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CIVIL STRIFE
Cameroon's community-based peace journalism

DIGITALISATION
Why a UN charter is needed to promote sustainability

OBITUARY
Our correspondent Humphrey Nkonde found dead in Zambia

Agricultural change

In German in E+Z
Entwicklung und Zusammenarbeit.
Both language versions
at www.DandC.eu

Monitor

Debate

Tribune

Focus: Agricultural change

Title: An East African farmer winnows maize grains.
Photo: Thomas Mukoya/Reuters

FOCUS

Agricultural change

No expensive inputs

The government of Andhra Pradesh, a south Indian state, is promoting organic agriculture. Farmers who rely on nature's regenerative force do not need expensive inputs. They use resources that are generated on the farm, such as cow dung, for instance. Vijay Kumar Thallam, a government adviser, discussed the approach in an interview with D+C/E+Z. PAGE 21

Zero emissions

Even though farms could serve to capture climate-gas emissions, agriculture is an important driver of the climate crisis. Farming can, and indeed must, become climate neutral, argues Susanne Neubert of the Berlin-based Centre for Rural Development. PAGE 23

Land races at risk

Burkina Faso's farmers breed and trade the seeds of a great diversity of traditional land races. This sophisticated and time-tested system is at risk as multinational corporations aggressively market high-yielding and gene-modified varieties. In the eyes of Lucien Silga, who works for the human-rights organisation FIAN, the government should not endorse them. PAGE 26

Attitudinal change

Poverty, hunger and environmental destruction show that Ethiopia needs comprehensive rural change. Getachew Diriba, an agronomist and prominent book author, told D+C/E+Z, why he wants his country to adopt a determined, multi-generational policy. PAGE 28

Promising Kenyan trends

Urban gardening is gaining momentum in Nairobi, with disadvantaged communities growing vegetables and other food items on small plots. As Katie Cashman, who specialises in sustainable urban development, spells out, the results include healthier diets and enhanced food security. In the meantime, thousands of informal shopkeepers who sell groceries to Nairobians now rely on a innovative technology company which is re-engineering the supply chain from rural smallholders to urban consumers. The company is called Twiga, and all parties involved benefit. Peter Njonjo, the chief executive and cofounder, assessed matters in an interview. PAGES 31, 33

OUR VIEW

Indispensable transformation

Agriculture must change fundamentally. This industry is contributing up to 37% to global greenhouse-gas emissions according to the International Assessment of Agricultural Knowledge, Science and Technology for Development (IAASTD). The worst climate harm is being done when forests and green spaces are destroyed and when nitrogen and methane are emitted due to the application of mineral fertilisers or by cattle herds. The expansion of farmland and the use of chemical pesticides, moreover, both severely harm biodiversity.

Agriculture is not only a driver of climate change, it is also among the victims. Drought, flooding and extreme weather are becoming ever more common. Farmers need to consider modifying their practices. Innovation and digitalisation offer new opportunities. Traditional knowledge will often prove a good starting point. Smallholders in developing countries, however, tend to lack access to the competent advice, cutting-edge knowledge and financial services that might allow them to invest in innovation. Infrastructure tends to be inadequate, moreover, and that is equally true of the regulatory environment in many countries.

Apart from the climate crisis, humanity is facing another huge challenge. How will we feed the growing world population? According to the most recent edition of the World Hunger Index, which is compiled every year by Welthungerhilfe and Concern Worldwide, two international non-governmental organisations, the number of those suffering hunger has been growing in the past three years and has now risen to more than 820 million globally.

Humanity is actually producing enough food to sustain 7.6 billion people, but distribution is not up to task. The situation is particularly bad in places rocked by civil strife. Unfortunately, many peaceful countries in Africa do not manage to produce enough food for their people either. Harvest losses because of extreme weather compound the problem. Considerable post-harvest losses in disadvantaged countries, especially regarding rice and wheat, matter as well. The main reason is poor storage facilities, with pesticides and fungi thriving in moist and hot settings. The plain truth is that many people cannot afford to buy imported goods. International food aid is not available to all of them, and it is not a sustainable solution the first place. It is irritating, moreover, that tons of unused food end in the garbage bins of rich nations.

Industrialised nations have the funds, the knowhow and everything else they need to transform their agriculture and make it climate friendly. What they lack, is the political will. Powerful interest groups oppose change. The challenges are even greater in the many developing countries that lack the wherewithal – from money for investments to relevant knowledge, from basic infrastructure to sophisticated logistics for marketing farm produce.

To improve rural standards of living, it is not only necessary to make farming as environment-friendly and productive as possible. Small-scale urbanisation in remote areas will help. Small and mid-sized towns can specialise in processing agricultural goods as well as in providing services to farmers. Jobs can be generated that way. If more people find livelihoods in their home regions, migration to megacities will slow down.

These are complex challenges. We are facing global problems that require global solutions. The rich nations must not let developing countries down. Otherwise, neither climate protection nor food security will be feasible.

You'll find all contributions of our focus section plus related ones on our website – they'll be compiled in next month's briefing section.

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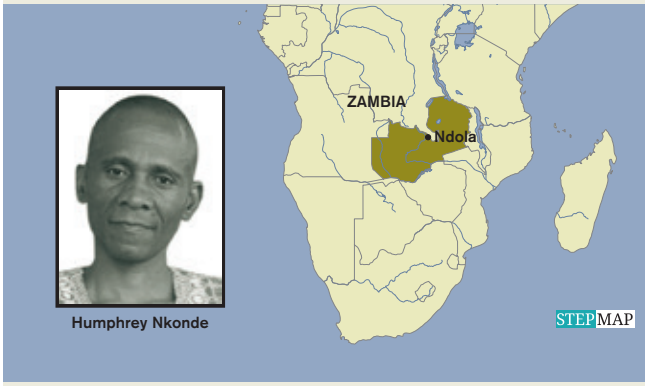
Photo: Aya Bach/Brot für die Welt

Obituary



Humphrey Nkonde

Correspondent found dead

We mourn the death of Humphrey Nkonde, who was our correspondent in Zambia. He was committed to serving the public. We very much appreciated his reporting from Ndola, where he lived. He died in mysterious circumstances. **PAGE 10**

Tribune

Carefully chosen words

Political violence is rocking Cameroon, and the media can support peace and reconciliation by opting for conflict-sensitive reporting. For this purpose, Cameroon's Presbyterian church is cooperating with Germany's Civil Peace Service on promoting community media at the grassroots level. Geraldine Fobang, Rosaline Akah Obah and Alexander Vojvoda, networkers involved in the programme, elaborate why the approach is promising. **PAGE 16**

Gearing digitalisation to sustainability

Digitalisation can either drive the transformation to sustainability or thwart it. For humanity to grasp the opportunities, policymakers must act fast. A UN charter on the matter would be helpful, argue Heide Hackmann of the International Science Council and Dirk Messner of the German advisory Council on Global Change. **PAGE 18**

SOCIAL SAFETY NETS

Universal protection versus targeted schemes

International development agencies are reconsidering their approach to social protection, and academic debate is evolving too. Experience shows that social safety nets can boost entrepreneurship and employment, serve nation building and are appreciated by masses of people. Countries with huge informal sectors, however, cannot simply copy systems that depend on formal employment, as they typically do in advanced nations.

By Hans Dembowski

In the past, Germany's Federal Ministry for Economic Cooperation and Development (BMZ) was unwilling to fund ongoing expenses for social protection in partner countries. The reason was that it wanted to support investments, not consumption.

In the past ten years, however, its approach has changed. The BMZ is now in favour of social-protection schemes and is contributing funding in some selected cases. According to Peter Krahl, a BMZ officer, the freedom from fear of losing one's primary income is a human right. Moreover, experience shows that social protection does not drain an economy's potential, but actually boosts its productivity. The reason is that people who know that they will not plunge into desperate poverty are more willing to invest in the education of their children or set up a small business. Those without protection, by contrast, tend to prioritise making money immediately.

Marcus Loewe of the German Development Institute (Deutsches Institut für Entwicklungspolitik – DIE) points out that social protection and nation building are closely related. The most striking example is Germany (see interview with him in D+C/E+Z e-Paper 2018/11, Focus section). After unification in the late 19th century, Otto von Bismarck introduced a pension system and an unemployment insurance. The idea was to stall the labour movement, but the unexpected result was that the beneficiaries of the then innovative social-protection systems began to identify with the new political order. Many other countries later copied Bismarck's model, including France and the USA. It is based on all formally employed people paying obligatory contributions ("payroll taxes") to protection schemes which, in turn, more or less guarantee their standard of life in old age or when they lose their jobs. Germany's public health insurance operates in the same way.

