works through a participative process. Every time the governments give it a mandate, the HLPE develops the terms of reference. It goes through a consultation process with governments, policy-makers, civil society and other academics – it’s an open process. The idea is to bring many different knowledge systems together to converge in a common report and platform and to have a debate. Many of us in civil society don’t agree with every HLPE report. But when you can agree or disagree, you can have a debate, which is absolutely impossible with the Scientific Group informing the Food Systems Summit.

A number of very well-known academics and researchers from all over the world who joined the Science Days of the Summit in July were shocked at how narrow and inept the whole definition of science was in that forum, and about the very exclusive approach to knowledge and science. The food systems that I mentioned earlier come from diverse sciences all over the world, from people's innovations, people's adaptations and people's knowledge – and these are not represented in this Summit. So we have strong reasons to believe that the outcomes from this Summit are set to further marginalise small-scale producers. All in all, the Summit is building a narrative that supports industrial food systems, characterised by ultra-processed foods, high technologies, artificial intelligence, industrialised livestock production, deforestation and intensive use of monocultures, all of which cause soil deterioration and contamination, and irreversible impacts on biodiversity and on people's health. We believe that these problems are expanding because of the industrialised system. You can already see that if you look at the so-called game-changing solutions discussed in the Pre-Summit.

Could you give an example?

Let's take net zero partnerships among governments. You can't pollute and continue high carbon emissions in one place, and plant some trees somewhere else and say you are net zero. The transformation envisaged by the Summit isn't looking at the structural roots and enablers of the problems. It doesn't seek to rebuild local food systems and the diversity and resilience they encompass but goes in a completely different direction, promoting highly digitalised technologies and market mechanisms as "game-changing solutions" for food system transformation, which is really dangerous, because it doesn't stop the industrialised food systems from polluting, destroying, contaminating and exploiting. And it doesn't reduce carbon footprints – it offsets. But offsetting is not the same as reduction.

Food and food systems have a public purpose. But the Summit solutions will divert financing, public support and energies away from public purpose and public interests. The Summit does not provide solutions to combat malnutrition or hunger or even the climate crisis – it just ignores them. Access to justice is one of the most fundamental rights that has to be realised in any kind of food systems transformation. We need economic restructuring, redistribution of land and financing, progressive taxation, strong public health, social protection, education and justice systems. Redistribution of wealth needs to happen in order to reduce inequality and hunger. The workers need living wages, safe and decent workplaces and work conditions and good quality healthcare, and this is only possible with strong public health systems. All these issues are connected and are important for the transformation the world needs.

**Let's get back to your criticism regarding the involvement of the private sector. Isn't having the private sector on board when it comes to designing future food systems a good decision?
Isn't the private sector part of the solution, given its important role in food supply?**

Here, we have to distinguish. In many societies, there are local private sectors – local processors or local groceries – which

are very different from corporations. But due to the power of corporations, many of these private sector enterprises are being edged out. And there are many corporations that are responsible for the problems our local, national, territorial food systems are facing. But corporations are not willing to assume their responsibility and be held responsible for the social and environmental harm they do. Instead, they want to continue to have public subsidies and public support. I don't think it is possible for this kind of private sector to be part of real, meaningful solutions unless corporations radically change their ways of working. We are not saying that companies shouldn't make a profit. But they shouldn't make one at the cost of public purpose.

You already mentioned the counter summit you were organising in late July. What is the main outcome of the event?

Through the four days of the counter summit, we were able to reach about 11,000 people. This is a very significant achievement for us. It shows that there are many people in the world who are interested in a different vision of change than that promoted by the UNFSS. We will continue to engage in the process. We will continue to monitor the impacts of the Summit outcomes on the Right to Food, human rights and food governance, and to put forward our proposals for change. And we will continue to work with our governments to insist on a defence of multilateralism and to shift multilateralism into a more democratic direction. The response to our concerns about the UNFSS has been immense across the world. We see the coming together of a diversity of actors, organisations and movements, also from different sectors and different backgrounds as well as different generations. And we have been joined in our efforts by academics and researchers, who used their intellectual authority to step up and highlight the problems of the Summit. Even government representatives and parliamentarians are talking about it.

You have been involved in discussions on food systems, human rights, etc. for such a long time – are you more optimistic or more pessimistic as to the future?

Well, I like to be an optimist. There is so much capacity in this world, so much capability, so much talent and knowledge, so much innovation. And food systems are so dynamic because they depend on people and ecosystems, both of which depend on each other. There is a symbiosis there. And at least for the people that we work most closely with, we see this dynamic and these talents. Yes, the challenges are immense. But more and more people in the world are waking up and saying that the current ways of consumption are just not an option any more. The crises we are facing, be it the climate crisis, be it the pandemic, are an opportunity to try to change mindsets and push for a deeper transformation. I feel that this is an important nexus moment in history, and this is also the reason why my own organisation and I put so much energy into mobilising on these issues. We cannot leave the battleground to corporations and market interests.

Fair, healthy, global – helping to reshape our food system

Civil society organisations across the world have boycotted the UN Food Systems Summit, claiming that its preparation is undemocratic, that it lacks ambition in ending structural inequalities and that it is not a suitable forum for setting the right course towards the future. With their alternative “Food and Democracy” dialogue series, which is independent of the Summit, German NGOs have invited stakeholders from a variety of sectors to share their experience and discuss how to make future food systems fair, healthy and autonomous, with climate justice built in.

By Lena Bassermann and Mireille Remesch

“Food systems have the potential to nurture human health and support environmental sustainability, however our current trajectories threaten both,” is how scientists sum up the situation in the EAT-Lancet report. The EAT-Lancet Commission is a high-level body bringing together 37 scientists from 16 countries to answer the question: how can we feed a future population a healthy diet within planetary boundaries?

First the good news: a growing number of voices worldwide want to radically transform our food system and make global production and consumption more sustainable. Many more people are now taking an interest in what’s on their plate, where it comes from and how it was produced and processed. They want to know what’s in their food and are turning away from unhealthy, over-processed foods that are high in salt, fat and/or sugar. Many farmers would like more autonomy and are keen to break free of their dependence on agricultural corporations, importers, middlemen and supermarket chains. They want more self-determination, more contact with the consumer and good, fair and appropriate prices for their products. Rural workers want to break out of their marginalised, exploitative employment that pays starvation wages. Across all sectors of the food system, people are now demanding a voice and, not least, the democratisation of our food and agricultural policy. In response to this need, a multitude of alternative agricultural organisations, action groups, networks and coalitions has emerged – in all food system sectors.

At present, however, these many significant voices are rarely given a hearing or included. That certainly applies to this year’s UN Food Systems Summit. Critical voices from science and civil society fear that the outcomes of the Summit are more likely to reinforce than resolve the catastrophic misalignments in our current food systems. Key points of criticism have been raised in several open letters signed by some 500 organisations (see also interview on pages 16–18). An appeal by the scientific community for a boycott of the UNFSS, which



More and more people want to know where their food comes from and how it was produced and processed.

Photo: Bilderbox.com

has already been signed by more than 200 scientists, has also been ignored so far. Even the high-level International Panel of Experts on Sustainable Food Systems (IPES-Food) exited after the first day of the Pre-Summit.

And yet another way is possible. Agro Coordination, the INKOTA Network, FIAN Germany, the Network of Food Policy Councils and the German Forum on Environment and Development have taken the Summit as an opportunity to launch a self-organised, alternative dialogue series, which is independent of the official Summit, in order to work with multiple stakeholders on a concept for a future sustainable food system. The underlying idea is to bring together a range of initiatives to share experience and engage in discussion. Which initiatives are already working well? What made it possible to initiate change? Where have local policy-makers successfully support-

ed these projects, and where are there barriers to overcome?

All viewpoints are included

Thus far, three dialogues have taken place with around 400 participants. They have included representatives of the agricultural production, processing and distribution sectors, the hotel and catering industry, environmental and climate organisations, and advocates of healthcare and social affairs such as co-determination. The invitation to dialogue offered participants the opportunity to present their initiatives and share their experience, but also to discuss contentious issues. The aim was to foster a dialogue with people who are actively involved in a range of food system sectors; after all, they know best where change needs to happen and what the most urgent issues are.

The contributions were as diverse as the food systems themselves. One topic of discussion, for example, was how successful concepts such as agroecology can be developed and utilised to support food system transformation. It became apparent, in this context, that more knowledge of alternative production and marketing methods, solidarity-based agriculture and agroforestry systems is needed in agricultural studies programmes at universities and in the chambers of agriculture.

Within the food systems themselves, regional marketing channels are gaining in importance. Consumers are becoming increasingly influential, thus enhancing transparency and inclusion, notably in food retail: the development of *WirMarkt*, a transparent and democratic food market in Hamburg, is one example. Nicolas Barthelmé from the “Du bist hier der Chef” (you’re the boss) consumer initiative showed how consumers can use their voice to influence price-setting and how a genuine dialogue can emerge between retailers and farmers, preventing the commercial sector from imposing dumping prices.

A stronger focus on marginalised groups

It is clear that in transforming our food systems, there needs to be a particular focus on marginalised groups: action is urgently needed here. Benjamin Luig from the European Migrant Workers Union emphasised that the rights of seasonal workers must be strengthened as a matter of urgency. At least one third of Germany’s agricultural employees are seasonal workers from countries such as Romania and Poland; they are still excluded from the social welfare system and their employment conditions are often precarious.

With its “Alle an einen Tisch” (Everyone at the table) project, Berlin’s Food Policy Council brought the key topics of inclusion and food poverty into the dialogue. For broad swathes of the population, good-quality, healthy food is out of reach. Among other things, low welfare benefits make it almost impossible to exercise the right to adequate healthy food. The coronavirus pandemic has cast this need into particularly sharp relief. And yet despite the great relevance and importance of this topic, it rarely features in the political debate. Topics such as these should have been included on the Summit agenda, along with the voices of those affected, in order to establish a basis for transforming food systems in a way which can achieve a genuine improvement for those

whose human Right to Food is currently being violated.

A plea for alternative decision-making processes

The challenges that we must address in this context were identified by the speakers in their introductory inputs. Professor Regina Birner from the University of Hohenheim pointed to problems in food system governance in Germany. The increasing concentration in the upstream and downstream sectors of agriculture, the influence of lobbyists in politics, the often poor communication with society at large and civil society’s occasional polarisation of the debate are factors currently obstructing the necessary change, she said. Often, this leads to tokenist policies that leave important topics such as food poverty out of the equation. As a co-author of the report “Promoting Sustainability in Food Consumption” by the Scientific Advisory Board on Agricultural Policy, Food and Consumer Health Protection (WBAE) of the Federal Ministry of Food and Agriculture (BMEL), she provided important impetus for further discussion and presented the argument for alternative decision-making processes in politics, such as consensus conferences or citizens’ panels, that genuinely represent the majority opinion within the country.

The importance of participation and collective action was underlined by Antônio Andrioli, Professor at the Federal University of Fronteira Sul (UFFS), in his report on the development of an agroecology movement in southern Brazil. Over the last ten years, a coalition of smallholders, farmers’ organisations and scientists has enabled the establishment of local food systems, which proved their worth during the pandemic. Despite the lack of school meals and the closure of markets, food distribution continued and a large number of families were supplied with healthy foods.

Given the absence of any financial support and the growing pressure from the Brazilian government, however, Andrioli is concerned about the future of the movement. Key programmes to support family farming have already been cancelled to make way for the expansion of soya cultivation and agro-industrial livestock farming. The Landless Workers’ Movement (MST) and women’s movements in particular face discrimination and are sidelined in project tendering processes and research. Andrioli reported numerous difficulties at the six UFFS campuses as well. Not only is the government cutting their funding; it is also

attempting to discredit critical scientists. Many academics are struggling to maintain their independence and to continue including agroecology in agricultural training programmes.

An important opportunity missed

The diversity of contributions to the alternative dialogue series showed how many stakeholders are already engaged in building a healthier and sustainable food system and improving conditions for communities, landscapes, soils, flora and fauna while also striving for social change. There is a great deal of knowledge available – and a great desire for dialogue, networking and shared learning. It would have been beneficial if these voices had been heard by the German Government, not least in relation to its participation in the UNFSS, and if there had been more balance in the allocation of roles in the national dialogues organised by the BMEL. Ahead of the Summit, all member states were supposed to hold national dialogues with food system stakeholders. The BMEL launched this dialogue process at a comparatively late stage, namely in June, by which time the German Government had already agreed its positions. It seems that previous criticism of the UNFSS processes and structures was not considered in the planning of the national dialogues. The dialogues themselves involved a limited number of participants and the process lacked transparency; it was not clear, for example, which criteria were used to select participants. It was also unclear which dialogue outcomes the Government intended to feed into the UNFSS, and how this would be done. And it was impossible to determine whether there was the option of participating in an observer role or if national dialogue participants’ boycott of the UNFSS would be made visible in the outcomes, in order to convey a realistic impression of the prevailing mood. Sadly, the German Government missed a significant opportunity here.

Lena Bassermann is a Global Food and Agricultural Policy Advisor with the INKOTA Network in Berlin, Germany.

Contact: bassermann@inkota.de

Mireille Remesch is a Global Agricultural Policy Advisor with Agro Coordination in Hamburg, Germany.

Contact: mireille.remesch@agrarkoordination.de

The future of Rösti and Fondue – Switzerland's contribution to the food systems dialogues

Preparing for the 2021 UN Food Systems Summit gave member states and civil society an opportunity to reflect on their food systems and to identify actions to render them more sustainable. This article provides insights on and perspectives of two food systems dialogues held in Switzerland and highlights results, challenges and a best practice for future food system dialogues to come.

By David Bexte, Raphael Dischl, Alwin Kopse and Ueli Mauderli



Apéro snack and dialogue landscape.

Photo: Yvonne Lötscher/ Wiki commons

In 2020, UN Secretary-General António Guterres alerted in his policy brief on the impact of COVID-19 on food and nutrition security that the number of people categorised as being in a food crisis could nearly double before the end of the year. It appears that most likely, Sustainable Development Goal (SDG) 2 – Zero Hunger – will be missed. These are signs of a system in deep crisis and in very urgent need of change. The question is not anymore if but how we have to strengthen our food systems. What are key actions and powerful ways to make food systems stronger and more equitable? This crucial question was put forward to individuals, groups, societies, nations and institutions in the framework of the food systems dialogues conducted in preparation for the UN Food Systems Summit. This article documents key insights of selected food systems dialogues in Switzerland. It focuses on experiences gathered from the National Food Systems Dialogue, curated by the Swiss Federal Office for Agriculture (FOAG) together with Helvetas, and an Independent Food Systems Dialogue curated by the Swiss Agency for Development and Cooperation (SDC). Both dialogues were conducted online between March and June 2021.

Why food systems in Switzerland need to be strengthened – and global food linkages matter

The discussions taking place during the food systems dialogues addressed key characteristics and challenges of Swiss food systems. According to official statistics, 85 per cent of the consumers either live in cities or in urban environments close to major cities. More than 90 per cent of all consumers source their food from supermarkets and discounters where local and regional food labels feature prominently. However, particularly in contrast to price levels in neighbouring countries, high food price levels fuel the phenomena of consumer tourism, especially in border regions.

Food waste is a problem. About one third of the food in Switzerland is either wasted or lost and represents the production potential of half of Switzerland's agricultural surface. Self-sufficiency in food production is 55 to 60 per cent, hence food imports make a significant contribution to national, regional and local food systems. Food trends such as the increased consumption of out-of-season products (sourced from southern Europe), tropical fruits and

lifestyle foods like quinoa, avocado and others, contribute to food imports. The Swiss average diet is composed of too much sugar, salt, meat and insufficient amounts of vegetable and fruits, and is considered unhealthy. One third of the population consume a special diet, and a significant share complement their diet with dietary supplements. There is a negative trend concerning key nutrition outcomes. In recent years, an increase in the incidence of overweight, obesity, diabetes and anaemia among adolescents and adults has been observed.

Setting the scene

The National Food Systems Dialogue was designed as a three-step process with national consultations for step 1 and step 3 and City Food Systems Dialogues (CFSDs) for step 2 (see Table on page 22). Three CFSDs were co-curated by Helvetas in three linguistic regions of Switzerland: Geneva & Lausanne (French), Bellinzona (Italian) and Zurich & Basel (German). Each of the five meetings lasted 3–4 hours. Overall, more than 300 people participated in them. Everyone could apply for step 1 (see also Box on page 23), although not every application was approved. Shortlisted participants were invited to step 2, while participants from step 1 and selected participants from step 2 were invited to step 3.

SDC's Independent Food Systems Dialogue was designed as a two-round process and had representation from across the globe. The dialogue was conducted in three languages. Round 1 focused on engaging participants topically and round 2 on defining pathways for action which will serve as a blueprint to be adapted by relevant stakeholders in the future, taking into consideration the particular local, regional and national context. In the six meetings, 290 participants discussed twelve vision statements along twelve topics (see Table on page 22). For instance, concerning access to land, participants were asked to respond to the following statement and suggest concrete

action: “Land and judicial reforms allow improved and equitable access to land and justice for all, explicitly also for women and youth, securing what farmers invested in the land and the sustainable and resilient development of decent livelihoods and economic independence.”

Both dialogues were framed by the five action tracks defined by the UNFSS (see Box). Furthermore, the National Dialogue took into consideration the four strategic pathways for food system transformation as proposed in Switzerland’s Strategy for Sustainable Development 2030 (SSD), which focus on improving nutrition, strengthening sustainable production and reducing both food loss and waste and greenhouse gas emissions.

Key insights from the National Food Systems Dialogue

Participants agreed on the need for an overall strategy and policy coherence on food systems which includes the agriculture, nutrition, environment and public health sectors. Furthermore, in order to foster exchange and collaboration, a regular dialogue with a systemic approach at national level including all stakeholders along the value chains and the whole society was demanded. Participants highlighted individual responsibility as a key element of food systems transformation. Individual responsibility refers to values, norms and action affecting nutrition outcomes as well as other outcomes. Individual responsibility should be based on an informed decision, and consumers should consider the consequences of their food-related actions for themselves, society and the environment. Information sharing, awareness raising and education are therefore key elements and should be promoted. However, participants agreed that these efforts need to be complemented with structural measures. Such measures mentioned included incentives, minimum/maximum requirements and bans. For instance, banning unsustainable items from supermarket shelves was suggested. Participants argued strongly for a need to change the paradigm by considering the value/ quality of food holistically. Increased transparency and the setting of the true cost of food were mentioned as possible means to achieve this.

Various issues were discussed controversially. For instance, there was some disagreement on the effectiveness of standards and labelling. On the one hand, comprehensive labelling was seen as a useful tool for consumers to make an informed decision. On the other hand, it was

National Food Systems Dialogues (NFSD) – Topics

| Step 1 and 3 | Step 2 |
|---|---|
| <ol style="list-style-type: none"> 1. Sustainable food environment 2. Sustainable food demand and sustainable diets 3. Sustainable production 4. Climate change mitigation 5. Adaptation to environmental changes, resilience and food security 6. Food wastage – avoidable waste and losses 7. Socio-economic dimensions of the agri-food sector 8. Entrepreneurship, innovation, science and technology | <p>Geneva & Lausanne</p> <ol style="list-style-type: none"> 1. Sustainable Collective Gastronomy 2. Consumer sensitisation 3. Food systems policies <p>Bellinzona</p> <ol style="list-style-type: none"> 1. Food loss and waste 2. Sustainable production 3. Sustainable demand and diets 4. Entrepreneurship, innovation, science and technology <p>Zurich & Basel</p> <ol style="list-style-type: none"> 1. Networking and interconnectedness in the food system 2. Reduction of food waste and loss 3. Public procurement 4. Collective Catering (<i>Gemeinschaftsgastronomie</i>) |
| <h3>Independent Food Systems Dialogue (IFSD) – Topics</h3> | |
| <ol style="list-style-type: none"> 1. Fair prices • 2. Strong social networks • 3. Sustainable production • 4. Conducive policies • 5. Nutrition awareness • 6. Healthy school meals • 7. Access to land • 8. Fair trade policies • 9. Reliable data & certification • 10. Conducive research partnerships • 11. Agroecological farming • 12. Intact natural resources | |

argued that consumers were overwhelmed by assessing compliance with labels and standards. Furthermore, there was divergence on the question of what elements and/ or activities of the value chains have the bigger leverage effect in making our food systems more sustainable. Whereas some participants found that reducing the gap between consumers and farmers was most crucial, others stated that the “large” market was still the driving force in our food systems and could in turn be less influenced by consumers.

Zooming in on cities

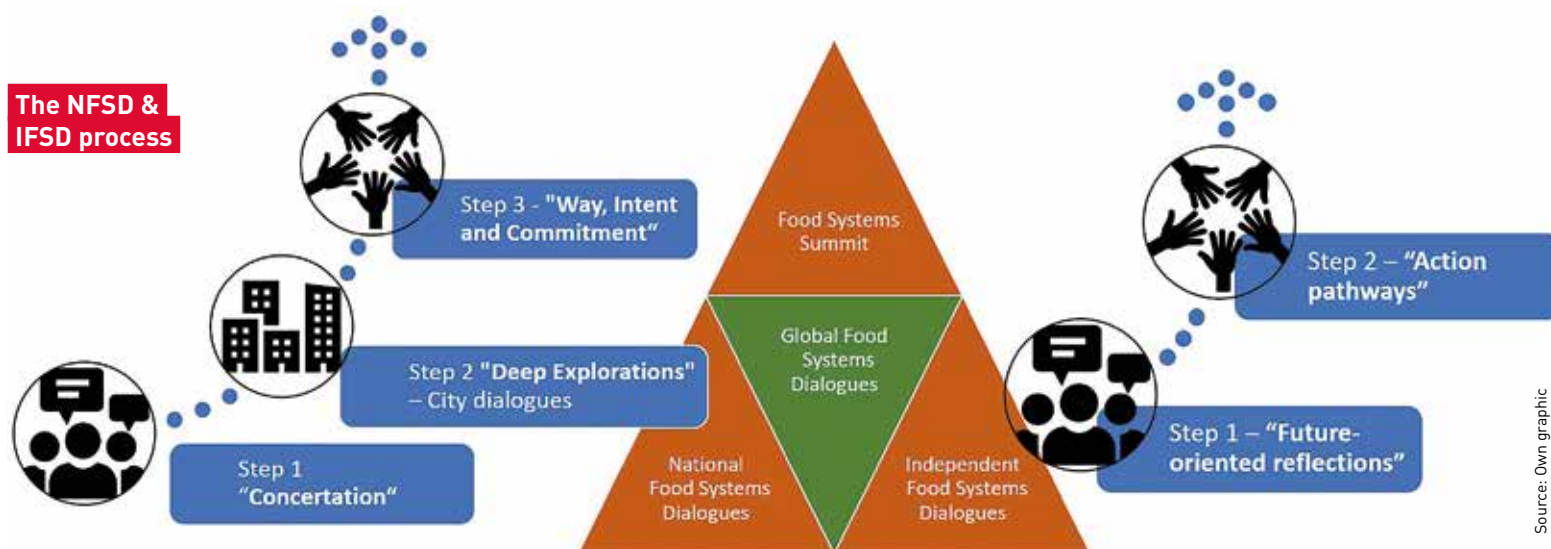
Cities are important hubs of innovation and play a crucial role in strengthening food systems. City governments are well positioned to hold close relationships to partners, to guide and facilitate their collaboration and to implement context-specific solutions. It was claimed that cities should enhance their support to food systems innovations at various levels. Firstly, cities can lower entry barriers for initiatives and start-ups, for example by provision of unbureaucratic funding mechanisms (e.g. competitive grants), infrastructure (buildings, land) or by facilitating legal processes. Secondly, cities are important market players: each year, they purchase food through public procurement processes, food that is consumed in schools, hospitals and canteens. By orienting the procurement standards coherently along sustainability criteria, cities have a big leverage both in the market (demand), vis-à-vis professionals (cooks, caterers) and consumers. It was claimed in particular that price should be given less weight in submissions compared to sustainability criteria.

Thirdly, cities should foster an interdisciplinary approach to food systems between the traditional “thematic silos” of environment, health, education etc. Comprehensive strategies such as Zurich’s Strategy on Sustainable Nutrition form a useful base for such efforts. Further, cities play a vital role in building a high level of interconnectedness between stakeholders, creating spaces of exchange and making the topic visible for broad sensitisation. Fourthly, building functioning city region food systems is of vital interest to cities and local stakeholders. Therein, regionalisation is considered a means towards resilience and sustainability. Approaches include direct market linkages between (peri-)urban farmers and consumers, short value chains and local manufacturing, and enhanced emotional relationship of consumers to the origins of local food. Finally, systematic communication on the topic of sustainable food is found to be essential to induce change. Public institutions, businesses, research partners and civil society organisations all need to play their part in sensitising people towards core topics such as food waste reduction, healthy meal preparation and reducing the ecological footprint.

Key insights from the Independent Food Systems Dialogue

In summary, participants identified three core needs. Firstly, the establishment of strong inclusive, facilitated dialogue platforms (digital and in-person) by the international community to close knowledge gaps, to co-produce knowledge especially related to agroecology & nature-positive production and to appropriately operationalise agricultural data for planners,

The NFSD & IFSD process



Source: Own graphic

producers and consumers. Secondly, the need to raise consumer awareness on food and to strengthen positive practices e.g. through behaviour change and awareness raising campaigns in the public, in schools and for women's and youth groups, but also through packaging and labelling standards. This will contribute to the strengthening of short value chains and thereby reduce market gaps between producers and consumers. Thirdly, the need to develop enabling policies and to foster conducive environments to deliver progress on all 17 Sustainable Development Goals (SDGs), i.e. to regulate fair, secure, safe access to data, to incentivise lower emissions and agro-ecologic production and related investments and the inclusion and formalisation of smaller producers.

Challenges and best practices

Experience gained in the dialogues has shown that in order to achieve tangible and feasible results in food systems dialogues, it is helpful to refer to a local/ regional context. During the CFSDs, the concerned city administrations collaborated closely with Helvetas in organising the events. Therefore, cities had strong ownership throughout the dialogues, and discussion topics could build on context-specific initiatives and real-case situations. This helped in elaborating realistic solutions which are anchored in existing and active networks. However, the virtual nature of the dialogues was a major challenge. Because of that, the dialogues developed less momentum compared to a face-to-face event, though. On the other hand, the independent dialogue with a large international participation benefited from the virtual venue and was feasible thanks to its cost effectiveness.

Mobilising larger systems actors such as big food retailers, industries or traders proved

difficult for the city and national dialogues. While large retailers are important actors and beneficiaries of cities food systems, their presence and interest in the dialogues were below expectations. Multi-stakeholder food system platforms with cities in a convenor role are seen as an important step forward to accelerate the transformation of Swiss food systems.

What's next?

The reports of Switzerland's national and independent dialogues are accessible on the virtual platforms operated by the UNFSS Secretariat. The UN will provide a synthesis report of all dialogues held worldwide to the UNFSS in September which aims at advancing the global discussion and actions on food systems transformation. Furthermore, the dialogues will help countries to define pathways for their respective food system transformation. The outcomes of the Swiss dialogues inform the Swiss delegation to the UNFSS. Additionally, dialogue outcomes will be instrumental in working along the four strategic pathways defined by the Strategy for Sustainable Develop-

ment (SSD) on food system transformation in Switzerland.

The UNFSS dialogues in Switzerland created more appetite for dialogues on deepening food systems discussions and actions by a broader spectrum of actors and organisations. Also, the Swiss government identified the need to embed dialogues in its SSD 2030 Action Plan. In other words, institutionalised and more regular dialogues, conducted at different levels of the society, will accelerate food systems transformation and related policy formulation.

David Bexte and **Raphael Dischl** are Advisors at HELVETAS Swiss Intercooperation at Zurich, Switzerland.

Alwin Kopse is Head International Affairs and Food Security at Swiss Federal Office for Agriculture in Bern.

Ueli Mauderli is deputy head of the Bolivia programme of the Swiss Agency for Development and Cooperation (SDC). Until June 2021 he was Focal Point for SDC's Agriculture and Food Security Network.

Contact: David.Bexte@helvetas.org

Food Systems Summit Dialogues

To prepare the United Nations Food Systems Summit, the UN recommended to all its members and interested stakeholders to conduct Food Systems Summit Dialogues. The Dialogues are organised along five action tracks:

- 1) Ensure access to safe and nutritious food for all; 2) Shift to sustainable consumption patterns; 3) Boost nature-positive production; 4) Advance equitable livelihoods; 5) Build resilience to vulnerabilities, shocks and stress.

The UN methodology foresees multi-step multi-stakeholder dialogues with representation from all food system stakeholder groups. Stakeholders were encouraged to organise independent, national or global dialogues. In the case of the Swiss NFSD, the multi-stakeholder Steering Committee recommended important representatives from the public and private sectors and civil society. However, the Federal Office for Agriculture also considered spontaneous requests from private individuals as long as these fulfilled the criteria for a balanced representation of interests.

Putting food systems analysis into practice – the example of Ethiopia's Wag Himra Zone

The concept of food systems is well established. However, more insights are needed on how the concept can be efficiently and effectively applied by development practitioners. The sustainable food systems approach developed by the European Centre for Development Policy Management (ECDPM), applied to the Wag Himra Zone in northern Ethiopia, shall provide a reference example of how to systemically design and implement development pathways to achieve food security, food safety and nutrition outcomes for the population.

By Patrik Aus der Au, Gebrat Kidie and David Bexte

Ensuring access to healthy diets throughout the year remains a challenge in large parts of Ethiopia. This also holds true for the Wag Himra Zone (WHZ) in Amhara Region in northern Ethiopia. Arid conditions have always prevailed there, with only 17 per cent of the land suitable for production. As a result of these and other factors, food insecurity is a developmental challenge for local populations and governments.