In many developing countries and emerging markets, however, the informal sector tends to be huge. The implication is that only the small share of people who work in formal employment or in government service enjoy social protection. Egypt is an example, as Amirah El-Haddad, another DIE scholar, told the annual PEGNet conference in Bonn in September. PEGNet stands for Poverty Reduction, Equity and Growth Network. It links academic institutions to development agencies. This time, the topic was social protection.

According to El-Haddad, 90 % of Egyptian men were only informally employed in 2012, and their share has been rising since pro-market reforms were started in the 1990s. Research has shown that 75 % of the informally employed earn less than the legal minimum wage, so raising the minimum wage does not help them. After all, the informal sector, by definition, largely escapes government regulation and oversight.

If policymakers want to improve poor people's lives in such circumstances they need to take measures to improve wages in the informal sector even though that sector largely bypasses the law. There are options. In El-Haddad's eyes, for example, Egypt could benefit from copying the rural minimum wage that India introduced in the first decade of this century. It is called Mahatma Gandhi National Rural Employment Guarantee (MGNREGA). It stipulates that one adult member of each rural household is entitled to at least 100 days of formal employment at the legal minimum wage. The

Street vendor in Cairo: Egypt's informal sector is huge.

Photo: picture-alliance/dpa

scheme has its flaws, so its results in some Indian states have been disappointing. However, it did make a dent in rural poverty in other states.

As El-Haddad sees it, that could be the case in Egypt as well. The point is to provide people who depend on informal occupation with opportunities. The more they become able to refuse the worst informal jobs, the more informal wages are likely to rise.

LINKING PROTECTION TO GROWTH PROMOTION

Saweda Liverpool-Tasie is a Nigerian economist who teaches at Michigan State University in the USA. She appreciates donor governments' growing interest in social-protection issues. Development agencies, in her opinion, should pay close attention to how economies are changing and be prepared to grasp unexpected opportunities.

She says, for example, that small and medium scale enterprises have been expanding fast in Nigeria in recent years, without officialdom paying much attention. According to her, it is essential to promote social protection, structural change and economic growth at the same time.

In development circles, the debate on social protection has largely been revolving around a different question in recent years: should developing countries adopt universal protection schemes that serve the entire population, or should they take a more targeted approach to alleviate the suffering of the poorest people?

Stephen Kidd of the British consultancy Development Pathways is in favour of universal schemes. His reasons include that:

- targeting in itself is difficult and costly, reducing the resources that are not available for poverty reduction,
- universal schemes serve the majority of people and therefore tend to be quite popular, which is especially important in countries under democratic rule, whereas
- targeted schemes often stoke division between those who benefit and those who don't.

Kidd rejects the argument that universal protection schemes are unaffordable in developing countries. He points out that the minimum old age pension or universal child credit normally only require a few percentage points of a poor country's gross domestic product, so introducing them is more a question of political priorities than of tight budgets. Universal social protection, in the consultant's view, serves the goal of building and deepening democracy. The reason is that it reflects the desires of masses of voters and, once established, reinforces their sense of citizenship. His advice to donor governments is to help crisis countries to establish such schemes in order to boost legitimate statehood.

Mimium wages help – rural workers involved in public infrastructure project in the Indian state of Rajasthan.

According to Kidd, however, the World Bank and the International Monetary Fund, two powerful multilateral agencies, prefer targeted programmes because of their small-state ideology. They want government intervention in markets to be reduced to the absolute minimum required. Kidd warns that their approach of funding targeted protection schemes with loans is risky: though the loans have a large concessional component and are only repayable after many years, they may contribute to future debt crises. In the consultant's opinion, universal schemes that depend on tax money (income tax, payroll tax and other taxes) are preferable, not least because they are more democratic. Donor grants, of course, can be helpful, especially at the start.

Stefan Dercon of Oxford University sees things in a rather different light. According to him, targeted interventions are becoming ever more promising thanks to digital technology. In many African countries, for example, money can now be disbursed by smartphone even in remote rural areas. Moreover, it is becoming easier to identify people, which is essential for targeted action. About 800 million people live in extreme poverty around the world, the professor argues, and it would make sense to support them in particular. According to Dercon, public funding should focus on eradicating extreme poverty and not be diluted in schemes that offer benefits to masses of people who do not suffer desperate need.

Social protection is typically a nation-state issue. Nonetheless, Dercon is considering global action. He says that humanitarian agencies would do well to opt for digital aid disbursements in crisis regions. In South Sudan's civil war, for example, aid agencies struggle to provide food everywhere, but informal traders still manage to operate. That means that even in situations of civil strife, purchasing power can make a difference. To the extent that people can pay for it, food is likely to become available. Dercon argues that the humanitarian problems would not be as bad as they are today in many crisis regions, had such interventions been prepared for before violence escalated.

LINK

PEGNet – Poverty Reduction, Equity and Growth Network:
https://www.pegnet.ifw-kiel.de/

Photo: Vyas/picture-alliance/Pacific Press Agency

MENTAL HEALTH

Removing the chains

The aid organisation Yenfaabima provides psychiatric treatment in Burkina Faso. Lilith Kugler has made a film about the organisation that shows how a different interpretation of mental illnesses and epilepsy can dramatically change the lives of sufferers.

By Katja Dombrowski

"Who among you is in chains?" asks Pastor Tankpari Guitanga, addressing the people who have come to his mobile consultation hours in Piéla in north-eastern Burkina Faso. A few people step forward or are led out of the waiting area by their relatives. They are wearing thick, rusty chains on their wrists or ankles that are locked with padlocks. Guitanga and his assistants saw the chains off in a literal act of liberation that often comes after years or even decades of confinement. The scene is captured in the documentary film "La maladie du démon" ("The demon disease").

German filmmaker Lilith Kugler shows the fate that people with mental illnesses or epilepsy suffer in Burkina Faso. In the West African country, there are nine psychiatrists and about 100 psychiatrically trained nurses for 17 million residents. They all work in larger cities. In rural areas, relatives care for the affected people themselves or deliver them to prayer centres or traditional centres for the mentally ill.

In Burkina Faso, mental illnesses and epilepsy are thought to be caused by demons (see also Samir Abi in D+C/E+Z e-Paper 2019/06, Focus section) and are considered untreatable and, what's more, contagious. For that reason, people are afraid of those who are afflicted. They lock them away, beat them, chain them up or just leave them to fend for themselves – even in the centres. In the film, a pastor who runs a prayer centre justifies these inhumane measures as follows: "Without chains, they will run away or kill themselves." Medication is generally rejected. The pastor also says: "You just need to believe in God. Everything else is unimportant."

Pastor Tankpari Guitanga (left) with a mentally ill person under his care.

In the worst cases, Guitanga explained at a podium discussion following the film's German premiere in September, mentally ill people are even murdered. The reasons are fear and ignorance: "It is the incorrect interpretation of the disease that kills." Guitanga founded the aid organisation Yenfaabima in order to educate people about mental and neurological illnesses and help those who are affected. In the beginning, Guitanga and Timothée Tindano, a psychiatric nurse, offered consultation hours once a month in Piéla. The dates were announced over the radio and attendance was huge. A treatment building was completed in 2017, and Tindano began working for Yenfaabima full time in March of this year. The work is being financed by donations that come in large part from Germany.

The treatment is based on administering medication. Tindano provides a diagnosis and prescribes drugs. Yenfaabima employees also ensure that the medications are taken regularly and advise patients and their families. Nevertheless, the film makes clear that local pharmacies have only two drugs on hand to treat psychosis and epileptic seizures. That is a problem that Guitanga is trying to solve: "We would like to import more medications and are making good progress towards that goal."

Heinz Weiß, the head of the department of psychosomatic medicine at the Robert Bosch hospital in Stuttgart, pointed out at the podium discussion that prescribing medication is not enough: "You have to talk to the patients and their families." Yenfaabima is trying to have these conversations, and the reintegration of sufferers into the community is one of their most important aims. According to Weiß, the work should also be integrated into the local health-care system. However, he does not see creating more psychiatric wards in hospitals as a solution. He says that's because "placing people there is not much better than sending them into the nearest forest".

"The demon disease" is being shown for educational purposes in Burkina Faso and Côte d'Ivoire. "The film has returned to the place it came from," says filmmaker Kugler. "It creates an opportunity to talk about this issue and gives people hope."