Helvetas Swiss Intercooperation has been implementing food and nutrition security projects in Ethiopia since the early 2000s. In the beginning of 2021, it started the second phase of its Climate Adaptation and Rural Development (CARD) project in WHZ. Here, the sustainable food systems approach developed by the European Centre for Development Policy Management (ECDPM) is employed in order to better understand challenges and opportunities of the local food system and to strengthen the systemic approach in CARD II.

The aim is to test the relevance and usefulness of applying ECDPM's sustainable food systems approach at zonal level. Based on the findings, it is planned to develop guidelines for food-system-sensitive project and intervention planning in zonal resilience programmes. At the time of writing, final results are not yet available. However, first insights are provided.

ECDPM's food systems approach includes four components – a food system analysis, a sustainability analysis, a political economy analysis and the development of transformation pathways (see figure). Our analysis will highlight key aspects of these components, focusing particularly on the food system component. Here, different elements are highlighted, including the identification of food system boundaries and assessing key dynamics of activities, drivers, outcomes, events and trends. The boundary of the food system in question is the zonal boundary.

Food system insights of Wag Himra Zone

Administratively, WHZ is divided into seven rural districts (woredas) and one town administration. The landscape is characterised by lowlands at around 1,000 metres and highlands with mountains around 4,000 metres tall. A vast, very rugged terrain of hills and gorges together with escarpments dominates the area. It is largely deforested, and bush scrubs, acacia trees and gum trees can be found. In the north, the Tekeze River is an important water system. The population density is low, and settlements are sparse.

Over 90 per cent of households throughout the WHZ live on smallholder farming with landholdings of less than one hectare. Most of the agricultural activities are rainfed and depend on the kreamt rainy season (June to August), with the main harvest occurring from the end of September to November. Farmer households



Wag Himra is characterised by rugged terrain of hills and gorges.

Photo: Helvetas

produce mainly cereals (sorghum, teff, barley, and wheat), pulses and vegetables. Significant cash crops include perennial crops, such as gesho or shiny leaf buckthorn (*Rhamnus prinoides*), or fruits, and in some parts also organic sesame for export. Livestock, like cattle (24 % of all livestock), equines (6 %), shoats (50 %) and chicken (20 %), but also bees, are kept for the consumption of their products, ploughing, sale (for cash income), and as savings mechanism to cope with economic shocks and stress.

The transport of the agricultural products and livestock to local markets is usually carried out by the producers themselves or by small local traders, on foot and with donkeys. A significant food processing industry does not exist in the zone. Marketing is usually done by men (except for chickens and eggs), giving them control over income and household decisions. Even when households are organised into co-operatives that operate like traders, women often find little entry into decision-making bodies. In addition to already participating in large parts of the agricultural work, women are burdened with being in charge of childcare, collecting water and firewood, cooking and other in-house activities.

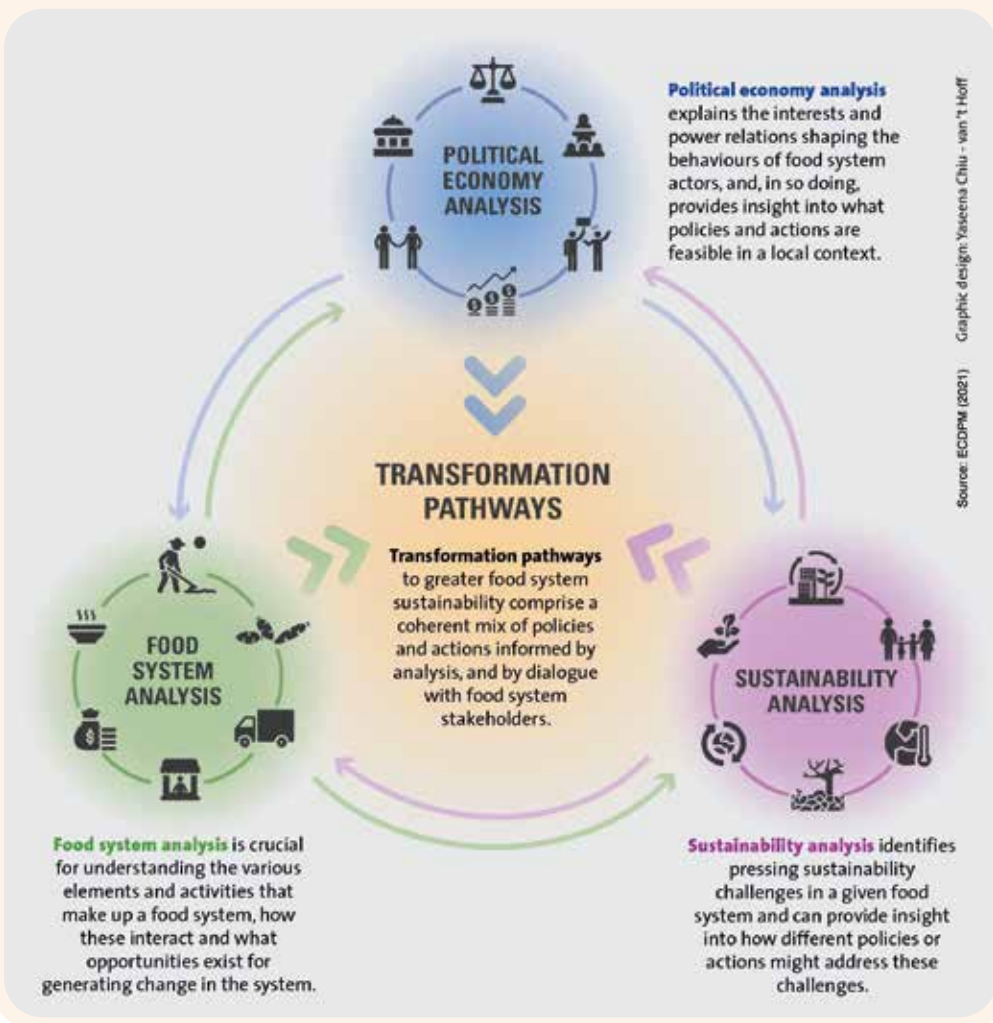
Youth around the Tekeze Hydrodam reservoir started to engage in fishing in 2011, when the dam was constructed. Only seven per cent of the catch is consumed within the WHZ, with the remainder sold to urban centres outside the zone. Although fish is an excellent source of protein, less than a third of non-fishing households around the reservoir consume it. The reasons for this are negative perceptions of fish and the lack of a tradition to eat it.

Food system outcomes and drivers

The food system analysis revealed that households cover between 30 and 60 per cent of their food consumption through their own production and rely on buying additional staple foods. Poorer households do so early as April. This requires selling assets, such as livestock. Especially between June and September, people suffer food-deficient months. Overall, half of the households in WHZ are assumed to be food-insufficient. In this regard, female-headed households appear to be the most vulnerable group. COVID-19 restrictions have further limited some additional income sources, such as labour migration. Support through the government's Productive Safety Net Programme (PSNP) and emergency programmes is essential for up to 50 per cent of all households in WHZ.

THE ECDPM SUSTAINABLE FOOD SYSTEMS APPROACH

Food systems cover all stakeholders, institutions and activities that play a role in production, processing, distribution, preparation and consumption of food items. All those activities contribute to positive and negative nutrition outcomes (e.g. malnutrition), trade-offs (e.g. degradation), as well as economic outcomes (e.g. income, employment). Various conditions (climate, power dynamics, mindsets) and human interventions (e.g. deforestation, innovation and migration) influence food systems and their outcomes.



Overgrazing and excessive firewood collection are major factors for deforestation. Because of vegetation being thus decimated, critical ecosystem services such as the maintenance of soil health, fixing nutrients, providing protection and preventing soil degradation are lost. Combined with consequences of climate change, like low and erratic rainfall patterns, the food system's capacity of providing decent livelihoods is critically restrained. WHZ is already considered the most drought-prone area in Amhara Region.

Innovations such as early maturing pearl millet varieties and home orchard development (already part of CARD I) are being introduced mainly through externally funded projects and in collaboration with Ethiopia's Sekota Dryland Agricultural Research Centre. However, the widespread adoption of such innovations within the zone often turns out to be ham-

pered. The reasons for this will be explored in the in-depth analysis.

The recent influx of larger groups of internally displaced persons and returnees from various conflict-prone regions of the country is exacerbating pressure on food supplies and land availability, creating the risk of distributional conflicts.

Sketching sustainability issues and the political economy

The ecosystem's reduced carrying capacity under current management systems challenges the economic viability of farming communities and the food system's longevity. The way agriculture is still primarily practised in WHZ does not ensure sustainable management of natural resources and does not provide the op-



Ring-basin infiltration pit with plantation of drought-tolerant and high-value crops (gesho).

Photo: Helvetas

portunity to build savings to absorb frequent livelihood shocks. Market failures such as information asymmetries and impeded market access further inhibit the economic sustainability of the food system and disadvantage producers in particular.

Strengthening the local food and nutrition security enjoys a remarkably good status in the governmental political development agenda. Policy components such as de-stocking of livestock, zero or controlled grazing and strengthening agricultural cooperatives and community watershed institutions are among those widely supported. However, practical implementation still lags behind the theoretical claims in terms of effectiveness.

Local governments at the regional and local levels carry the political and economic agenda down to the lowest administrative level (kebeles) through an elaborate extension service system via development agents. Through joint efforts, community institutions such as kebele development committees or watershed committees were strengthened for the people's political empowerment. However, women don't enjoy significant participation and influence on actions and decisions.

Potential transformation pathways

As shown above, major food system-related challenges are access to water, weak value

chains and limited consumer nutrition awareness. Access to water can be increased through introduction of new technologies and landscape management. For instance, ring-basin infiltration pits (already promoted in CARD I; see Photo) and area closure allow the vegetation to recover, enhance water infiltration, reduce erosion and improve soil fertility. This lowers dependency on scarce water resources, the costs of water extraction as well as associated risks. Depending on the method, infrastructure construction and maintenance can provide employment opportunities for youth. This development can be catalysed by interventions such as transferring knowledge and technology through the government's extension system. Furthermore, by strengthening the governance capacity of community-based organisations, they are able to develop strong bylaws. This will ensure an effective management and control of implemented measures such as area closures.

Another pathway focuses on transforming existing and facilitating new value chains that generate positive livelihood outcomes. There are ongoing efforts in agricultural production to introduce climate-smart practices including early maturing, drought-tolerant and market-oriented crops like pearl millet, mung bean and lentils. In addition, multipurpose crops like pigeon pea serve as livestock forage and food, and contribute to soil conservation (part of CARD II). Honey value chains also have potential for improvement.

Strengthening multi-purpose cooperatives is an entry point to accelerate dissemination of the above-mentioned improved crops and improve access to markets and input supplies. Furthermore, the reinforcement of local credit and savings mechanisms ensures access to finance for smallholders for investing into these value chains and to adapt agricultural production systems.

Also, increasing consumer awareness of the nutritional value of, for example, fish and vegetables through cooperative-led information campaigns can contribute to further systemic transformation. Therefore, trainings on business skills, nutrition and communication for cooperatives through the government extension system should be considered. In addition, public schemes such as the PSNP provide an entry point to distribute nutrition-sensitive messages and to enhance the knowledge of consumers.

Next steps

In the coming months, the detailed food system analysis will be further deepened, and simplified guidelines for its replication will be developed. Although Helvetas' interventions aim for change at the system level to improve livelihoods and food security, they lack a common food systems perspective. The ECDPM approach creates a process framework for project staff, local researchers and local government partners to better identify interlinkages between parts of the food system and recognise interventions in their systemic embeddedness. The in-depth testing of the approach will also show how the approach can identify root causes of food system challenges and mobilise system actors to plan strategic interventions at scale. Strengthening approaches, tools and guidelines for effective and efficient application of the food systems approach can only be achieved jointly. Therefore, Helvetas looks forward to discussing the concrete results expected in 2022 with interested parties.

Patrik Aus der Au is Junior Professional at Helvetas Swiss Intercooperation (HSI) in Ethiopia.

Gebret Kidie is Project Manager of CARD at HSI in Ethiopia.

David Bexte is Advisor at HSI in Switzerland.
Contact: david.bexte@helvetas.org

Further reading: www.rural21.com

Nutrition-sensitive agriculture and improved nutrition in mountain areas: Rural service providers as catalysts

Over half of the population living in rural mountain areas in developing countries suffer from food insecurity and unbalanced diets. Working with well-embedded rural service providers has proven to be a promising strategy to alleviate this situation, as the “Nutrition in Mountain Agro-ecosystems Project” reveals.

By Ghezal Sabir, Thomas Bernet, Alejandro Espinoza and Barbara Zilly

A recent report by the Food and Agriculture Organization of the United Nations (FAO) on vulnerability to food insecurity in mountain areas shows that the number of mountain people vulnerable to food insecurity in developing countries increased from 243 to almost 350 million between 2000 and 2017. Nutrition insecurity in mountain regions mainly results from difficult climatic and topographic conditions which coincide with lower productivity levels, seasonal production and market access challenges to purchase complementary food. Overall, traditional mountain diets tend to depend heavily on starchy food, with low levels of proteins, essential vitamins and other micronutrients, especially iron. Moreover, the purchase of additional nutritious food is hampered by the general low purchasing power of rural communities and limited awareness of what constitutes a balanced diet and its impact on health.

With financial support from the Swiss Agency for Development and Cooperation (SDC) as part of its Global Programme Food Security, the ‘Nutrition in Mountain Agro-ecosystems (NMA)’ project was implemented in two phases in five mountain ranges by IFOAM – Organics International, Helvetas, the Research Institute for Organic Agriculture (FiBL), and Wageningen University, Netherlands, in close collaboration with a partner organisation in each target country. The project’s approach was to involve a significant number of rural service providers (RSPs) who would be trained in nutrition-sensitive agriculture (NSA) approaches (see Box on page 28) and go on to successfully implement NSA related projects in their contexts. These projects would then directly lead to an improved nutrition status and trigger key learnings that would inform future projects.