LINKS

The German organisation "Friends of Yenfaabima":
http://www.yenfaabima.de/
Documentary film "The demon disease":
http://la-maladie-du-demon.com/

Photo: Kugler Film

IPCC SPECIAL REPORT

Sounding the alarm

The latest special report of the Intergovernmental Panel on Climate Change (IPCC) presents gloomy prospects for the future of the oceans. Many changes can no longer be averted, and the consequences are catastrophic for the global environment and people. Effective measures, for example to protect coasts, are urgently needed.

By Floreana Miesen

Sea levels are currently rising twice as fast as they did in the past century. This is due on the one hand to the large-scale melting of ice sheets in Greenland and Antarctica and on the other to global heating and the associated expansion of seawater.

To date, the oceans have absorbed more than 90 % of the excess heat in the climate system and up to 30 % of the greenhouse gases emitted since the 1980s, the IPCC reports. However, the buffer capacities could be exhausted very soon. As the special report on the state of seas and ice sheets published in September warns, the result would be the catastrophic acceleration of changes in the global climate system.

The reduction of Arctic sea ice matters too. Ice reflects solar radiation, so a frozen Arctic Ocean is shielded from large amounts of energy input. By contrast, the open ocean can heat up considerably, preventing the formation of new sea ice. According to the IPCC, this self-reinforcing effect could make the Arctic ice free in summers by the end of this century. The scholars state that it will contribute significantly to global warming.

Tropical cyclones are set to become more damaging moreover. Many of the more than 7,000 studies that are the basis of the IPCC report predict that their average intensity and the associated precipitation will increase permanently if global temperatures rise by two degrees on average. Other extreme weather events will become more intense or happen more frequently as well.

As sea levels rise, stronger storms will further exacerbate risks of coastal flooding. Experts reckon that, by 2050, many coastal megacities will experience at least once a year the kind of flooding that previously would only happen once per century on average. The same is said of small islands. The IPCC report warns that millions of coastal people are set to lose their homes. Some island states may even become uninhabitable.

Coastal ecosystems such as mangrove forests and coral reefs normally protect the coasts from storms and erosion. However, almost half of the world's coastal wetlands have been lost in the past 100 years. The IPCC authors view this development with concern. Compounding the problems, the loss of warm-water coral reefs will adversely affect food security and tourism. The decline in biodiversity undermines fishermen's livelihoods. Increasing ocean acidification, sea heat waves, oxygen loss, pollution and increasingly frequent harmful algae blooms also have detrimental impacts on the diversity of species.

The higher sea levels rise, the more difficult coastal protection becomes. Many of the measures taken so far are not ambitious enough, the scholars insist. While efforts to manage the risks have been increasing, action too often remains half-hearted and inadequate. For example, marine protected areas and water management systems tend to be fragmented. Holistic solutions across sectors and administrative jurisdiction are needed.

The IPCC report still sees scope for effective coastal protection reducing the risk of flooding worldwide by half. Billions of dollars would have to be invested for that purpose. In densely built-up coastal regions, dikes and other artificial constructions are perhaps the most cost-effective measures. Elsewhere, the authors recommend ecosystem-based adaptation strategies, such as the reintroduction of mangroves and seagrass meadows. This would not only strengthen water quality and coastal biodiversity. It would contribute to climate protection because coastal ecosystems absorb carbon. Ultimately the report leaves no doubt that all mitigation measures and adaptation strategies must be implemented fast.

LINK

IPCC, 2019: Special report on the ocean and cryosphere in a changing climate.
https://www.ipcc.ch/srocc/home/

Frequent heatwaves, ocean acidification and pollution put the livelihoods of fishermen at stake. Fishermen in south-west Ecuador.

Photo: fm

DIGITALISATION

Low and high-tech applications

Digital change has a bearing on international development agencies. A recent report by VENRO assesses the opportunities and risks of digitalisation. VENRO is the umbrella organisation of German non-governmental organisations (NGOs) that are active in international development and humanitarian affairs.

By Dagmar Wolf

Digital technology facilitate access to knowledge and give scope to political and economic engagement. They thus offer opportunities for improving the conditions many people live in. Moreover, digital applications can improve the efficiency, design, outreach and transparency of development efforts. Therefore, many NGOs are relying on such options.

One of the advantages is that not everyone involved in a project has to be at the same place at the same time. Data can be collected locally for evaluation anywhere else in the world. It has become easier to offer sustained schooling to Syrian children in Jordanian refugee camps or to children in Argentina's remote areas. One app can even help refugees struggling with depressive and post-traumatic disorders wherever they may be. This app is available in several languages free of charge (see http://almhar.org/).

The VENRO report provides an overview of various pilot projects as well as of the state of digitalisation in general. They range from low-tech (radio or SMS-based) to medium-tech (based on smartphones, tablets and social media) to high-tech instruments (such as the linking of smartphones, satellites and digital maps or the use of drones). What fits best in which context differs from case to case. The latest technology is not always the best choice. Established services such as text messaging often have higher impacts.

A prime example of a useful low-tech instrument is M-Pesa, the mobile-payment system many people in Africa depend on. It enables them to carry out financial transactions by text message and has become a driver of economic growth and social development.

According to the VENRO study, many technologies are still at an early stage, but could offer new approaches for rising to challenges in the future. For example, drones might serve to deliver pharmaceuticals to inaccessible regions. They could also be used to monitor deforestation and illegal action in general.

On the upside, digitalisation can thus be an important contribution to achieving the Sustainable Development Goals (see Hackmann and Messner on p.18 of this e-Paper). At the same time, it poses new challenges for NGOs. The monopoly positions of multinational corporations such as Google or Facebook, insufficient regulatory frameworks and reckless profit maximisation may thwart development. Innovative methods of communication do not automatically bring about fairness or sustainability, nor do they necessarily deepen democracy. The flip side of the coin is manipulation, surveillance, censorship, intimidation and disinformation (see focus section in D+C/E+Z e-Paper 2019/09).

The digital divide itself remains a major challenge. According to the VENRO authors, about half of the world population still has no access to the internet, and the people concerned tend to be marginalised in social and economic terms. They are the main target groups for developmental NGOs. It is worrisome, moreover, that many questions concerning the protection of personal data remain unresolved.

A drone transporting blood to remote areas of Rwanda.

Photo: picture-alliance/Kristin Palitza/dpa

LINK

VENRO: Tech for Good. Möglichkeiten und Grenzen digitaler Instrumente in der Entwicklungszusammenarbeit von Nichtregierungsorganisationen ("Tech for good. Chances and limits of digital instruments in the development cooperation of non-governmental organisations" – only in German).
https://venro.org/fileadmin/user_upload/Dateien/Daten/Publikationen/Dokumentationen/NRO-Report_TechForGood_v04.pdf

A real school at last

Forced migration has a very negative impact on children's education. According to the recent education report by the UN refugee agency UNHCR, not even half of the 7.1 million children that had to flee from their homes can go to school. Globally, 91% of all children of elementary school age go to school; amongst refugees, it is only 63%.

Lebanon is one of the countries with the greatest number of refugees in relation to its inhabitants. Since the outbreak of war in neighbouring Syria, hundreds of thousands have found refuge in Lebanon. In July 2019, the UNHCR had registered around 1 million refugees in this country. More than a third of them live in the Bekaa plains in eastern Lebanon. In spite of numerous international programmes, less than half of the 3- to 18-year-old Syrian children and youth go to school.

Medyen Al Ahmad also fled with his family from the war in Syria to Lebanon. For many years, he has been active in education initiatives for Syrian refugee children. Near his camp he started a tent school for the young inhabitants of this and the neighbouring camps; this school is being supported by the German association Schams. Initially, the children were taught according to a curriculum for informal schools and did not receive officially recognised school certificates. This presented a problem whenever they wanted to continue at a high school.

But now there will be a real school in the camp, also supported by Schams, and this time with a different syllabus. The teachers use the Lebanese curriculum, and the children get school reports which are recognised by the Ministry of Education. The lessons will start by mid-October. 75 Syrian children aged between six and 14 years will go to grades 1 to 6.

The single-story brown building is situated outside of Bar Elias in the plains of Bekaa, only 12 kilometres from the border with Syria. From the windows of the school, the view goes to potato fields and informal camps – shacks of wooden scaffolding covered by white plastic sheeting. About 20,000 Lebanese live in this little town, and more than twice as many refugees.

It needs a lot of stamina in today's Lebanon to build a project for Syrian children. The people are increasingly hostile towards refugees, and politicians insist that Syrians should go back, regardless of the living conditions in their homeland. But Al Ahmad draws his strength from the packed classrooms and the excitement of the children.

LINKS

UNHCR, 2019: Stepping up. Refugee education in crisis.
https://unhcrsharedmedia.s3.amazonaws.com/2019/Education-report_30-August_2019/Education+Report+2019-Final-web.pdf

Schams – Verein zur Förderung und Unterstützung von syrischen Kindern und Jugendlichen:
http://schams.org/

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Our correspondent was found dead

We mourn the death of our colleague Humphrey Nkonde. Regular readers of our Nowadays column will remember him. His reports from the Zambian town of Ndola conveyed a lively picture of day-to-day reality in the region.

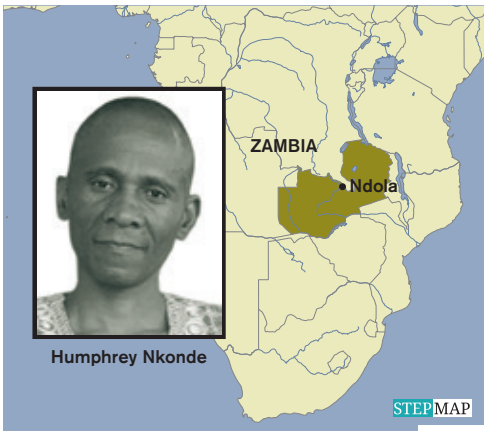
Humphrey was deeply committed to the area he covered and took interest in its communities. He was eager to serve the public by providing information and was involved in investigative journalism.

He started to contribute to D+C in 2016, reporting on many relevant issues. His most recent article on our website was about what reduced rainfalls mean for food security and electric-power supply (https://www.dandc.eu/en/article/little-rainfall-zambia-leads-power-cuts-and-low-maize-production).

We do not know the circumstances of his death. Given that we are based in Frankfurt, we cannot do any meaningful research. However, we gather from reports on African websites, that the police found Humphrey's body and buried him immediately. Apparently, his family members say that he died by suicide, but his colleagues and his employer, Mission Press, a Catholic outfit, are unconvinced.

We know that he was planning to attend a conference on investigative journalism in Hamburg shortly before he died. We find it bizarre that someone should take his life briefly before embarking on an important trip abroad. Humphrey had told members of our team that he was excited about the conference and eager to attend.

None of our team members has an in-depth understanding of Zambia, nor do we know Ndola. We do know, however, that in many countries, people would read a situation like this as a journalist having been murdered because he was about to reveal secrets that some powerful person or group did not want to become public. In such places, his family's suicide theory would be interpreted as a response to further threats of violence.



Humphrey Nkonde

It does not make sense for us to speculate about what happened to Humphrey from afar. We find it troublesome that we are living in times in which violence against journalists is increasing in many countries. As far as we can tell, Humphrey's death requires further investigation. D+C/E+Z editorial team

The full list of Humphrey's D+C contributions:
https://www.dandc.eu/en/contributors/humphrey-nkonde

POLITICAL DEADLOCK

The long walk to serious talks

Venezuela's economic crisis remains severe and politics is deadlocked. After nine months of mass protests, President Nicolás Maduro's grip on power looks shaky, but it really has not weakened much. The country needs a restart with government and opposition engaging in talks.

By Fabio Andrés Díaz Pabón

Venezuela remains in a precarious condition. People struggle with inflation, unemployment and shortages of food and pharmaceuticals. Prices have escalated so dramatically that a cup of coffee now costs the equivalent of €3,900 compared with three euros early last year. The underlying reasons are poor governance and corruption, but also foreign sanctions. Though the government has restricted political freedom, the opposition still manages to mobilise masses.

In January, Juan Guaidó, the president of the national assembly, claimed that Maduro had failed and declared himself the new interim head of state. Foreign governments, including those of the USA, Germany and various other EU member countries, acknowledged him in that role. The idea was that Maduro would soon fall in view of public discontent. Nonetheless, Maduro is still in office and continues to have the support of the military and the security forces.

The international response to the crisis was mixed. Led by Washington, some countries have reinforced economic sanctions in the hope of undermining Maduro. By contrast, Norway, Uruguay and Mexico tried to broker negotiations between Maduro and Guaidó. Those talks broke down, however, with the government complaining about the sanctions. The governments of Russia and China are still on Maduro's side, arguing against any kind of "interference in domestic politics".

In view of the political stalemate in Venezuela, international media attention has been waning. Some recent developments are important however. The Commission for Truth, Justice and Public Peace (Comisión para la Verdad, la Justicia, la Paz y la Tranquilidad Pública) has been reactivated, and it may prove a useful form. Moreover, Edgar Zambrano, the vice president of the national assembly, was released from unlawful detention. The liberation of other political prisoners has been promised, and the government has also indicated it will shore up the country's election commission, which the opposition has accused of bias.

In 2020, the national assembly's five-year term will end, so parliamentary elections are due. The government does not have a majority in the current national assembly, but it established a constituent assembly in 2017 to thwart the national assembly. Elections for the constituent assembly were neither free nor fair, according to international observers, and Venezuela now has two competing parliaments. The national assembly has a greater claim to legitimacy.

Elections next year may be an opportunity to break the political deadlock. Some argue that Maduro's recently more conciliatory stance towards some sectors of the opposition proves that he believes he is gaining strength and can discredit Guaidó, for example, by releasing political prisoners. The government is also claiming he is incompetent and even involved in drug crimes. Nonethelss, Guaidó remains a central figure in the opposition. He was recently endorsed by the Frente Amplio Venezuela Libre (Broad coalition for a free Venezuela), which includes 20 political parties as well as some 300 trade unions, business organisations, student federations and civil-society initiatives.

Venezuela needs reconciliation. This kind of transition is difficult to bring about. In South Africa, for example, apartheid was not simply ended by a single agreement. Rather, the new settlement took form in a long series of informal and formal talks. The final agreement was preceded by repeated agreements to find a solution.

In Venezuela, a final agreement is not yet in sight. If things go well, however, the stage is currently being set for serious negotiations. Only Venezuelans themselves can resolve the crisis. For this to happen, the camps currently represented by Maduro and Guidó must engage in talks.

The international community cannot impose results, nor does it have influence on possible outcomes. What it can do, however, is encourage negotiations the way that Norway, Uruguay and Mexico did. Foreign support for only one side is not helpful, and the sanctions are evidently not working.

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Empty supermarket shelves in Caracas in January.

Photo: picture-alliance/Zuma Press

IDENTITY POLITICS

Increasingly aggressive

India's constitution prohibits discrimination on the basis of religion, but the government of Prime Minister Narendra Modi does not care. Run by Hindu-supremacists, it is enforcing aggressive anti-Muslim policies.

By Arfa Khanum Sherwani

India's economy has been slowing down, so Modi's reputation as a dynamic economic reformer is suffering. Promises of millions of new manufacturing or the eradication of corruption and black money have not come true. In view of mass frustration, Modi's party, the BJP, is resorting to Islamophobia. That fits its ideology which demands that multicultural and highly diverse Indian become a Hindu nation.

The BJP has always been divisive, but since August, the government has been acting more aggressively than ever. Two border regions are affected in particular: Kashmir and Assam.

Kashmir used to be a state with special rights. Its population is predominantly Muslim. Land ownership in Kashmir was limited to Kashmiris, and the state government reflected regional priorities. Modi cancelled Kashmir's special status and downgraded the state into a mere union territory subordinated to the national capital. Moreover, parts of the state were split off to create another union territory. The BJP-dominated parliament rubberstamped constitutional amendments, legalising the policy in formal terms.

Before that happened, masses of troops were sent into Kashmir. Hundreds of local policymakers are in detention and so are several thousand potential protesters. The internet and telecommunication are basically shut down, while some mobile-phone services resumed in mid-October.

With a history of unrest, Kashmir was already heavily militarised, but now it is effectively controlled by the military. Complicating matters, Pakistan has been claiming Kashmir since independence and controls large parts of the former kingdom of Kashmir. In spite of its Muslim majority, the Hindu monarch opted for India in 1947.

In Assam, the national government declared 1.9 million people to be illegal migrants. These people are now stateless. They lack the papers to prove that they and/or their parents are actually from India and not what is now Bangladesh, the predominantly Muslim neighbouring country, or some other place. As anyone familiar with rural India knows, of course, masses of poor people lack proper documentation. Indeed, it has turned out that many of the 1.9 million people concerned are not Muslims, and BJP leaders fast stated that they have nothing to worry. That proved that Hindu-chauvinists are not interested in questions of citizenship, but intend to single out the minority.