Fostering capacity development at all levels

The NMA project started in 2015, focusing initially on five countries in three continents: Ethiopia, Kyrgyzstan, Nepal, Pakistan and

Geographical scope of NMA interventions and key data



* Countries only involved since project phase 2

| Country | No of RSPs involved | No of MIs implemented | No of beneficiaries | No of SUNSAIs implemented | No of beneficiaries: farmers | No of beneficiaries: consumers |
|--------------|---------------------|-----------------------|---------------------|---------------------------|------------------------------|--------------------------------|
| Ethiopia | 100 | 81 | 4,050 | 7 | 4,447 | 29,741 |
| Ecuador* | 60 | 51 | 2,550 | 2 | 135 | 240 |
| Peru | 100 | 88 | 4,400 | 6 | 3,014 | 38,186 |
| Nepal | 81 | 73 | 3,650 | 10 | 5,625 | 29,734 |
| India* | 104 | 50 | 2,500 | 2 | 1,241 | 2,136 |
| Pakistan | 183 | 50 | 2,500 | 6 | 4,287 | 52,591 |
| Kyrgyzstan | 100 | 100 | 5,000 | 2 | 754 | 14,013 |
| Tajikistan* | 50 | 25 | 625 | 0 | 0 | 0 |
| Total | 778 | 518 | 25,275 | 35 | 19,503 | 166,641 |

Peru. In each country, selected rural service providers participated in a capacity development programme receiving in-person and virtual trainings to gain further insight on NSA. Criteria for selection were, amongst others, a leadership function in a rural community (be it in governmental, private or civil society sector) and the capacity to develop concrete NSA interventions. The capacity development programme was used to fine-tune and monitor the NSA projects of each rural service provider, known as micro interventions (MIs), focusing either on production, processing, marketing, awareness raising or a combination of them. The capacity development programme in each country created the required context for the involved rural service providers to meet and

interact, thus allowing to learn from each other by jointly reflecting on their experiences.

During the first project phase (2015–2018), a web portal called Mountain Agro-ecosystem Action Network (MAAN) was also established (see <https://maan.ifoam.bio/>). The platform’s aim was to foster the sharing of relevant information about NSA and project-related initiatives and experiences within and across countries. While the global site was maintained by the three project consortium partners, the country pages were managed by the country coordinating entities, who also supervised the implementation of the MIs. Beyond this web platform, the project approach and tangible NSA experiences were actively shared at nu-

merous national and international events in the scope of the project's advocacy work.

Upscaling the most promising interventions

Following a peer review evaluation of the project's first phase, which revealed a positive impact on the nutrition status of beneficiaries in the five initial target countries, a second phase started in 2018, aiming to up- and out-scale the most promising NSA interventions. The project's geographical scope expanded to include three more countries: Ecuador, India, and Tajikistan. Essentially, the project now supported 'SUNSAIs', a term which was created as an abbreviation for 'Scaled-up Nutrition-Sensitive Agriculture Initiatives'.

In contrast to MIs, which were implemented by individuals and had a time span of one year, reaching on average ten households, SUNSAIs were implemented by institutions (NGOs, universities, private companies and governments) and had a wider outreach. Each SUNSAI targeted between 500 and 1,000 producers and 5,000 to 10,000 consumers over a period of around two years. Overall, 35 SUNSAI projects were implemented in the framework of NMA, involving a minimum 50 per cent share of co-financing by implementers.

Thanks to new implementing partners in the second phase, the capacity development programme expanded to involve in total 778 rural service providers across the eight countries over the course of the NMA project. MIs continued to operate in most countries with funds from sources external to NMA, reaching a total number of 518 MIs for both project phases. The number of projects varied per country (see Map on page 27).

SUNSAIs – integrating both production and consumption related aspects

The experience with MIs during the project's first phase showed how important it is to combine both production and consumption related aspects to stimulate nutrition-related changes effectively and sustainably. In practice, this meant that awareness creation activities had to be interlinked with interventions focusing on innovative ways of food production and processing. While certain SUNSAIs promoted the introduction and processing of crops with particular health properties (e.g. quinoa, millet, moringa, apricots) or the establishment of animal husbandry to increase protein consump-

Nutrition-sensitive agriculture (NSA) relates to a system-based approach that targets agricultural production systems as a means to improve the nutritional status of households and individuals. It centres on the introduction and promotion of a more balanced diet involving nutritionally rich food production, complemented

with income enhancing strategies and nutrition related education (i.e. 'food literacy') that positively impact production and consumption patterns in a local context. All in all, NSA interventions pursue sustainable solutions to promote and ensure nutrition security in vulnerable rural agriculture-based areas.

tion and income generation (e.g. egg production, goat raising), other SUNSAIs aimed at diversifying (organic) vegetable production. In all projects, food literacy activities were an integral part. In some SUNSAIs, by developing educational radio programmes (Nepal) and theatre plays (Ecuador), awareness creation has been the main focus of interventions.

In many SUNSAIs, local authorities were involved in the implementing consortium, or acted as a partner organisation, capitalising on existing support structures to propel further action for improved nutrition outcomes. Also, after having received specific trainings on advocacy as part of the project's capacity development programme, many rural service providers successfully engaged in government funded rural development projects involving NSA. Thereby, the project's advocacy work at the national level played an important role in committing national and local governments to NSA, by financing their own additional MIs. Overall, 518 additional MIs have been implemented without any financial support from NMA.

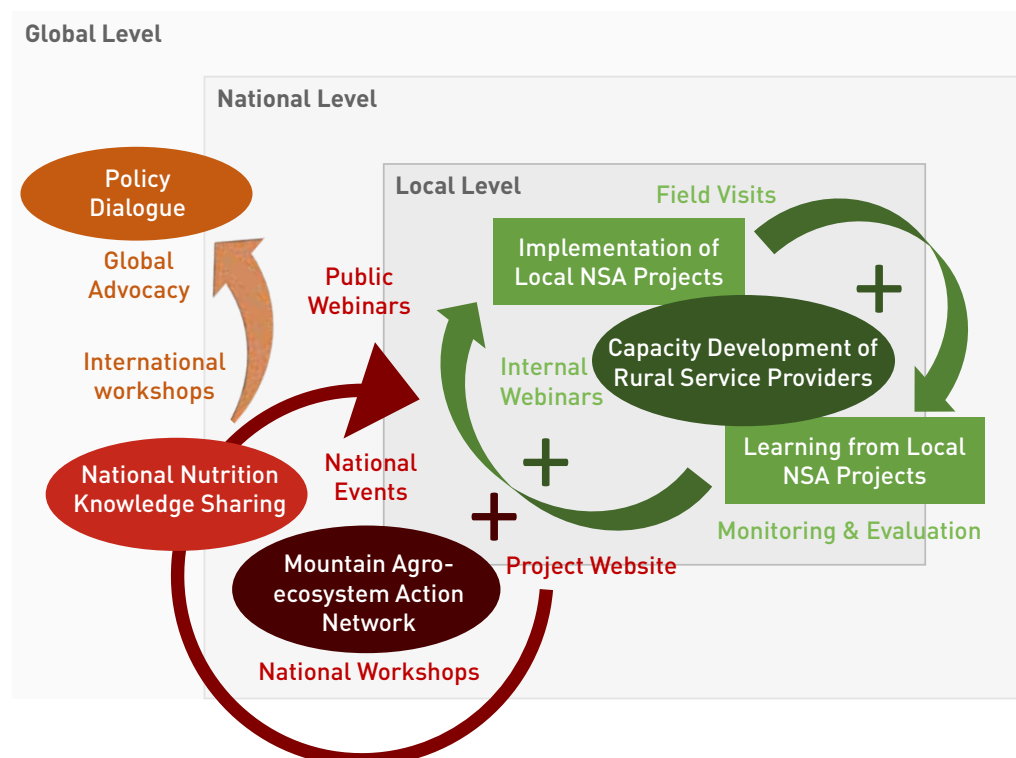
Conclusions and lessons learnt

NSA is a promising concept to transform food systems and stimulate change for improved nutrition.

Especially in areas with limited market access, intervention approaches that combine agricultural innovations with nutrition-related consumer awareness are critical. Thereby, an enhanced understanding of the importance of dietary diversity for improved nutrition and health must drive sound NSA interventions, given the fact that eating habits, sometimes defined by misconceptions of what is healthy, are difficult to change. Trustworthy information about healthy foods must be coupled with tasty eating options for improved food intake, while innovations concerning agricultural production and food processing must be economically and socially feasible (i.e. must not require high investment costs and risks).

Overall, a precondition for successful NSA interventions is a sound understanding of the cultural values and perceptions that influence

Approach of NMA to build capacities at a local level among rural service providers and scale them up to the national and global level



nutrition-related decision making at household level. Altogether, 'gender comprehension' is crucial to understand how food choices and cooking decisions are influenced by men, women and children – according to their varying roles and decision-making power within the household, i.e. who decides what is produced (for sale or for own-consumption) and cooked for whom and why.

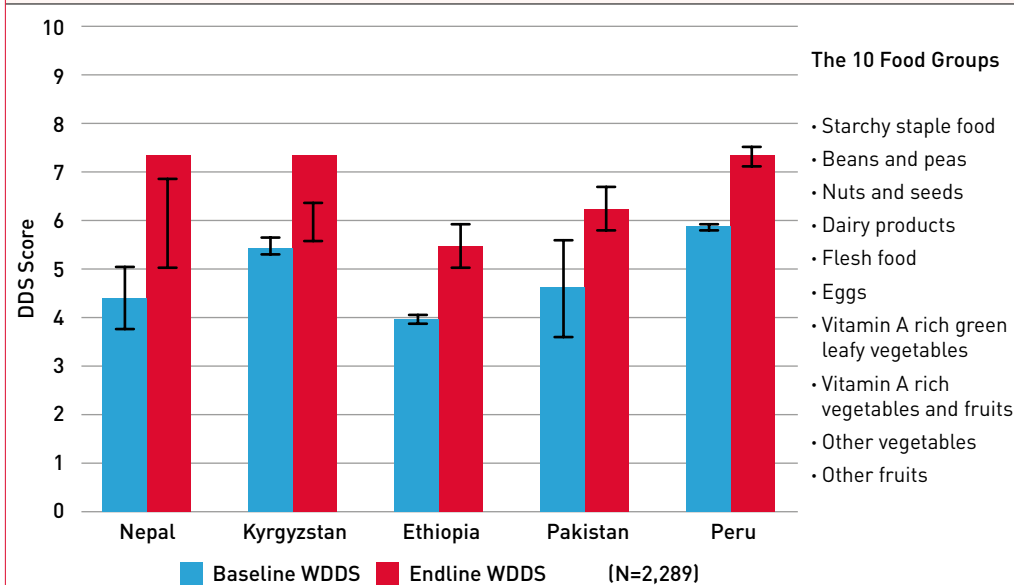
Empowerment of rural service providers is critical to catalyse improved nutrition changes. As successful nutrition-related changes imply combined interventions on the consumption and production side, NSA interventions rely on a team of practitioners that together cover both aspects. Thereby, thematic knowledge and skills relating to agricultural production, food conservation and recipe development are just as critical as a sound trustworthy relationship with the beneficiaries. In this regard, rural service providers have shown to be critical change agents in NSA approaches. Their degree of immersion in local communities together with their capacity to interact and learn from peers and beneficiaries are fundamental as important success factors.

Relevance of concrete support and policy to foster NSA capacities in local contexts and advocate for NSA approaches at national and international levels.

Overall, the importance of rural service providers and their capacities to successfully engage in NSA approaches as 'change agents' calls for explicit efforts to create networking and capacity building opportunities for RSPs, i.e. to connect with each other and learn from each other, thus fostering important human and social capital development to drive nutrition-relevant innovations in rural contexts. Especially, it is critical to link agronomic and health-related capacities, given the fact that 'agriculture' and 'health/ nutrition' are two intervention areas that are not commonly integrated: in education, support functions, administrative structures and development objectives. In most countries, a ministry of agriculture is in place that mainly focuses its support on enhancing yields of most important staple food crops, while a ministry of health contributes to an improved nutrition by providing supplements to the most vulnerable population groups (i.e. children, women, elderly). Yet, to successfully endorse successful NSA interventions, government policy must help create structures and interactions that bring these two disciplines and their practitioners together. This is especially true for the local level to drive tangible impact. At the national and international level, it will be key that NSA practitioners from both

Assessment of nutritional changes with women's Dietary Diversity Scores (DDS-W)

As part of the evaluation of the first project phase, using FAO's Dietary Diversity Scores (DDS-W) methodology, MIs were evaluated concerning their effectiveness of having triggered nutritional change. With a survey revealing dietary diversity from at least 400 women of reproductive age (15 to 49 years) per country, the number of food groups consumed in the last 24 hours was assessed prior to and after the implementation of MIs. The difference between the baseline and endline data showed that MIs clearly helped to increase the number of food groups consumed.



Although the number of women in individual MIs (12–15) was too small to derive statistically sound conclusions at the level of each MI, findings still showed an important average increase of around 1.5 food groups in those country contexts where dietary diversity was lowest, i.e. Ethiopia and Nepal. This is meaningful as women who consume at least 5 of 10 food groups have a greater likelihood of meeting their micronutrient needs than women who do not.

agriculture and health advocate together with experts for comprehensive NSA approaches – relying on well-documented best practice examples showcasing the approach in practice.

Capitalising on social media and digital tools to promote NSA and drive change.

One of the main lessons learnt from the NMA project is the importance of social media as an effective tool for networking and learning. With the launch of the project, the MAAN platform was created as a web portal for rural service providers to connect with one another and share relevant information. Although this platform was regularly used and served its purpose, in all countries, rural service providers and country coordinators started to use additional communication channels, i.e. Facebook, Instagram, WhatsApp, Viber, Twitter.

Indeed, these social media tools are expanding very fast together with the increased use of smartphones also in rural areas. Their attractive features to easily share information – and options to 'like' and repost them – make these tools highly relevant for both networking and awareness creation purposes. Being well-known and, especially, their strength for shar-

ing visual information, i.e. pictures and videos, are big advantages. Thus, any future efforts to promote NSA approaches should involve a sound strategy to optimise communication and development results through the effective use of social media. Thereby, influencer-marketing strategies will provide interesting entry points for reflection and action.

Ghezal Sabir composed this article as a consultant at the Research Institute for Organic Agriculture – FiBL. **Thomas Bernet** is the focal person for the NMA project at FiBL, based in Switzerland. On the side of IFOAM – Organics International, **Alejandro Espinoza** coordinates NMA project activities, and **Barbara Zilly** acts as the NMA project manager. Contact: b.zilly@iffoam.bio

The authors would like to thank all the country partners and the involved rural service providers for their commitment to the project's NSA approach and their efforts in enhancing the nutrition and wellbeing of people in rural mountain communities in a respectful and sensitive manner. Then, we extend our thanks to Niamh Holland for having supported the writing of this article.



Using and maintaining biodiversity is one of the 13 generic agroecological principles set out by the 2019 HLPE report.

Photo: Georgina Smith/ CIAT

Wind of change – the growing momentum for agroecological transitions

Food-related debates are being held more and more from a moral angle – food is a highly political issue. Answers to the question how we can achieve food and nutrition security while protecting our natural resources, safeguarding biodiversity and tackling the climate crisis are accordingly controversial. Our author looks at the different approaches and shows why and how agroecological principles can result in productive, environmentally sustainable and socially equitable food systems that reconcile addressing global challenges with meeting local needs.

By Fergus Sinclair

It is evident that the global food system is broken. There are four main dimensions to this. Firstly, it does not feed the human population equitably. More than eight hundred million people are going hungry, and numbers are rising, while at the same time, there is an obesity epidemic. Both these phenomena are unequally distributed around the world and aggravated by the COVID-19 pandemic. Secondly, agriculture massively contributes to the climate crisis, being responsible for around a third of greenhouse gas emissions, while simultaneously having to adapt to increasingly frequent and severe droughts, floods and other climate change effects. Thirdly, current agricultural methods harm the very land and water resources upon which they are based, with an estimated quarter of agricultural land degraded, water tables dropping and water courses in many areas polluted. Last but not least, business as usual agriculture contributes to catastrophic biodiversity loss that threatens not only agricultural production itself, through loss

of pollinators, but the survival of many species as well. This applies not only to agricultural land – pollution from agriculture also reduces biodiversity in protected areas.

The drivers of unsustainable food systems

A key problem is that the drivers of non-sustainability are the very same things which have massively increased agricultural productivity over the last few decades, reducing the prevalence of undernourishment globally until around 2014, when the trend reversed. These include the use of industrially produced agrochemicals and irrigation to provide nutrients, water as well as pest and disease control for intensively managed crop monocultures, coupled with intensive livestock production, that are often dislocated from one another, reducing opportunities for recycling. The key metric has been yield, while problems of hun-

ger, pollution and climate change have been treated as externalities. Forcing agricultural systems in this way, rewarding production and not adequately costing externalities, has made agriculture more uniform by masking ecological, economic and social variation, generating increasing reliance on a centralised and narrow genetic base and unhealthy soil that require industrial inputs to be productive. More holistic metrics of agricultural and food system performance, coupled with policies to correct market failures that favour quick gains over sustainable investments, could be expected to drive agriculture in a different direction towards greater sustainability.

Challenging the status quo – an ambitious task

Given the urgency of the interrelated climate, hunger, biodiversity and natural resource degradation crises, it is clear that incremental im-

improvements in the efficiency of ‘business as usual’ agriculture will not be sufficient to address them. A transformation of food systems, involving changing patterns of food consumption as well as methods of production, storage, processing, transport and retail, is required. This is not an easy task, because it involves challenging the status quo, including the vested interests of those who profit from the way in which things are done at present. Many private sector actors are increasingly interested in addressing sustainability and equitability concerns as these begin to threaten prevailing business models. This happens not least when consumers demand food that is produced in an environmentally sustainable and socially equitable manner, but there is a long way to go.

A key problem is that more sustainable production methods require a completely different way of doing things, biodiverse landscapes and fields which have more natural barriers to pest and disease spread than simplified monocultures, which incorporate biological nitrogen fixation rather than relying on artificial fertiliser, and which intensify more with respect to knowledge and labour than capital. Essentially, farming more in harmony with nature and supporting more decent rural jobs, including through adding value locally, which can attract young people to stay in, or return to, the countryside rather than seek an urban future.

Principles to guide transformation

The 2019 UN Committee on World Food Security (CFS), High Level Panel of Experts (HLPE) report on agroecological and other innovative approaches to sustainable agriculture for food security and nutrition set out 13 agroecological principles (see upper Box) derived from the literature and experience of agroecology over the last century and incorporating the ten elements of agroecology developed by FAO and endorsed by 147 countries. These principles have been suggested as a framework to drive food system transformation with a call for them to be adopted by the United Nations Food Systems Summit (UNFSS), and already signed by more than 300 organisations and 800 individuals. The principles are universal, but when applied, through co-creation of knowledge with local stakeholders, generate a diversity of locally adapted practices. They cover whole food system transformation from agroecosystem management to the governance of food systems, including ensuring equity in agency for all actors within food systems from producers through to consumers.

THE 13 HLPE (2019) AGROECOLOGICAL PRINCIPLES

Agroecological approaches involve an alternative paradigm to business as usual agricultural and food systems with different goals, values and mindsets. These are summarised in 13 generic agroecological principles which, when applied through participatory processes with local stakeholders, result in a diversity of agroecological practices that suit the local cultural and ecological context. Seven of these principles are mainly concerned with agroecosystem management to encourage farming that is in harmony with nature and confers resilience: avoiding environmentally disruptive inputs, recycling, using and maintaining biodiversity, synergy (managing interactions amongst components), economic diversification, and ensuring animal and soil

health. The other six concern whole food systems and are fundamental for catalysing and sustaining transformative change: co-creation and sharing of knowledge, land and natural resource governance, connectivity (particularly of producers and consumers), social values and diets, fairness and participation (referring to agency of producers, consumers and all other actors in food systems). The need for these principles to be applied simultaneously has led to agroecology manifesting as a science, a set of practices and a series of social movements. Widespread transformative change is only likely to occur where these three manifestations coalesce and work together.

Universal principles, but different pathways

Global transformation of food systems through the application of agroecological principles is an ambitious undertaking that requires both bold action to effect change and many different transition pathways appropriate to different starting points and contexts. The most widely understood articulation of agroecological transformation is probably Stephen Gliessman’s five transition levels, assuming a starting point of industrial or green revolution agriculture that uses a high level of artificial inputs (see Infographic on page 32). This, not surprisingly, starts by reducing inputs and moves on to the redesign of the farm and eventually the whole food system, in a series of increasingly fundamental change processes or transition levels. While this transition pathway makes sense for much of Europe, Asia and the Americas, it is not relevant for large parts of sub-Saharan Africa, where farmers use few inputs and degradation progresses through lack of investment in sustainable practice. What is required here

is to leap-frog from unsustainably low productivity to higher productivity without incurring the environmental damage and social inequities associated with ‘business as usual’ models of agricultural improvement. To do this, intensification is required, but using technology that favours natural rather than industrial processes which avoid negative externalities. This generally involves more knowledge and labour-intensive solutions, rather than a capital intensification, because using biodiversity and ecological processes embraces and harnesses their complexity, rather than homogenising the environment through the application of agrochemicals. The same principles, when applied across contexts, generate different transition pathways to sustainable agricultural and food systems.

A look at the different approaches

Agroecological and other approaches to food security and nutrition overlap considerably, although there are also clear and important

TECHNOLOGY AND INNOVATION

All approaches rest on technology and innovation but approach them in different ways. **Agroecology** supports local innovation, using co-creation and sharing of knowledge as a cornerstone of how technologies are developed, whereas much **sustainable intensification** seeks to spread technologies developed in one context (often experimental) as widely as possible. These alternative paradigms, not surprisingly, require different configurations of research, extension and education that tend to produce

different results. The concept of **transdisciplinary science** in agroecology is problem-focused, solution-oriented, involves stakeholders and their knowledge in the scientific process in an equitable way and is reflexive with regard to method. This requires a fundamental reconfiguration of how research, extension and education are approached, changing whose knowledge counts through addressing power asymmetry in the generation and dissemination of knowledge.

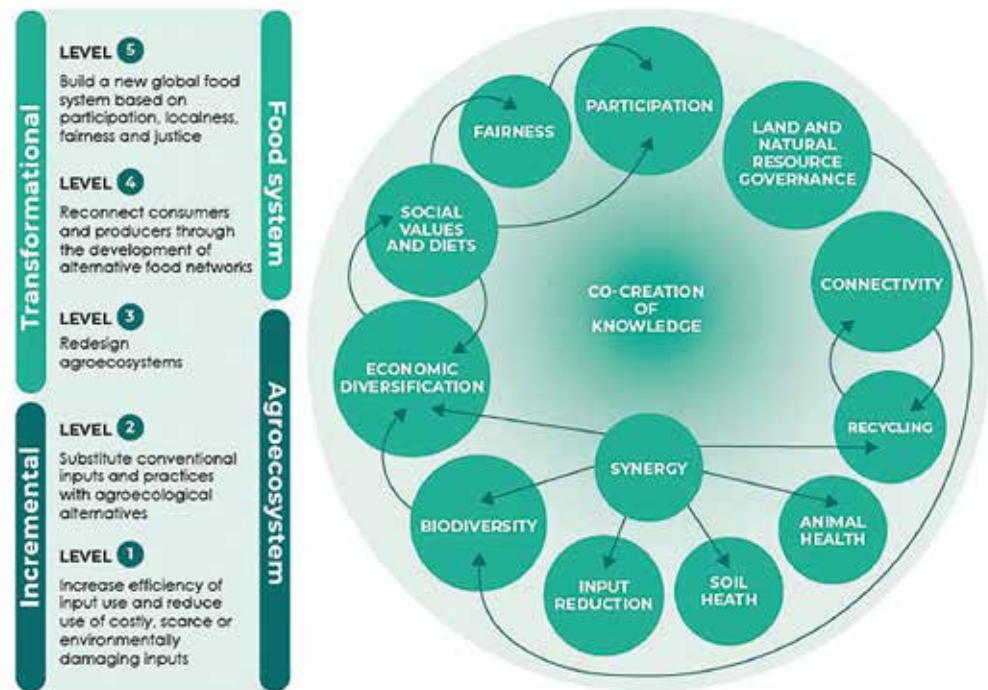
distinctions amongst them (see lower Box on page 31). So, for example, conservation agriculture is a form of ‘sustainable intensification’ that is often considered ‘climate smart’ but is only agroecological if it uses biological or mechanical means to control weeds rather than herbicides. What throws light on the distinctions amongst approaches is the principles and mindsets involved. Sustainable intensification starts from the premise that production per unit of land needs to increase whereas agroecological principles define how to produce without damaging the environment or aggravating social inequity and are concerned with changing the consumption patterns that drive how much needs to be produced. Nature-based solutions start from the conservation of nature and realise that tolerating farming is necessary, whereas agroecology tries to farm as much as is possible in harmony with nature. While it might be expected these would meet in the middle, in practice the people espousing these approaches tend to come from different backgrounds, have different values, mindsets and hence intuitions in respect of what solutions are appropriate in any particular context.

Controversy and power asymmetry

Polarisation has dogged the progress of agroecological transitions, arising from discomfort amongst conventional agricultural scientists with the political economy perspective of agroecological science, resulting in an often dismissive attitude regardless of evidence; the often uncompromising stance of many civil society organisations and social movements towards business as usual agricultural improvement and its proponents, and a massive disparity in the investment in agroecological approaches vis-à-vis business as usual alternatives, resulting in a far from level playing field. Many extant policies, such as subsidies for agrochemical inputs, lock in ‘business as usual’ models of agricultural improvement and lock out agroecological approaches.

In exploring a range of prominent controversies dividing different approaches to sustainable agriculture, such as biotechnology and biofortification, the CFS/HLPE (2019) report found that disagreement centred more on how technology was accessed, controlled and used rather than fundamental objections to the nature of technologies themselves. This suggests possible ways forward to greater consensus by seeking greater clarity on separating disagreements about values as opposed to those relating to what causal mechanisms can deliver desirable outcomes, something that articulating

The agroecological principles in relation to Gliessman’s transition levels



Source: A. Wezel, B. Gemmill Herren, R. Bezner Kerr, E. Barrios, A.L.R. Gonçalves, F. Sinclair [2020]. Agroecological principles and elements and their implications for transitioning to sustainable food systems. A review. *Agronomy for Sustainable Development* 40 (6), 1-13.

principles of different approaches can help to achieve. There is, however, an increasing moralisation around food which, on the one hand, pushes it up the agenda of policy-makers while at the same time making it more difficult for them to peruse evidence-based policy rather than adjudicating amongst competing convictions. Despite chronic underinvestment, there is ample evidence that in specific contexts, agroecological practices can be as productive as or even more productive than ‘business as usual’ alternatives with fewer externalities, but huge gaps remain in understanding how different agroecological practices perform across different contexts, which is critical for driving wide-scale uptake.

Making use of the UNFSS momentum for change

There are signs of a wind of change blowing through the United Nations Food Systems Summit, with growing demand for agroecological approaches to be taken seriously. Early on, many civil society groups boycotted the summit because of a perception that agroecological approaches were not prominent enough and a ‘business as usual’ mindset with incremental rather than transformational change was driving the agenda. Things began to change when the CFS adopted policy recommendations endorsing the role of agroecological approaches in achieving necessary food

system transformation, and the President of Sri Lanka got their implementation off to an ambitious start by announcing a bold policy of national agroecological transformation at a side-event organised by the newly formed Transformative Partnership Platform on Agroecological Transitions (TPP; see also opposite page).

A solution cluster on agroecology and regenerative agriculture under Action Track 3 of the Summit attracted over 80 game-changing solutions and soon transcended all Action Tracks as signatures accumulated on the call for the 13 HLPE agroecological principles to be adopted by the Summit. Pressure from countries for a session on agroecology in the main programme of the Pre-Summit was eventually heeded and a session shoe-horned in at the last minute to complement the already established parallel session. These have resulted in a coalition for action based on agroecological principles which has helped shape the Pre-Summit and is poised to contribute to outcomes of the upcoming summit itself, and more importantly, action beyond it to effect widespread agroecological transformation of food systems.

Fergus Sinclair is Chief Scientist at CIFOR-ICRAF through collaboration with Bangor University (UK) and Co-convenor of the Transformative Partnership Platform on Agroecological Transitions. Contact: f.sinclair@cgiar.org

Unlocking the potential of agroecological approaches – the Transformative Partnership Platform on Agroecology

The Transformative Partnership Platform on Agroecology (TPP) convenes and coordinates partners to accelerate their work on agroecology across local, national and international scales, with the aim of fostering transitions to more sustainable agricultural and food systems.

By Cheryl Heath, Fergus Sinclair and Etienne Hainzelin

The Transformative Partnership Platform on Agroecology (TPP) emerged in early 2020 to follow up on the High Level Panel of Experts (HLPE) of the Committee on World Food Security (CFS) report on agroecology and a dialogue between CGIAR and French research institutions. Incubated by the latter and World Agroforestry (ICRAF), but soon attracting other partners across the UN and CGIAR systems, the TPP addresses evidence and implementation gaps constraining agroecological transitions, and uses resulting evidence to underpin advocacy and inform policy-makers about the potential of agroecological approaches to improve livelihood and landscape resilience. These twin objectives involve working in new ways, bringing together research and development, science and social movements, and local and scientific knowledge through transdisciplinary science and the co-creation of knowledge. The TPP aims to facilitate the integration of the work of global partners on identified priority areas where progress is needed to unlock the potential of agroecological approaches.

Currently, the TPP operates across eight demand-driven domains covering socio-economic viability of agroecological practices; linking diversity resilience; soil health; developing holistic performance metrics; pest, disease and weed control; policies and institutions; nutrition; and water management. Together, these address the broken food system globally to deliver ways of farming that are more in harmony with nature and food systems in which all actors, from producers to consumers, have agency in determining how food is produced, processed, transported, sold and consumed.

Since emerging in 2020, the TPP has rapidly gained momentum. It has a portfolio of projects to a value of 100 million US dollars (USD), 25 million of which supports TPP initiatives and the rest aligned projects. A TPP 'integrated project' is conceived in a partnership that includes TPP participants and meets the following requirements: it is led by a TPP partner organisation, contributes to the TPP's objectives, is managed within the overall framework of the TPP, remains fully in line with the 13 HLPE agroecological principles (see upper Box on page 31) and follows the TPP's operational modalities. TPP 'aligned projects' were originally conceived and managed outside the TPP but are aligned with the TPP objectives and modalities, with clear linkages bringing added value of alignment both for the project and for the TPP. Some examples are given in the following.