What is happening in Kashmir and Assam is of great national relevance. The government is creating a "climate of fear", as Indian novelist Amit Chaudhuri has pointed out in The Guardian. There are Muslim communities all over India, as well as communities of other religious minorities. They are exposed to the increasingly aggressive attitude of the BJP and the vast network of Hindu-supremacist organisations that endorse it. Everyone knows, moreover, that Modi did nothing to stop deadly anti-Muslim riots in Gujarat in 2002 when he was chief minister. Violence can escalate fast, spreading from one place to others.

In spite of its independence, the judiciary has disturbingly shied away from blocking government action that evidently flies in the face of the constitution. Independent-minded journalists are being trolled, while the mainstream media mostly endorse Modi (see my essay in Focus section of D+C/E+Z e-Paper 2018/05). In his book, "Malevolent republic", the journlist K.S. Komireddi has done a good job of describing how Indian institutions are increasingly caving in to Modi (see Hans Dembowski's review in Focus section of D+C/E+Z e-Paper 2019/10).

Modi is using religion as an instrument of identity politics. Traditions of tolerance and syncretism used to mark Indian culture, with Hindus worshipping at Sufi shrines, for example. These traditions are not dead, but Modi and his supporters are doing their best to make them obsolete. They show as little interest in the spiritual principles of love, compassion and non-violence as they display concern for constitutional principles.

Troops mark daily life in Kashmir.

Photo: Faisal Khan/picture-alliance/ZUMA Press

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CLIMATE SCIENCE

Tell it like it is

Academics who publish research findings concerning climate issues must expect personal attacks. Populists and right-wing extremists openly question scientific evidence and threaten the people who are responsible for them or discuss them in public – especially in the anonymous digital space. However, scholars stand up and fight back.

By Katja Dombrowski

Harald Lesch is a professor of astrophysics at Munich University. He has become a celebrity by hosting science programs on TV. His own research focuses mostly on plasma physics, black holes and neutron stars, but he has also contributed to climate research and advises policymakers on that issue.

As a physicist, he was always used to being respected and seeing his work taken seriously. That has changed. "Ever since I started discussing climate change, I have been facing personal attacks," the scholar says. Internet shit storms occur regularly, and even personal threats are not exceptional. Lesch finds this trend hard to understand. "The facts of climate change are neither personal nor political," he insists. "What I do is science." It is, however, science with a bearing on people's lives.

Other scientists share Lesch's fate. In general, they enjoy people's trust. Climate scientists, by contrast, often do not. The reason is that populists and right-wing extremists deny that human beings are causing global warming. These forces cast doubt on research findings and do what they can to discredit, attack and threaten the people who produce those results. The denialists' message resonates beyond the usual filter bubbles because their network is well organised. It is called the "denial machine" in the USA, where this machine originated. It is powered by flimsy think tanks that hardly do any noteworthy research, but excel in spreading propaganda. The supposed experts they employ are shady journalists and politicians or sometimes scientists who are largely isolated in their discipline's community. The denial machine depends on financial support, especially from corporations that have an interest in business continuing as usual in the energy sector. Of course, funding is largely non-transparent.

At the same time, the consensus among scientists is overwhelming – both in regard to the reality and to climate change and its dangers. Indeed, there have never been any scientific efforts that came close to what the Intergovernmental Panel on Climate Change (IPCC) has been coordinating since 1988. No other endeavour involved so many scientists from all over the world or required such extensive resources. The IPCC reports are becoming ever more precise and ever more frightening. There can be no doubt: we are heading towards climate catastrophe.

Nonetheless, leading policymakers keep casting doubt on the science. The most prominent of them, of course, is US President Donald Trump. Science denial has spread to other areas of environmental relevance and even evolution theory. In some parts of the USA, schools now teach divine creation as described in the Bible. An astrophysicist like Lesch can prove creationism wrong in next to no time, but more people fall for this "theory" than one would expect.

Scientists are fighting back. In 2017 and 2018, Marches for Science attracted hundreds of thousands of participants around the world. Masses rallied against science denial and fake news. A large number of scientists support the youth movement Fridays for Future. Declaring themselves to be Scientists for Future, they spell out the facts that motivate the movement for climate protection. Obviously, these facts are so inconvenient that they trigger angry denial.

We are in the midst of a culture war and do not know how it will end. One must hope that reason will prevail. The level of hatred that is being expressed is frightening. All too often, insults, threats and denigration are not fact-based at all, but merely personal. Why is this so? All I can say is that the science deniers probably feel that they themselves and their lifestyles are being put in question. Climate change and its dangers are real, however. Therefore, both scientists and journalists must live up to their duty. It is to tell things like they are.

March for Science in the Indian city of Kolkata in August 2019.

Photo: Sudip Maiti/picture-alliance/ZUMA Press

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DIGITALISATION

Pros and cons: virtual money

Cryptocurrencies sound like a good idea. They are not controlled by a small number of central bankers, they are universal, and the supply of monetary units cannot be arbitrarily increased. Facebook is even working on its own virtual currency. Sadly, the brave new digital world has considerable downsides – especially for developing countries.

By Chris-Oliver Schickentanz

There are nearly 2,000 different cryptocurrencies in the world today. Most of them lead a shadowy existence. On average, their accumulated market value is less than 1 million dollars. Others, however, have reached two to three-digit billion figures. Bitcoin and ripple are examples.

All digital currencies have in common that:

- they are not issued by a single state or central bank,
- they are purely virtual (no bank notes, no coins) and
- they claim to be paragons of transparency and traceability.

This is possible thanks to so-called block-chain technology (see Piet Kleffmann, D+C/E+Z e-Paper 2019/10, Focus section).

The big question is whether virtual currencies are actually money. According to economists, money serves three basic functions:

- as a means of exchange and payment,
- as a unit of accounting and
- as an instrument for storing value.

The euro and the dollar obviously meet these criteria. What about cryptocurrencies?

Yes, they can be used as units of account. After all, they are mostly traded 24 hours a day and thus almost always have a reference rate. However, it is much harder to see them as storing value. The reason is that they are much more volatile than conventional currencies. The bitcoin price, for example, has fluctuated between $3,400 and $13,400 in the course of this year alone. That range hardly suggests a stable store of value. Unfortunately, moreover, cryptocurrencies are also not safe from criminals. They can be hacked and thus stolen. Finally, it is doubtful whether cryptocurrencies deserve to be regarded as a means of exchange. Even on the internet, they rarely appear when websites list payment options. Dramatic price swings are a cause of concern. All summed up, replacing physical money is still a distant dream.

Facebook is the world's most important social-media platform with more than 2 billion active users. It could well revolutionise the world of digital currencies in coming months. The corporation is planning to introduce a virtual currency of its own. It will be called Libra and have a number of advantages over the cryptocurrencies we know so far. For one thing, it will be backed by a basket of established currencies such as the dollar and euro, so fluctuations in value will be far less marked than in the case of bitcoin, for instance. For another, lots of financial service providers and retail businesses have signed up to the project ahead of Libra's market launch, though the credit card giants Visa and Mastercard have withdrawn again, and so has Ebay, the digital marketplace. What probably matters most, however, is Facebook's huge market power, which must not be underestimated and is likely to prove very helpful, especially in many African and Asian countries.

Demand for cryptocurrencies tends to be high in developing countries, especially in places where a combination of soaring prices and political instability fuel mistrust in national currencies. Countries like Venezuela, Zimbabwe, Sudan and Liberia, for example, are beset by hyperinflation. Therefore, foreign currencies – especially the dollar – are used commonly. Smartphone penetration is high, moreover, so the preconditions for relying on digital currencies are in place. Libra could indeed find very fertile soil in such places.

Sadly, the cryptocurrencies that are currently in operation have a dark side for developing countries. In many of them, people try to earn money by cryptocurrency "mining". Put simply, this involves performing computing services for a virtual currency issuer and being paid in that currency. The problem is that currency mining is a very resource-intensive activity. It requires modern IT equipment and, above all, lots of electric power. The implication is that important resources, that would be better used for education purposes or growing small-scale businesses, are being diverted.

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Facebook aims to revolutionise the cryptocurrency market with its new virtual currency Libra.

Photo: picture-alliance/Kay Nietfeld/dpa

NOBEL PRIZE

Valid, but insufficient

Esther Duflo, Abhijit Banerjee and Michael Kremer will win this year's economics Nobel Prize. The three scholars are brilliant intellectuals and have pioneered important research on poverty. However, the elegance of their microeconomic research must not distract us from the fact that humanity needs macro-level action to achieve the Sustainable Development Goals (SDGs).