'Documenting and evaluating the socio-economic viability of agroecological practices across Africa'. The three-year, four million euro, French-funded 'viability project' was the first research priority to be addressed. The project aims to better understand the socio-economic viability of agroecological practices in terms of livelihood impacts including assessments of labour, income, and intra-household levers and lock-ins. Twelve case studies have been selected which cover a diversity of demographics, geographies and agroecological practices across Africa. The case study teams involve the NGO Sustainable Agriculture Tanzania, the French Agricultural Re-

search Centre for International Development (CIRAD), the French National Research Institute for Sustainable Development (IRD), several CGIAR centres (ILRI, ICARDA, CIMMYT, ICRAF, IWMI, Bioversity International/CIAT) and Cornell University (USA) with data management support from the social enterprise Stats4SD – Statistics for Sustainable Development. A mixed-methods common protocol has been developed which is now being applied in each of the diverse local contexts and will enable generalisation across them to deliver generic lessons that can inform policy-makers. The project operates in Tanzania, Senegal, Tunisia, Madagascar, Ethiopia, Zimbabwe, Ethiopia, Burkina Faso, Kenya, Ethiopia and Malawi.

'Scaling Responsible and Inclusive Business Innovation in Agricultural Land Investment that Supports Rights, Livelihoods and Sustainable Food Systems'

is a three-phase, eleven-year project co-funded by Swiss Development Cooperation (SDC) which secured combined funding of 10.5 million Swiss francs for the first three-and-a-half-year phase in 2020 and is still in its initial stages. The goal of the project is to support transitions to sustainable and inclusive food systems through enabling and incentivising land-based investors and their partners to develop gender-sensitive land policies that are consistent with voluntary guidelines on responsible governance of tenure and to develop business models that are sustainable and inclusive. This is to be achieved by focusing on land-based investments that avoid environmental and socio-economic harms and by working on transitioning current and potential land-based investments away from monoculture-oriented business models towards inclusive models founded on agroecological principles. Three sets of activities will be carried out within the framework of the TPP to achieve the project's goal: co-development of an investment risk-reward model, national-level responsible business innovation labs and national multi-stakeholder learning labs. The project focuses on Ethiopia, Mozambique, Ghana, Laos and Myanmar, and is led by CIFOR-ICRAF with consulting Land Equity International, the Thailand-based Center for People and Forests (RECOFTC) and SNV Netherlands Development Organisation as partners.

A fast-developing science-policy interface is reflected in a series of TPP side events this year, for instance the Fifth Section of the United Nations Environment Assembly (UNEA 5), the 48th session of the CFS (CFS 48), the UNFSS Pre-Summit and a TPP-run 'Policies for Agroecology' online event.

Cheryl Heath is TPP Coordinator at ICRAF in Nairobi, Kenya.

Fergus Sinclair is TPP Co-convenor and Chief Scientist at CIFOR-ICRAF.

Etienne Hainzelin is TPP Co-convenor and Advisor to the CEO of CIRAD.
Contact: c.heath@cgiar.org

For further information please visit the TPP web-platform:
<https://glfx.globallandscapesforum.org/topics/21467/page/TPP-home>

“ Agroecology is the future ”

Welcome changes in the discourse – Maria Tekülve on the role of agroecological approaches in international cooperation, old and new “silver bullets” in rural development and why the wide scope of the concept of agroecology is at the same time one of its greatest strengths.

Ms Tekülve, is agroecology the new silver bullet in the struggle against climate change, pandemics and hunger in the world?

The term “silver bullet” tends to polarise and doesn’t really do justice to the issue. What is correct is that the concept of agroecology has raised many questions and sparked controversy. I believe this is understandable and should even be welcomed, since it shows that people are interested and that we can only find good ways to address forthcoming challenges together, via common discourse. What is also correct is that a significantly growing consensus has developed both world-wide, in the European Union and in Germany that agroecological approaches can make important contributions to creating sustainable agricultural and food systems and rural areas with acceptable living standards. Furthermore, it is clear that contemporary systems oriented on capital and, primarily, production – “old silver bullets”, if you like – are neither economically nor ecologically sustainable and have in addition caused society high costs.

What is the role of agroecology in German development cooperation?

In 2019, with its resolution on “Recognising and supporting the potential of agroecology”, the German Federal Parliament gave important impetus to raising and enhancing the quality of already existing engagement in sustainable approaches on the part of Germany’s Federal Ministry for Economic Cooperation and De-

velopment, the BMZ. This has given the topic a further boost at the political level, for example in the Parliamentary Committee on Economic Cooperation and Development, here at the BMZ and thus among the implementing organisations. This already constitutes an important contribution to the June 2021 recommendations by the Committee on World Food Security, CFS, namely creating political foundations. For it is important to look not only at the projects and finance but also at changes in discourses, strategies and networks, etc. And a lot of things have been happening in these areas over the last few years and right now.

What changes has the integration of agroecological principles brought about in German engagement in the area of rural development?

Spatially based and cross-sector approaches in rural development, such as “territorial concepts”, appear to be closely related to agroecological elements like diversification and regionality. “Rural regional development”, which for some time had fallen out of view in international development cooperation, is there once again, as are “holistic approaches”. Here are a few examples:

- The BMZ is actively involved in international agenda setting. Examples here include the CFS, the Global Landscapes Forum or the UN World Food Summit, where we support agroecological approaches. These are important global, structure-forming debates, even though many controversies exist.
- In Germany, we conduct departmental talks and round tables. We regularly communicate with civil society and the organic food companies.
- The new BMZ strategy “A World without Hunger – within the Planetary Boundaries” contains detailed sections on agroecology and rural development.

- Funding of agroecological approaches is constantly on the increase. This applies to projects by Deutsche Gesellschaft für Internationale Zusammenarbeit and KfW Entwicklungsbank, for example on five knowledge centres for organic agriculture in Africa, developing a focal area addressing agroecology with India or collaborative schemes with the EU and the International Fund for Agricultural Development. This also includes the considerable engagement of a large number of church and private organisations. Misereor, to name but one example, is working on the “True Costs” project.

- We have good relations with research and teaching, internationally (e.g. CI-FOR, CGIAR), consulting services in partner countries and in Germany, including the Centre for Rural Development (SLE) at Humboldt University Berlin, where a postgraduate project on agroecological approaches in the Global North is currently underway. This changes mind-sets and adapts curricula in the long term.

This is a “colourful bouquet” – which we have picked on purpose to achieve a broad impact.

The term “agroecology” leaves much scope for interpretations. What is the essence of the concept in your opinion, and what are its greatest strengths?

The ten Food and Agriculture Organization elements of 2019, the 2019 report by the CFS and the High Level Panel of Experts on Food Security and Nutrition (HLPE) as well as the 2021 CFS recommendations prescribe a clear direction for transformation. It includes diversification, reducing external inputs, regional economic cycles and basing developments on tradition and culture. I believe that these are very good guiding principles!

It is true that the concept of agroecology has a very wide scope. This can lead to misunderstandings. For example, the connotation with “organic farming” seems to suggest itself, whereas today, the term agroecology goes way beyond it. The considerable leeway for inter-



Maria Tekülve is Deputy Head of Division and Focal Point for Rural Development and Agroecology at the German Federal Ministry for Economic Cooperation and Development. The interview reflects her personal opinion.

pretation may also mislead actors to greenwashing or to watering down and relativising certain elements.

At the same time, the strength of the concept is precisely that, in addition to its clear direction, it can be adapted holistically and according to location. There simply is no globally uniform patent recipe applying, say, to individual cultures. The context is the space one is looking at and the people living in it, viewed in all its dimensions.

Even the – subjective and local – assessment of the individual elements varies. In Latin America, governance aspects may play a special role, whereas in Europe, it may be the environment and recycling, in Africa resilience, and in Asia perhaps culture which count. Here's an example. During my last visit to Tamil Nadu, in 2019, I was impressed by the extent to which the local food culture, the delicious South Indian Dish based on regional products, had been retained, also in the metropolises – in contrast with, say, the pizza and burger offers in many cities of sub-Saharan Africa, with imported meat, wheat products and tomato purée. While this may not have prevented the major ecological and social problems which India is currently facing, it certainly has strengthened the intensive regional economic cycles and preserved a food culture which people can rightly be proud of.

Can the poor afford agroecology?

That is a highly pertinent question! For in order not to drive people into economic ruin and also meet with general acceptance, it is of key importance for “transformation” towards agroecology to pay its way, both in terms of national economies and of businesses. Especially last year, many stocktaking reports were published with the catchwords “true costs” or “externalised costs”, primarily with view to the politically very important national economy level. The tenor here is that among the systems referred to as “conventional” in the EU, it is not only the long-term ecological but also the already existing economic damage or loss which is higher than the benefit or gain. For example, according to a highly topical report of the *Zukunftskommission Landwirtschaft Deutschland* in June 2021, the external costs of German agriculture have been put at 90 billion euros a year. In many developing countries, areas previously cultivated are now increasingly lying fallow or are used sub-optimally because of not having been appropriately managed, and rivers and village wells are polluted.



A traditional South Indian Meal, vegetarian curries, served on a banana leaf (Thanjavur 2019). That Indian food culture has been retained over generations is impressive, despite the banana leaf being used mainly for tourists nowadays.

Photo: Maria Tekülve

Thus I ask back: can poor people afford capital and environment-intensive systems with their often negative impacts at business management level? What with climate change in particular, resilient systems are of high relevance for the poor. Everywhere in the world, soil – the key means of production for the rural poor – is overexploited, and there is a lack of water. In sub-Saharan Africa, 60 per cent of the population live in rural areas, the major share of them in poverty. In 2015, in Zambia's Northwest Province, I saw a badly deteriorated village which had previously had the reputation of being especially progressive, where the farmers had grown maize monocultures with the synthetic “magic fertiliser” in the same area for many years, until the soil no longer yielded anything. There, just like elsewhere, the government and agricultural extension services failed. It is known from India in particular that many farmers ran into debt because the input costs were too high.

The economic returns of (agro-)ecological farming vary considerably, depending on crops, management forms and markets. For example, when monoculture is continued, say of maize or rice, reducing external inputs really can lead to lower yield and income per hectare – if market prices don't rise. In contrast, the performance of legumes and mixed cropping in the same area is more positive. Moreover, the latter is less prone to risk and hence also more poverty-oriented. However, agro-ecological cropping systems usually involve a greater labour effort and often, drudgery. This should

not be romanticised, especially with regard to youth. Here, pilots, affordable new small-scale technologies and support for “agroecological intensification” and the like are certainly required.

It is also true that – just like everywhere in the world – some regions are not or no longer suitable for agriculture. Then other rural economy branches developed over a longer period, such as processing or services, or migration to regional centres or the like can provide prospects for the future which young people can accommodate to.

Does the concept fall on sympathetic ears in partner countries? Or does it rather tend to be viewed as an “idea from the Global North” which does not (always) fit in with local conditions?

Just like in Germany, interest varies considerably among governments. Since distinctions like “Global North” and “Global South” do not apply here, the negotiations in the World Food Committee in 2021 have revealed that the USA, Brazil and Russia are pursuing strategies differing from those of, say, the EU, Senegal or Sri Lanka. And one cannot even claim that the Global North is setting a good example here. Nevertheless, interest is growing in alternatives to concepts of the “Green Revolution” or the EU Common Agricultural Policy. Now, many regional organisations, such as the African Union Commission, have corresponding guidelines. Interest exists in the ECOWAS organisation, whereas in the ECOWAS countries it differs, and Senegal and Mali appear to be more active than others. Multilateral organisations such as the United Nations Food and Agriculture Organization or the International Fund for Agricultural Development with a high presence of our partner countries are strong actors and deliverers of ideas.

Since 2005, India has been drawing up national strategies on organic farming. Several Indian Federal States, including Sikkim and Andhra Pradesh, are opting for one hundred per cent organic farming, and so is Bhutan. Sri Lanka's President recently pronounced a ban on imports of synthetic fertiliser. Nepal is working on a directive to promote bio-fertilisers and bio-pesticides. In North Africa, including Egypt, Tunisia and Morocco, national laws and visions are being amended. Then again, there are countries like Brazil, where some States and civil society networks are very active but the current national government is de facto, despite good sets of regulations, pursuing a different approach to agroecology. In

terms of sheer quantity, in Africa and Asia, certified organic farming – an area of agroecology which should not be confused with traditional farming – plays only a marginal role, with market demand showing a significant increase and offering incentives.

Critics of the concept say that the burgeoning world population cannot be fed with agroecology. What do you answer them?

Here, there are different calculations and opinions. There is a considerable demand for clear figures which represent “the only truth” – except that this type of simple answer doesn’t exist. Furthermore, we all know that availability alone does not solve the problems of hunger and malnutrition, certainly not at global level. Calculations addressing the issue of whether it will be possible to feed 9.5 billion people by 2050 crucially depend on the variables that have been entered: global and regional population distribution, climate and soil, access to land, cultivating systems, income development, loss and waste, trade and consumption, food culture and “fashions”, etc. Depending on the author and the science, these will be fed into the model calculation in different ways. And it is clear that the present systems are no long-term option. According to the 2019 World Food Committee report, organic farming with many legumes and mixed cropping can feed more than nine million people. However, this also requires a different emphasis in research, extension and consumption.

Looking at 2030, what has changed in rural areas?

A nice question! I will first of all answer looking back, because I believe that a long-term perspective is important to assess the present and the future.

For Africa, since the end of the colonial era, apocalypses and Golden Ages have been predicted alternately. Those who are familiar with Africa know that there have been continuity and changes, differing considerably at local level. However, as is also borne out by statistics, the long-term trend is positive. Widespread stark poverty, sometimes economic and social destitution, which I witnessed in Zambia and elsewhere forty years ago, has since lessened considerably. High levels of poverty continue to exist, but to a different extent and of different quality. Despite the tragedy of HIV/Aids since the 1980s, life expectancy has once again risen, while child mortality has declined. There are tarred roads and cross-country buses, more lively markets, solar lamps where it used to be dark after sun-



A cooperative using a mini thresher in India (2019). It makes work easier, but the drudgery remains. The women have covered their faces with cloths because of the dust.

Photo: Maria Tekülve

set, mobile phone connections, more cars, mopeds and bicycles, the latter also for women and girls, etc. In the Thanjavur District in South India in 2019, after forty years, I spotted hardly any homeless beggars, the “pavement dwellers”, who had then often suffered from leprosy and elephantiasis. While life in the villages continues to make a modest impression, there are vibrant building activities, financed with income from agriculture, regional handicraft and remittances from the Gulf States.

We should also appreciate such success as the life-time achievements of the people there. That is often given too little mention! However, none of this should be sugarcoated. Inequality in landed property continues to exist, and the environmental problems in rural areas and in the cities – regarding soil, water and the air – are enormous. The impact of climate change, the loss of biodiversity, conflicts and the effects of as yet unknown events and crises like the current corona pandemic are hardly assessable.

Nevertheless, allow me to present an optimistic outlook, in the sense of a new vision from which I will omit crisis and conflict situations. A global trend reversal has been achieved in 2030 regarding the development of agricultural and food systems. In the course of the “transformation” we are awaiting, new-modern systems with clearly agroecological and spatially based elements will gain significance everywhere. I wish and believe that rural poverty (in all its dimensions) will decline further, which does not rule out the further existence

of sometimes severe problems. Settlement areas and markets are going to shift, already because of climate change. Temporary and permanent migration will continue to exist and even increase. The rural regional centres will continue to grow. Better rural-urban linkages are going to create new regional economic cycles and local incentives. Rural youths are trained largely in the city.

Imagine a setting on a Saturday evening: youths meet up at the village bar in the evening, discuss the city’s weekly market prices of the new manioc varieties, send text messages to their brothers and sisters in neighbouring villages and towns and engage in a heated debate over the prospects of their schoolmate running as a woman candidate for the provincial parliament. The last minutes of a soccer match, Cameroon-Germany, 2:1, are running on a video screen. The noise from the machinery ring park next-door interferes with the music of the village combo, who have just arrived. An old man casually passes by on his ox-drawn cart full of groundnuts and sweet potatoes, with mopeds and small lorries overtaking him. On Sunday, the relatives from the city will be travelling back to the metropolis with a basket full of vegetables and an envious sigh: “It was so cosy, the air so fresh, the food so good!” The tales and history books refer to the agricultural and food systems of the past fifty years as a bygone phase in history.

Maria Tekülve was interviewed by Silvia Richter.

Rethinking the rural-urban relationship based on nutrient recycling

Modern agricultural and sanitation systems depend on linear, one-way resource flows. However, these models are resource-intensive and wasteful. To address this problem equitably and sustainably, the RUNRES project seeks to link the dual development challenges of agriculture and sanitation by creating circular resource flows in four African city regions, relying on some of their most important food commodity value chains.

By Ben Wilde, Leonhard Späth, Haruna Sekabira, Pius Krütli and Johan Six

RUNRES: “The rural-urban nexus: establishing a nutrient loop to improve city region food system resilience” is a science-based development project funded by the Swiss Agency for Development and Cooperation (SDC). Its aim is to address two critical development challenges facing rapidly urbanising countries across sub-Saharan Africa: the sustainable and equitable production of food, and the provision of dignified and sustainable basic sanitation. Currently, both the agricultural and sanitation sectors are dominated by linear solutions which heavily depend on resource-intensive inputs. These approaches have led to nutrient imbalances within rural-urban interfaces across the world. In rural areas, long-term nutrient mining has created a downward trend of agricultural productivity, which harms livelihoods and exacerbates food insecurity (Jones et al., 2013; Sanchez, 2002). Simultaneously, rapidly growing urban areas in lower income countries suffer from an accumulation of organic waste (wasted nutrients) caused by insufficient collection and disposal of green, food and human waste, which harm environmental and human health (Krütli et al., 2018; Kaza et al., 2018; Aryampaa et al., 2019).

Most research and development approaches view these problems as disconnected (Kaza et al., 2018). In contrast, RUNRES features a circular model of resource use predicated on the capture, treatment and reuse of food processing and urban organic waste streams as a viable alternative to linear systems (see Figure on page 38). Thus, by reimagining the rural-urban relationship, the project seeks to create a transformed local economy, one that supports circular flows of resources within the following African city regions: Bukavu, Democratic Republic of the Congo (DRC); Arba Minch, Ethiopia; Kamonyi, Rwanda; and Msunduzi, South Africa. The circular model in these city regions will be hinged on important food commodity value chains: coffee in Bukavu, bananas in Arba Minch, cassava in Kamonyi and vegetables in Msunduzi.

Unsustainable agroecosystems and urban growth closely interrelated

Unprecedented urban growth is placing enormous burdens on governments across sub-Saharan Africa (SSA). Demand for infrastruc-

ture, services, and basic needs such as food, housing, water and sanitation is growing, but public agencies are struggling to meet it. The trend towards urbanisation is driven by various factors. In SSA, migration from rural to urban regions is a key contributor (Awumbila, 2017). According to Tacoli (2003), this type of outmigration is often driven by an inability to maintain a satisfactory and sustainable livelihood in rural areas. Agroecosystems in SSA are unable to maintain soil health and fertility because of long-term nutrient mining, loss of soil organic matter, and thus soil degradation. This biophysical reality has led to a downward spiral of agricultural productivity and presents a serious challenge to the long-term sustainability of African agroecosystems and the ability to provide income, food, and nutrition security to rural populations. Hence it fosters outmigration to urban areas. This outmigration is not regulated in any possible way, the consequence being that unplanned urban and peri-urban areas are growing rapidly (Mberu, 2017). These underserved communities have limited access to clean and safe drinking water or municipal sanitation services and suffer from frequent outbreaks of waterborne diseases and chronic food insecurity (World Health Organization, 2016). In addition, the rapid accumulation of organic and human waste that results from insufficient solid waste management and sanitation infrastructure in these environments has negative environmental consequences associated with excess nutrients (Nyenge et al., 2010). Thus, at the city-region scale, a nutrient imbalance exists across most rural-urban spaces; urban environments are polluted by an accumulation of reactive nutrients, while farmers in adjacent rural areas face enormous yield gaps due to a dearth of these same elements.

Towards a socio-technical food system transformation

Rather than viewing this reality as only a problem or challenge, RUNRES sees the current rural-urban relationship as an opportunity, one capable of facilitating a socio-technical food system transformation. Thus, the rapid



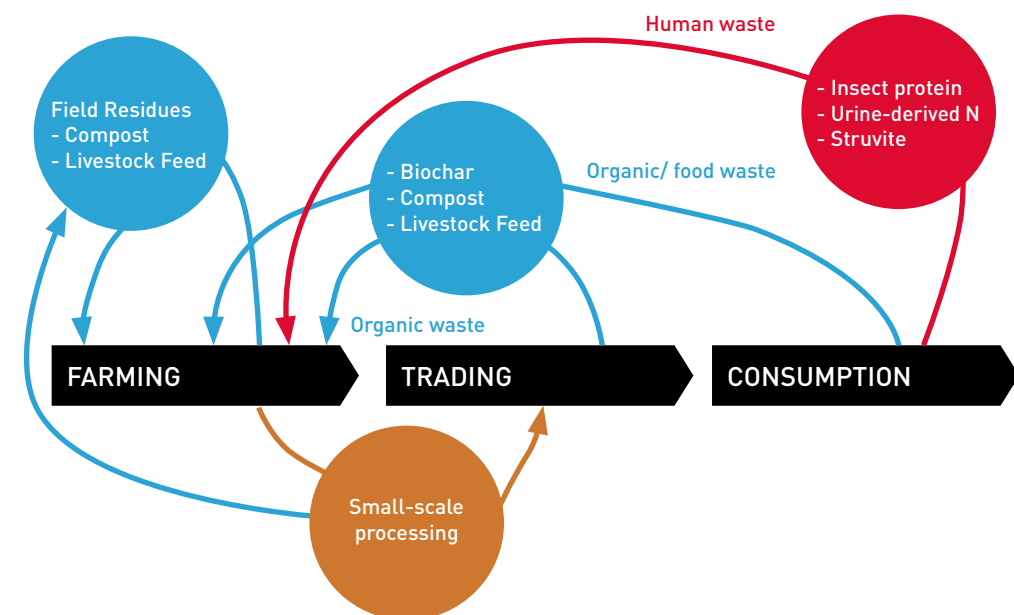
Unsustainable agroecosystems are one of the reasons for migration from rural to urban regions and hence urban growth in sub-Saharan Africa.

Photo: Simone D. McCourtie/ World Bank

demographic shifts currently altering rural-urban dynamics can be used to move linear food and sanitation systems along a more sustainable, circular trajectory. In addition to reducing human health and environmental problems, the provision of innovative technologies that can valorise these waste streams is able to supply inputs needed to improve soil fertility and health. However, a socio-technical shift towards a circular food system predicated on recycled nutrients requires the development of a niche space (Geels, 2002; Fuenfschilling & Truffer, 2014), or an arena capable of providing the time, resources and expertise necessary to allow an alternative model to take root.

To inform the development of this niche space, RUNRES has developed and utilises a transdisciplinary innovation platform (TdIP) model combining a transdisciplinary research (Td) approach with the concept of an innovation platform (IP). Transdisciplinarity focuses on leveraging research institutions to address real-world problems. It necessarily draws from multiple areas of expertise and places a premium on stakeholder participation to effectively address what are typically very complex challenges (Pohl, 2011). To identify and organise effective stakeholder networks, as well as to create the conditions necessary for authentic dialogue and participation, RUNRES utilises a variety of methods developed by the transdisciplinarity science community (tdlab.usys.ethz.ch). For example, in a series of workshops facilitated over the course of the first year of the project, stakeholders were invited together to co-produce the knowledge and understanding necessary to achieve the overarching objective of establishing circular food systems in the rural-urban nexus of city regions considered. This groundwork led to three critical outcomes: a shared understanding of the challenges facing each city region and a vision for what an alternative system would ideally look like, the development of a detailed systems map and the selection of locally appropriate

RUNRES diagram of restructured resource flows across a city-region food system



innovations that are cost-effective, economically viable and socially acceptable (see Photo and Figure on page 39).

First insights and lessons learnt

Currently, local stakeholders from both the public and private sectors are implementing the pilot, or demonstration, phase of the selected innovations (also see Box for an example). As shown in the Table, the foci of the innovations within each city region are quite different, which we suggest is an indication of the effectiveness of the participatory process. Of course, a successful pilot phase faces many challenges. First, negotiating regulatory processes in the four countries is complex and time-consuming. While necessary, environmental risk analyses, food safety regulations and other administrative hurdles demand a large investment of time. In addition, securing the necessary equipment has proven a chal-

lenge. In Arba Minch, for example, banana value-addition is very new, and the food processing equipment necessary to facilitate this effort is simply not available in the country.

Another challenge involves the quantification of risks associated with the innovation products. Several RUNRES innovations seek to process human waste into safe soil amendments. These sources, while containing plant nutrients, also carry contaminants such as pathogens and heavy metals. Rigorous quality control testing must be done to ensure that these products meet existing regulatory limits and are safe for distribution and application. Finally, the economics of restructuring existing supply chains along a circular trajectory are problematic and really demand a governance approach that can facilitate innovative public-private partnerships and subsequent scaling of these innovations.

BLACK SOLDIER FLY LARVAE AS ANIMAL FEED

As with most urban and peri-urban centres in sub-Saharan Africa, the city region of Kamonyi, Rwanda, is growing at a rapid pace. This growth is challenging municipal actors to provide environmentally safe and socially equitable services such as solid waste management. While the organic waste produced in Kamonyi is either not collected or simply disposed untreated in the municipal dump, chicken growers in the region struggle to acquire sufficient quantities of quality feed. Founded in 1996,

Maggot Farm Ltd. offers a solution for this. As part of the RUNRES programme, it produces chicken feed with Black Soldier Fly larvae (*Hermetia illucens*). The insect consumes vast quantities of organic waste as part of its lifecycle. In this manner, two critical challenges faced by developing countries are addressed: the accumulation of large volumes of organic waste in the urban core of city-regions and the rising cost of protein inputs needed to sustain local poultry production.



Black soldier fly larvae feeding on organic waste.

Photo: Authors



A RUNRES stakeholder workshop held in Msunduzi, South Africa, in 2019 (left), a rich picture exercise (centre) and output from a participatory systems mapping exercise held in Arba Minch, Ethiopia, in 2019.

Photo: Authors

How to achieve long-term uptake and sustainability?

However, simply catalysing restructured resources flows falls short of the project's long-term goal. As with previous development efforts, a key challenge facing RUNRES is to secure sustainable impacts beyond the initial pilot sites. Here, the question of how to ensure that the innovations scale up and out is critical, and to address this, the project is drawing on

the innovation platform (IP) literature. IP scientists study the mechanisms that shape societal response to a new technology to support long-term uptake and sustainability. This approach makes the implementation of new technologies actionable at a ground level, considering complex local constraints in a platform where different actors can exchange and coordinate activities (Schut et al., 2017). To do so effectively, the project aims to develop solutions that are robust enough and locally rooted through

already established local actors and culturally appropriate innovations. Thus, the results of the first project phase will inform phase II, when RUNRES hopes to achieve scalable models that will continue beyond the lifespan of the project, and when the initial development capital is no longer available. In this way, the project can contribute meaningfully to restructured rural-urban resource flows to increase the sustainability of agriculture and food systems.

Transdisciplinary innovation platforms developed during the first year of RUNRES

| Country | Innovation leader | Innovation focus | Description |
|------------------------|----------------------------|------------------|---|
| Bukavu, DRC | Diobass | Blue | Improved municipal scale solid waste collection and composting to produce soil amendments for coffee |
| | FESDD | Blue | Improved municipal scale solid waste collection and composting to produce soil amendments for coffee |
| | GASD | Red | Improved waste collection, provision of public sanitation facilities, and compost production for coffee farmers |
| Arba Minch, Ethiopia | Anjo-Nus | Green | Value addition of banana, and animal feed production of banana peel waste |
| | Egnan New Mayet | Blue | Municipal scale composting to produce soil amendments for banana |
| | MAS\$P | Red | Struvite production via UDDT sanitation |
| | Municipal Waste Collection | Blue | Improved municipal scale solid waste collection |
| Kamonyi, Rwanda | Akanoze | Green | Cassava peel processing for animal feed production |
| | Coped | Blue | Municipal scale composting to produce soil amendments |
| | Maggot Farm | Green | Black soldier fly larvae animal feed production |
| Msunduzi, South Africa | Duzi-Turf | Red | Municipal scale composting of urban green waste and sewage sludge to produce soil amendments for turf grass |
| | Rusus | Red | Pyrolysis of pit latrine faecal sludge to produce bio-char as a soil amendment |
| | Dewats | Red | Decentralised and resource-oriented sanitation system for a rural school to produce human-derived fertiliser |

Innovation focus colours: **red** = human waste innovation; **blue** = urban organic/ food waste innovation, **green** = food processing innovation

Ben Wilde is a food systems researcher in the Sustainable Agroecosystems (SAE) Group at ETH Zurich and is working to support a transition towards a circular food system predicated on recycled nutrients.

Leonhard Späth is a social scientist in the SAE and Transdisciplinarity Lab (TdLab) at ETH Zurich; he mainly addresses the challenge to integrate different stakeholders' perspectives to shape and decide outcomes of projects together.

Haruna Sekabira is an agri-food systems consultant at the International Institute of Tropical Agriculture (IITA) – Rwanda with research interests around value chains and food markets' participation, nutrition and food security, circular bioeconomy, and welfare impact assessments.

Pius Krütli is co-director of the TdLab at ETH Zurich, and his research focuses on methods and practice of transdisciplinary (research) processes.