By Hans Dembowski

Duflo and Banerjee are professors at the Massachusetts Institute of Technology (MIT), and Kremer teaches at Harvard University nearby in the Boston area. The three economists are known for an approach called randomised control trials (RCTs). The idea is to find out what best helps people to escape poverty by testing a policy intervention in one group and comparing the results with what happens in an almost identical group without that intervention. The approach resembles the way pharmaceutical companies test innovative medications.

RCTs have made quite a stir in development affairs in recent years. Now the Nobel committee is amplifying the impact. No doubt, the influence of the three scholars will grow further. In some ways, this is good. Poverty is a huge challenge and certainly deserves the attention of economists who mostly focus on other issues.

Moreover, far too many economists only stick to the mathematical models they invent and show little interest in empirical reality. No one can accuse Duflo, Banerjee and Kremer of doing that. Alleviating poverty is their core concern, and they show a keen interest in people's real lives. In this sense, the Nobel committee has made a very good choice.

However, there are considerable downsides too:

- It can be ethically problematic to split a target group in two and only provide promising support to one of the subgroups.
- RCTs require a lot of resources which are then no longer available for poverty alleviation.
- This method is only useful for assessing micro-level interventions, though many development challenges arise at the macro level. Examples include institution building, infrastructure development or climate action.
- It would therefore be counterproductive to let RCTs guide official development assistance (ODA) in general.
- That risk is real, however, because RCTs are increasingly seen as something like the gold standard for evaluation purposes.

This evaluation method is valid and it should be applied. However, its relevance must not be overestimated. RCTs are not the only way to do research on poverty. Moreover, poverty is a multidimensional and complex phenomenon.

What Duflo, Banerjee and Kremer are doing, neither helps us to understand what causes poverty nor to identify what makes inequality grow. Macroeconomic, sociological, ethnographic and political science studies are needed too because they can lead to relevant insights.

It is fascinating that RCTs deliver evidence of an intervention being effective or not. Such information is valuable if the goal of a policy intervention is to improve the situation of a specific target group in particular distress.

It is arguably more important, however, to build the kind of universal social protection systems that make investment climates better, political systems stronger and national societies more cohesive (see my contribution on page 4 of this e-Paper). In this context, RCTs are only of rather limited value. Achieving the SDGs, moreover, will require macrolevel transformations (see Hackmann and Messner on page 18 of this e-Paper), and RCTs cannot contribute much to bringing them about.

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Letter to the editor

MENTAL HEALTH IN CAMBODIA

D+C/E+Z e-Paper 2019/06, Solida Sun, Lemhuor Bun, Panha Pich and Sharon Gschaider-Kassahun: Respect the local context

It is very good to bring attention to this much neglected aspect of Cambodia's health and social affairs policies, especially those appertaining to disability. The country has received considerable external support from donors and via international and local NGOs for initiatives for physical and sensory disabilities, but psychosocial projects have usually been overlooked. Indeed despite some good work by TPO and the Child Mental Health clinic, it has been hard – at times impossible – to win funding. Hopefully this will change from now on. You will note that I have added "social affairs" to health professionals. It is equally vital that social and community workers are recruited, trained and deployed to reach families at home living with all forms of disability. Currently that responsibility rests with assistant commune chiefs who are almost entirely amateurs.

John Lowrie, Takhmau, Cambodia

COMMUNITY MEDIA

Carefully chosen words

Cameroon is battled by several conflicts, so sensitive reporting is important to avoid escalation and foster peace. The Presbyterian Church has set up a network of community media outlets with this end, supported by Germany's Civil Peace Service. Present results are promising.

By Rev Geraldine Fobang, Rosaline Akah Obah and Alexander Vojvoda

The Anglophone regions of Cameroon are drifting into an open armed conflict. The strikes called for by the Anglophone teachers' and lawyers' unions in 2016 (see comment by Jonathan Bashi in D+C/E+Z e-Paper 2017/04, Debate) have triggered a larger movement that fights for the rights of the English-speaking minority to have a say in political, economic, social, cultural, educational and legislative processes. Cameroon's government reacts with harsh repressions against the unions and civil-society leaders. Since 2017, the protests have resulted in violent confrontations between Anglophone pro-independence fighters and security forces, followed by indiscriminate mass arrests, burning of villages and human-rights abuses on both sides. Many civilians have died in the conflict.

The ongoing crisis is the best proof that conflict-sensitive journalism is needed in Cameroon. The Presbyterian Church in Cameroon (PCC) has seen this need already before the conflict broke out and initiated its own community radio in 2014 in Buea, the capital of one of the two Anglophone regions of the country. CBS Radio 95.3 MHz, as it is called, works together with other community broadcasters to foster conflict-sensitive reporting, peace and civil-society focused programmes and a permanent exchange between community media organisations.

Bread for the World, an aid agency of the Protestant regional and free churches in Germany, supports the radio station through the Civil Peace Service (CPS). A 2014 survey and situational analysis revealed that people in the local communities highly preferred community media to the government-owned radio. However, most of the journalists at CBS Radio and other community media outlets lacked basic journalistic skills, and the competition amongst them was not healthy. Sensational journalism was on the rise, and the risk of media inducing conflicts was high.

Thus, the idea of creating a permanent network came up. In 2016, the PCC invited media practitioners from 24 media, including print, audio, visual and online, in the South-West region to a meeting at CBS Radio. The goal was to come together and work in synergy for the common good of the community. After several meetings, the Cameroon Community Media Network (CCMN) was officially founded and legally registered in May 2017. It is a non-partisan, non-profit-making and non-religious association. Its members have benefited from a series of workshops, capacity-building seminars and in-house trainings. Today, the CCMN has more than 70 members and operates in four out of Cameroon's ten regions. It is divided into two chapters: one for South West and Littoral Cameroon and one for North West and West Cameroon.

The network's expansion is owed to the conflicts in Cameroon. Besides the Anglophone crisis, there is the Boko Haram insurgency in the North and Far North regions and armed banditry and a refugee crisis in the East. The dispute of the results of the 2018 presidential election caused pockets of resistance in the Littoral, West and Central regions. All in all, there is a dire need for peace journalism in all ten regions of Cameroon.

Students produce a radio programme in the studio of Protestant Voice Radio.

Photo: Aya Bach/Brot für die Welt

TERRORISM LAW USED TO SILENCE JOURNALISTS

Atia Tilarious Azohnwi, editor with The Sun Newspaper in Buea, says: "The CCMN with its notion of peace journalism has offered me a more balanced perspective of war and conflict reporting. If I had known this before, I wouldn't have been detained for almost one year." The journalist was incarcerated for his critical coverage of the crisis in the Anglophone areas. He was one of eight journalists who were arrested at the beginning of 2017 in the context of the failed negotiations between the Anglophone activists and the Cameroonian government and charged before a military tribunal under the new anti-terrorism law.

The law came into force in 2014 as part of the fight against Boko Haram. However, it quickly became apparent that the law was

also being used to silence critical journalists. In July 2015, a correspondent for Radio France International was arrested for supporting Boko Haram activities in the north and sentenced to ten years imprisonment. In addition, critical radio and television stations were closed, broadcasting licenses were temporarily withdrawn and new applications for broadcasting licenses not processed. The measures were accompanied by a three-month internet blackout in the two English-speaking regions and mass arrests of civilians. The journalists and most of the detained people are set free again – but the uncertainty as to how the government will react to critical reporting and demonstrations is increasing.

With the escalation of the crisis, journalists experience intense pressure, not only by the military or the government: pro-independence fighters threaten journalists who do not collaborate with the separatists. Ambe Macmillian Awa is a journalist and blogger for the community-based online news platform The Statesman and president of the Cameroon Association of English-Speaking Journalists in the North West region. He was abducted in February this year by separatist fighters and only released after intense pressure by the CCMN, journalism unions and other media houses. He says: "Since my stories are now void of hate language, of escalating angling and provocative pictures, they help in deescalating the crisis we find ourselves in."

The CCMN notes a big difference concerning the choice of words and writing style of its members, as they endeavour to eliminate hate speech and use language that fosters peace. It is the only network in Cameroon that promotes peace journalism as an alternative to conventional journalism and that builds capacities in peace- and conflict-sensitive journalism. Thanks to this work, CCMN members have completely transformed the media landscape by giving voice to the voiceless in times of violence and implanting the notion of community media, that is media for the community, from the community and owned by the community. This concept enhances ordinary people's participation and provides a platform for coordinated exchange of ideas – thereby enhancing social cohesion and contributing to a peaceful society.

The CCMN has produced radio spots, jingles, sweepers and micro programmes with the watchword "We stand for peace" which are played on all member media organs. In a next step, the network is collaborating with Sierra Leone and the Democratic Republic of the Congo to create an archiving platform for the exchange and storage of radio programmes, making it relevant not only to the Cameroonian media landscape, but also in Central Africa.

LINK

Cameroon Community Media Network:
http://www.communitymedia.cm

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Opposition leaders set free

In early October, Cameroon's government freed many members of the opposition from detention. The most prominent persons concerned were probably Maurice Kamto, the former presidential candidate, and Valsero, a rapper. Moreover, over 300 alleged separatists from the country's Anglophone regions were released. The government also announced an amnesty, declaring that many lawsuits would not continue.

This change in policy resulted from a national dialogue that was held to restore peace. What the lasting impacts will be remains to be seen. Violence may yet flare up again, and the government may backtrack. Nonetheless, two things are clear:

- The national dialogue has already made a first difference, though where it leads still remains to be seen, and
- it would probably not have happened had Catholic, Protestant and Muslim faith leaders not spoken out collectively.

In the past few years, Cameroon has been rocked by violent conflicts (also see main story) between Anglophone separatists and the central government in the western regions and with Boko Haram in the north. According to estimates, at least between 2,000 and 3,000 people have been killed and 400,000 to 600,000 displaced. The greatest tensions concern Cameroon's Anglophone areas where people feel discriminated against and marginalised. Most of the country is Francophone and the government has been cracking down on protests. As a result, separatist tendencies have been growing.

This summer, faith leaders joined forces in a quest for peace in the Anglophone regions. Catholics, Protestants and Muslims were involved. They have a history of criticising abusive action by both the government and the separatists. Observers have long argued that religious leaders can make a difference. Last year, the International Crisis Group (ICG), the non-governmental think tank that specialises in issues of fragile statehood, emphasised the role of the Catholic church, to which almost one third of Cameroonians belong. It insisted that there were hardly and other "prospective peacemakers". D+C/E+Z

HUMAN CIVILISATION

Why we need a UN charter

Digitalisation can either drive the transformation to sustainability or thwart it. For humanity to grasp the opportunities, policymakers must act.

By Heide Hackmann and Dirk Messner

António Guterres, the UN secretary general, keeps reiterating that we need deep transformations to prevent climate disaster as well as to fight poverty, reduce inequalities and stem rampant nationalism. He did so, for example, at the UN summits on the climate crisis and the Sustainable Development Goals (SDGs) in New York in September.

The UN leader has ample reason to be worried. A mountain of scientific publications point out the danger we are in. Probably the most impressive and comprehensive reports have been produced by the Intergovernmental Panel on Climate Change (IPCC). The scientific community has been making it absolutely clear that we need deep change if we are to achieve sustainability.

In retrospect, it is unfortunate that digitalisation was not mentioned in the major international policy agreements that heads of state and governments adopted in 2015. It obviously will have a bearing on achieving the UN's 2030 Agenda, which includes the 17 SDGs, and the Paris Agreement on Climate Change. Artificial intelligence (AI), machine learning, virtual realities and related developments add up to a technological revolution which cannot be ignored.

Digital change will have impacts – some of them helpful, others detrimental – on every single SDG, ranging from poverty alleviation to resource efficiency, from governance to energy and mobility systems, from employment to transnational partnerships. Digital technology is speeding up fundamental societal and economic change (Sachs et al, 2019).

Eric Schmidt, the former Google chief executive, has said that AI-based systems may, within the next five to ten years, solve scientific puzzles worth a Nobel prize. Could they also be the game changer we need to facilitate transformation toward sustainability? Integrated well, the two megatrends of digitalisation and sustainability transformation could shape the 21st century in a positive way. They might create a model of human prosperity decoupled from resource consumption and emissions. At the same time, it might recouple economic growth and social progress.

Greenland glaciers are shrinking.

The German Advisory Council on Global Change (Wissenschaftlicher Beirat Globale Umweltveränderungen – WBGU) recently published a flagship report with the title: "Towards our common digital future" (see Sabine Balk in D+C/E+Z e-Paper 2019/07, Monitor section). It shows two important, paradoxical things:

- Digital technologies have the potential to facilitate rapid transformations towards a green economy (by fostering decarbonisation in many sectors, multiplying resource and energy efficiency, and improving the surveillance and protection of ecosystems), but
- Ever-faster digitalisation has so far not brought about the sustainability U-turn we need. Instead, it is deepening and extending unsustainable growth patterns.

The UN Panel on Digital Cooperation (2019) and the science consortium "The World in 2050" (2019) have also come to these two conclusions in recent publications. There plainly is no automatism between digitalisation and sustainability transformations. The missing link is governance. Policymakers must act fast for humanity to rise to the climate challenge and achieve the SDGs and build the bridges between digital innovation and sustainability transformations.

TECHNOLOGICAL REVOLUTION

To be clear: sustainability transformations in the digital age are not simply about smart incentives triggering quick technological fixes. Much more is at stake. Our societies are undergoing change as dramatic as the change that was brought about by the printing press or the steam engine in earlier times. We are entering a new era of human civilisation. Among other things, paradigm shifts will affect the meanings of "human development" and "sustainability".

We must take into account that digitalisation is not a blessing in itself. It is ambivalent:

- On the one hand, it is a potential enabler of a green economy and transnational networking with great scope for connecting people around the world and boosting a culture of global cooperation.
- On the other hand, digitalisation can exacerbate social divides, compound environmental risks and destabilise societies.

To get a grip on the dangers, we must therefore learn fast. The WBGU has identified several systemic risks in the digital age. They include the following:

- Digital technologies depend on specific resources and high energy consumption. Unless we decarbonise energy systems and build circular economies, digitally-driven growth will exceed planetary guardrails. Tipping points of the earth system (such as the melting of Greenland's ice shield) will be reached.
- Driven by big data, artificial intelligence and machine learning will disrupt labour markets. Not only blue-collar workers will be made redundant, but so will high-skilled professionals including lawyers, accountants and engineers. No nation has a social protection system designed to cope

Photo: Raphaël Sané/Biosphoto/Lineair

Computers are becoming ubiquitous.

with these challenges. Our economies and education systems are ill-prepared.

- Digital tools make it possible to trace everyone, while big-data analysis and social-scoring systems can be used to understand and manipulate individual and collective human behaviour. Democracy, freedom and human dignity are at risk where digital change serves authoritarian impulses.
- National science systems need to adapt too. The opportunities of the digital revolution are profound. Digital technologies are creating a new 21st century infrastructure for understanding the complexity of transformative change and responding accordingly. However, national science systems are struggling to adapt their infrastructures, priorities and processes to these new opportunities and challenges. Unless they interconnect to this emerging data-intensive world of science, they will be unable to progress, stagnating in isolation. Yet another knowledge gap is beginning to open up between the global north and the global south. We must stop this trend because this will not only hurt developing countries. It will hurt the entire international community.
- The combination of AI, big-data analysis, genome research and cognitive sciences is dangerous yet in another way: it opens the door to human beings becoming "enhanced" in physical, cognitive or psychological terms. No doubt, there will be attempts to "optimise" homo sapiens. The Anthropocene is the era of the planet being shaped by humans. In the Digital Anthropocene, humans are becoming able to transform themselves. We certainly need ethical guardrails, but we do not have them yet. This issue extends far beyond the horizon of the 2030 Agenda.

WE MUST PREPARE

For several reasons, we are only insufficiently prepared to tackle the challenges listed above. Science as a whole is not yet exploiting the tools of the digital revolution. Sustainability science and the research on digital innovations are not linked to one another sufficiently. The knowledge of what impact digital dynamics have on public agencies (including, of course, multilateral organisations like the UN) is still underdeveloped. How sustainability and digital transformations are linked has not been studied sufficiently either. We lack public discourse on what a human-centred, sustainable digital age would look like, and such discourse must not only involve policymakers, but also businesses, civil society and academia.

No doubt, action is needed fast. We must grasp the opportunities, gearing powerful technological innovations to sustainability.

Therefore, the WBGU has joined forces with other science organisations including the International Science Council, Future Earth, the UN University as well as several partners from Asia and Africa. At the UN events in New York in September, we launched a draft for a UN charter for a sustainable digital age. It is called "Our Common Digital Future" (https://www.wbgu.de/en/publications/charter) and can serve as the basis for global debate, involving scientists, decisionmakers, community activists and citizens all over the world. Such debate must then lead to action.