Johan Six is Professor at ETH Zurich and leads the SAE group; his research ranges from basic soil science to applied food systems research. Contact: Benjamin.wilde@usys.ethz.ch

The authors wish to thank the whole RUNRES team for their contributions.



Melanie Connor is a social scientist at the International Rice Research Institute (IRRI) in the Philippines, specialised in behavioural and risk research. She holds a doctoral degree from the ETH Zurich, Switzerland, and has 15 years of experience in research on decision-making in agriculture and land-use change, behavioural change, social and cultural aspects of research for development, food security, health and nutrition of farmers, value chains for small-scale agriculture and gender.



Oliver Frith is the Head of Business Development at the International Rice Research Institute. He has a masters degree in Environment Change and Management from the University of Oxford and has worked for 15 years in the tropics across the Global South to develop multi-stakeholder partnerships and design research for development programmes in the agriculture, forestry and environment sectors.

Leveraging the power of network effects

In our 1/21 edition on “Innovations”, we demonstrated the role that implementation research can play in getting innovations off the shelf and into practice. Taking a regional project on enhancing rice production in Asia, our authors have identified three more factors which can further the impact of future implementation research programmes.

By Melanie Connor and Oliver Frith

In their article “Closing the adoption gap”, Denich and Whitney argue that widespread smallholder farmer adoption of new research innovations can be achieved through embracing implementation research, which aims to iteratively address end-user constraints as part of the formal research process. Based on evidence from Closing Rice Yield Gaps in Asia (Corigap), a regional project funded by Swiss Development Cooperation (SDC) that applies implementation research methods in practice, we highlight the benefits of this approach, as well as identify three additional enabling factors that could significantly increase the impact of future implementation research programmes: ensuring that investments are made over a longer term timeframe, leveraging two-way learning, multi-stakeholder networks (learning alliances) and fostering South-South cooperation for knowledge exchange. In the following, we briefly describe how these approaches could work in practice.

High adoption rates

Since 2013, Corigap researchers at the International Rice Research Institute (IRRI) have co-developed science-based tools with national partners and farmers in Asia to close yield gaps while protecting the environment. This has led to improved production systems that enhance smallholder rice farmer livelihoods, as well as an increase in rice production to maintain food security in the region. In total, improved, integrated natural resource management system innovations have been adopted by over 780,000 households in six countries, improving incomes (15–90 %) and yields (>10 %), while also reducing environmental footprints of rice production. Thanks to the use of inter- and trans-disciplinary approaches, coupled with high-levels of participation from stakeholders across the entire value chain organised through learning alliances, adoption rates of research innovations in Corigap countries have reached around 30 per cent. This is significantly higher than corresponding rates (1–10 %) typically

achieved across the CGIAR system as a whole for natural resource management (NRM) research.

Long-term research partnerships and learning alliances

In addition to the importance of applying an implementation research approach, one of the key factors of Corigap’s success has been long-term investment in the research partnerships. While it is a ten-year investment, the project builds on earlier SDC investments starting in the 1980s that were formalised through the Irrigated Rice Research Consortium (IRRC), which ran from 1997 to 2012. IRRC provided a platform to facilitate identification, development, dissemination and adoption of natural resource management technologies suitable for irrigated rice-based ecosystems in several Asian countries.

Although technologies developed under IRRC were all successful when applied individually, since 2013, the Programme has allowed national partners to package individual practices into integrated management systems, campaigns and policy, creating a positive feedback loop that drives large-scale adoption.

We also recommend agriculture development practitioners and investors to consider using learning alliances to further enhance adoption of research innovations. While Denich and Whitney divide research into two main camps, namely farmer-managed and researcher-managed on-farm research, we believe this demarcation is too binary and fails to fully leverage the power of network effects across an entire value chain.

In a learning alliance approach, a network of various actors is organised in stakeholder platforms, to identify, share and adapt innovative practices. Therefore, learning takes place at the level of the value chain rather than only in the farmer’s field. In principle, all actors who have some role in agricultural innovation can be in-

Fostering wide-scale adoption through promotion of integrated management systems and national campaigns – Vietnam’s “One Must Do, Five Reductions” (1M5R) Program

Over the last few decades, Vietnam has benefited from a rapid intensification of rice production ensuing high yields and economic gains. However, this has also led to environmental degradation and adverse health effects. Therefore, with support from the Irrigated Rice Research Consortium (IRRC) in the early 2000s, several best management practices were co-developed and individually adopted by farmers in the Mekong delta to address environmental degradation and improve profitability.

Under Corigap and in partnership with the Government of Vietnam, integrated systems approaches have now been scaled to maximise the sustainability of lowland rice farming systems. An implementation research approach has been applied to co-develop and demonstrate integrated systems that combine individual best management technologies with local farmers and extension programmes. In Can Tho, Vietnam, farmers have reported an increase in yield of 1,089 kilograms per hectare (kg/ha) in the dry season and 1,274 kg/ha in the wet season associated with adoption of these combined best management practices. Yield increases led to added revenue of 271 US dollars (USD) per hectare and 290 USD/ha in the dry and wet seasons, respectively. Farmers also reported 10 per cent savings in production costs that are equivalent to 71 USD/ha in the dry season and 67 USD/ha in the wet season.

This integrated approach now forms the basis for Vietnam’s “One Must Do, Five Reductions” (1M5R) Program in lowland rice cul-



Rice farming in Vietnam.

Photo: IRRI

tivation areas. 1M5R encompasses the use of certified seeds, which is the “One Must Do” combined with five reductions for the seed rate, fertiliser use, pesticide use, water use and post-harvest losses. In Vietnam, outreach of best management practices has been facilitated by a World Bank project on “Vietnam Sustainable Agricultural Transformation” (VnSAT). For farmer organisations to receive financial support for machinery and infrastructure upgrading, they must show that most of their members have met the best practice guidelines described as above. By December 2019, the World Bank reported that 800,779 beneficiaries in eight Provinces had adopted 1M5R.

cluded in learning alliances, which ensures a variety of interests and views are incorporated into adaptive research programmes.

IRRI’s experience in Corigap has shown that this approach can be highly effective in driving adoption of innovations. For example, learning alliances in Myanmar have helped farmers, rice traders and millers to jointly identify preferred high-yielding varieties that meet their respective agronomic, milling and quality needs, leading to increased use of improved varieties in farmers’ fields. In Vietnam, we have also witnessed similar benefits in scaling adoption of farm mechanisation and post-harvest technologies, such as laser land levelling and rice straw management. Learning alliances played a critical role in helping to identify viable service provider business models for mechanisation and post-harvest technologies that cater to the needs of smallholder farmers and cooperatives.

Fostering South-South Cooperation

Finally, another critical lesson we learned from Corigap is that South-South Coopera-

tion (SSC) is an excellent way to share learning from implementation research and accelerate the adaptation and adoption of research innovations in other locations with similar needs and constraints. A number of innovations developed through the programme have been successfully shared and adapted in other countries through SSC. For example, Vietnam’s experience in rolling out integrated approaches, such as “1M5R” (see case study in Box) and a preceding programme named “Three Reductions Three Gains” (3R3G), have been used to inform similar work under Corigap in Thailand, known locally as Cost Reduction Operating Principles. The use of regional platforms like Corigap is invaluable for leveraging learning and experiences across countries.

In summary, we strongly advocate for use of implementation research in agriculture as a means of increasing adoption of research innovation. However, when implementation research is also combined with a long-term, phased investment approach, as opposed to stand-alone 3-to-5-year project cycle investments, experiences from Corigap suggest that

this can play a significant role in driving system-level transformation, too. We believe that combining research implementation with longer-term, phased investments is critical to enable smallholder farmers to adopt a combination of research innovations and fully adapt them. Coupled with the need for longer-term time horizons for research, we also advocate strongly for leveraging the power of network effects through the use of learning alliances (or similar participatory approaches), which create positive feedback loops that help to drive changes across value chains. We furthermore see huge potential for joining up research at a country level through regional platforms and encouraging more South-South Cooperation. Taken together, we believe this suite of approaches can play a critical role in helping smallholder farmers to not only adapt to major structural transformations occurring in agricultural markets today, but also to manage increasing risks from climate change and environmental degradation.

Melanie Connor, contact: m.connor@irri.org
Oliver Frith, contact: o.frith@irri.org

Engaging the community in solving the bushmeat crisis

Bushmeat has been a major source of protein and livelihood in the tropical forests for millions of years. Using wildlife for this purpose has been growing rapidly, putting pressure on wild animal populations and creating attendant crises such as outbreak of zoonotic diseases and ecological imbalances. Our author gives an account of how this issue is being addressed in a project run by the Forestry Research Institute of Nigeria (FRIN).

By Titilope Olarewaju, Oluwaseun Oloba, Alex Ereme, Bolanle Olatunji and Lucy Orumwense



Hunting of wildlife is one of the coping and survival strategies used in Africa.

Photo: Axel Fassio/ CIFOR

Bushmeat simply stands for any wild animal killed for the purpose of eating its meat, and is an integral part of African culture. Hunting of wildlife is one of the coping and survival strategies used in the continent. Bushmeat has traditionally been a key source of protein and livelihood in the tropical forests. It is used to achieve food security and nutritional balance, create employment and cash income and generate an inflow of foreign earnings. It is applied in medicinal and health remedies, drug development, ceremonial and spiritual cleansing, and cultural and religious practices. Changes in technology, population growth and declining economies have contributed to rapid increases in the use of wildlife, as have increasing urbanisation associated with higher income and standards of living, a growing preference for bushmeat as well as an increasing fragmentation of forests.

Although all of Africa is affected by this new crisis, West and Central Africa are most hard hit. The impact of the increasing consumption

of bushmeat is associated with a number of challenges. If the present hunt rate continues, the outbreak of zoonotic diseases and ecological imbalances will become ever greater issues of concern. A growing appetite for bushmeat among urban residents is increasing the transmission of zoonotic diseases like Ebola and COVID-19, and threatening wildlife populations in Nigeria and its surrounding countries. In a study conducted in major Nigerian cities, around 98 per cent of urban bushmeat consumers indicated that there are suitable alternatives to bushmeat, but 75 per cent of the respondents still intended to continue eating bushmeat despite the COVID-19 pandemic and the links between bushmeat trade and the spread of zoonotic diseases. However, hunting of bushmeat in rural communities is largely driven by limited dietary options and demand from cities, which is economically rewarding. The production of alternative sources of protein and income is one strategy that can be used to address the bushmeat crisis in rural

communities. Bushmeat hunting is acknowledged as the biggest contributor to the spread of zoonotic diseases. The Ebola outbreak of 2013 and the current COVID-19 pandemic have shown that habitat reduction and unregulated wildlife hunting is significantly increasing our contact with animal reservoirs and enhancing the chances of disease transmission. It was to this end that the Forestry Research Institute of Nigeria (FRIN), which has a mandate for environmental sustainability, started a domestication and multiplication programme for small monogastric and ruminant animals.

The project “Domestication of Small Monogastric and Ruminant Animals” (DSMR) has primarily targeted rural communities, since bushmeat is mainly hunted and supplied to urban cities from such areas. The dissemination of production technologies of selected small monogastric and ruminant animals is the core activity under this project. Considering resource limitations and conditions in such areas,



Rabbit production training for Arowojeka Farmer's Group at Oyegun community of Olomi area in the Oluyole Local Government Area, Ibadan Oyo State Nigeria.

Photo: Titilope Olarewaju

grasscutters, or greater cane rats, and rabbits appeared to be suitable animals to promote. Both animals have the ability to feed on a wide range of grasses, leafy materials, tubers, fruits, grains and other kitchen leftovers. Rearing of these small monogastric animals provides alternative sources of income for farmers when sold and also increases farmers' access to animal protein for dietary needs when consumed at home. The meats are highly marketable and accepted by all social classes in urban and rural communities of West Africa. In terms of nutrition, they serve as important sources of highly priced animal protein thanks to their leanness and unique organoleptic properties. Both grasscutters and rabbits can be raised as backyard ventures.

The DSMR project started in 2019 and is fully funded by the FRIN under the Ministry of Environment. It aims at diverting over-exploitation of forest resources to sustainable use systems. In the project framework, trainings are organised by the Forest Economics and Extension services extension arm in collaboration with Subject Matter Specialists from the Department of Wildlife and Ecotourism.

Thirty-five communities which the FRIN has an existing relationship with were contacted and briefed about the opportunity to obtain free training and discounted start-up kits for groups or individuals. Farmers were able to inform the FRIN of their interest in the project. A total of 20 farmer groups got in touch, and the project team visited and trained them on grasscutter and rabbit production techniques. Areas covered in the training included housing, procurement of foundation stock, feed-

ing, sex determination, stocking and pairing of animals in cage(s), reproduction, gestation and parturition, weaning, processing and preservation of meats, as well as marketing. Farmers and groups interested in rearing either of these animals were required to provide space and housing units for the respective animals. Preliminary visits and reconnaissance surveys were then conducted in order to determine the availability and suitability of housing units for the animals in these communities. Farmers or farmers groups who met these conditions were then supplied with start-up animal kits on a discounted arrangement in order to enlist commitment of beneficiaries. For communities around Ibadan metropolis, five groups have benefited from this arrangement,

and plans are in place to replicate the project around the major cities in the country's six geopolitical zones. The reports from beneficiaries indicate that the animals are a great protein source and have reduced hunting levels. Community members have also been earning regular incomes from sales of the animals, as reports have it that a group that initially acquired three bucks and one doe now has 18, with an additional 22 consumed, gifted or sold. Technical know-how, discounted foundation stocks, routine follow up and guidance have so far helped in consolidating this achievement. The FRIN plans to cover at least two major cities per geopolitical zone, with the aim of supporting a minimum of five groups per city. This is expected to cover ten groups or individuals per zone and a total of 60 groups spanning the six zones of the country. Presently, funding, insecurity and avid commitment on the part of farmers are the major challenges of the project. The project is still in its early stages, so that an account of its impact on hunting and consumption of bushmeat cannot be given yet.

Titilope Omolara Olarewaju, Oluwaseun Grace Oloba and **Bolanle Tawakalitu Olatunji** are Senior Research Fellows at the Forest Economics and Extension Services Department. **Alex Oluseyi Ereme** is a Principal Instructor at the Wildlife and Ecotourism Department. **Lucy Adeteju Orumwense** is a Research Fellow 1 at the Forest Economics and Extension Services Department. **Oluseyi Olutoyin Olugbire, Olumide Awofadeju, Christy Ojedokun** and **Oluwatosin Obafunsho**, all of the Forestry Research Institute of Nigeria (FRIN), supported this article.
Contact: titilopequadri2@gmail.com



Subject Matter Specialists (in grey) from the Department of Wildlife and Ecotourism showing farmers how to raise rabbits.

Photo: Titilope Olarewaju



Sign up for
our newsletter
and get four issues
of our print magazine
FREE OF CHARGE

SUBSCRIBE NOW @

www.rural21.com