The global charter must contain three elements:

- Digitalisation should be designed in ways that serve the achievement of the SDGs and the Paris Agreement.
- Beyond that, systemic risks need to be avoided.
- Every nation must prepare for a sustainable digital age, and that implies reforms in education sectors, intensive research on relevant matters and adopting ethical guardrails.

The draft charter has been published on multiple websites. It is open for comment and discussion. It builds on the Human Rights Declarations, the 2030 Agenda and the Paris Climate Agreement. Given, moreover, that digitalisation and sustainability have such overarching relevance, it would make sense to hold a world summit on "Our Common Digital Future" in 2022 – 30 years after the Earth Summit in Rio de Janeiro.

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Photo: Philippe Lissac/GODONG/Lineair

Handling banana shipments at Twiga's central pack house on the outskirts of Nairobi (see interview with Peter Njonjo on page 33).

Agricultural change

The climate crisis and the erosion of biodiversity are global challenges all sectors, including farming, must rise to. Agriculture must be done in environmentally sustainable ways that allow it to feed a growing world population. At the same time, agriculture must provide opportunities to rural people, including in the post-harvest value chains. Food processing and farm-related services, such as distribution systems, can make a difference. Better infrastructure is a precondition for diversifying rural economies.

This focus section directly relates to the UN's 1st, 2nd and 9th Sustainable Development Goal (SDG): no poverty, zero hunger and industry, innovation and infrastructure. It also has a bearing on the entire SDG agenda.

Photo: dem

Four wheels of Zero Budget Natural Farming

The government of Andhra Pradesh, a South Indian state, is promoting organic farming. Advisor Vijay Kumar Thallam elaborated the approach in an e-mail interview with Sabine Balk and Hans Dembowski.

Vijay Kumar Thallam interviewed by Sabine Balk and Hans Dembowski

Why is organic farming so important for India and other developing countries?

Our planet is facing dramatic environmental change. We are now living in the sixth mass extinction, and it is a result of human activity. The Intergovernmental Panel on Climate Change (IPCC) warns that we must urgently change land-management patterns internationally (see Katja Dombrowski in Monitor section of D+C/E+Z e-paper 2019/09). Otherwise, average temperatures will rise more than 1.5 degrees – with dire consequences. Smallholder farmers and their families as well as landless agriculture workers are the least responsible for the climate crisis, but they face the gravest consequences. Rainfall is becoming ever more erratic. Dry spells and drought are worsening. Ground water is being depleted. Unseasonal rains and heavy storms are causes of concern too. Crop failure is becoming ever more likely. All countries therefore need solutions that ensure land is not degraded, soils are not eroded and farmers do not become distressed. One option is Zero Budget Natural Farming (ZBNF), our form of organic farming.

What exactly is ZBNF?

ZBNF promotes poly-cropping, the simultaneous cultivation of several useful plants. "Zero budget" means that the costs for the main crop are recovered from the other crops. "Zero budget" also means that this kind of "natural farming" does not require expensive external inputs. All inputs needed are generated on the farm itself. Our regenerative agriculture with holistic land-management practices relies on the powers of nature. ZBNF was pioneered by Subhash Palekar, a charismatic rural farmers' leader who has been advocating this for more than 20 years. It also builds on the work of many other eminent persons. The four principles – or "wheels" as we say – are:

- Beejamrutham: microbial seed coating through cow urine and cow dung-based formulations.

Collective preparation of inoculant made by different ingredients like cow dung, cow urine, pulse flour and soil.

- Jeevamrutham: enhancing soil microbiome through application of an inoculum made from uncontaminated soil, cow dung, cow urine and other local ingredients.
- Achhadana (mulching): keeping the ground covered by cover crops and crop residues all year.
- Waaphasa: build-up of soil humus with enhanced soil porosity and soil aeration.

Pest management is important too, of course, and ZBNF uses natural resources such as cow dung, cow urine, botanical extracts et cetera. Moreover, inter-cropping and poly-cropping, including trees, also help to manage pests. We do not use synthetic chemicals at all.

But wouldn't high-tech high-yield approaches be more profitable?

Well, we must first define what that term means. Nature is actually a very sophisticated and highly productive system. The complex networks of microbial populations below the ground are drivers of plant growth. For instance, about 25,000 kilometres of fungal hyphae are estimated to exist in a mere cubic meter of healthy soil. The hyphae have an important role in the exchange of nutrients. If chemical fertilisers and pesticides are applied, these networks are destroyed. A real high-tech approach must therefore build on a proper understanding of nature. The farmers are experimenting all the time, their knowledge is evidence-based. Hence, I see respecting their knowledge as "high tech". The guiding question is not just how much we can grow in one season but how much longer can we have green growth in a year.

Is your method feasible on all farms?

In Andhra Pradesh, we work with all types of farms – subsistence farms, small holdings and large farms. However, most of the 572,000 farmers enrolled in our ZBNF pro-

Photo: APZBNF

gramme are subsistence farmers or smallholders with less than 0.8 hectares. Only 11% have more than 1.6 hectares.

Can ZBNF feed India or indeed the world?
Yes, it can. Our experience shows that ZBNF crop yields do not decline over time. Mulching with a 365-day green cover actually intensifies farming in a sustainable way. The point is to keep even rain-fed lands covered with live crops all year long. By contrast, the current industrial agriculture system has undermined food security, not least because nutrition values have dramatically declined.

Have scientists tested the validity of your approach?
Well, in my eyes, the farmers themselves are the greatest researchers. They see season for season what works and what does not. However, we have also cooperated with academic research institutes:

- The Centre for Economic and Social Studies (CESS) in Hyderabad is conducting socio-economic impact assessments.
- The Nairobi-based World Agroforestry Centre (ICRAF) is evaluating the impact of ZBNF on soil fertility, water-holding capacity, biodiversity et cetera. They are also evaluating performance and impacts.
- Scientists from the University of Reading in the UK are studying the impacts of ZBNF on soils and crop growth.
- The Bangalore-based think tank C-STEP (Centre for the Study of Science, Technology and Policy) is assessing how ZBNF reduces water and energy consumption.
- The Delhi-based think tank CEEW (Council on Energy, Environment and Water) is checking what ZBNF does in regard to the UN Sustainable Development Goals (SDGs) as well as what this approach can contribute to reducing fertiliser-subsidy expenditure.

How do you reach out to new farmers?
To fully transition to ZBNF, a village needs support for up to seven years, and individual farmers require up to five years. To spread the information, we rely on community resource persons (CRPs). These men and women have made the transition, performed particularly well and have been trained to teach others. They typically coach other farmers in neighbouring villages, where, after two to three years, new pools of CRPs can be identified. This peer-to-peer approach is very effective. What also matters is that all field officers of the State Agriculture Department are trained in ZBNF and are held responsible for supporting the CRPs.

ZBNF experts help farmers to prepare botanical extracts consisting of several leaves to be sprayed on the crops to protect them from pests.

Why is the empowerment of rural women an important dimension of ZBNF?
Women do a large share of the farm work. They till the land, rear cattle and other ruminants. They contribute labour for all farm activities, including sowing, weeding, harvesting, watering et cetera. At the same time, they are agents of change. Teaching a woman is akin to teaching a family. Any farming discourse is incomplete unless men and women of the household are involved. Women's self-help groups, moreover, are very important for reaching out to new farms. In rural Andhra, some 7.5 million women are organised in about 730,000 self-help groups (SHGs). They can now mobilise many more people. This movement started two decades ago, basically as savings and credit groups. They are well networked and campaign for social change, health issues, livelihoods et cetera. The SHGs and their federations have become a transformative force. To a very large extent, ZBNF fits their goals, and accordingly, they have become important promotors of our approach. Many of our CRPs belong to this network. They understand the negative implications of chemical food for the health of their families and the adverse effect agrochemicals have on the soil.

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Photo: APZBNF

Primary forests are important carbon sinks, not only in Costa Rica.

Agriculture without emissions

Agriculture is an important driver of climate change: it currently generates around a quarter of global greenhouse-gas emissions. At the same time, it could actually sequester more greenhouse gases than it emits. Demanding that agriculture become climate-neutral is therefore realistic and – considering global heating – even necessary.

By Susanne Neubert

According to the IAASTD (International Assessment of Agriculture Knowledge, Science and Technology for Development), the food sector, including all its upstream and downstream industries, generates up to 37% of global greenhouse-gas emissions. A significant share of methane and nitrous oxide emissions, 44% and 82% respectively, results from agriculture.

It is very difficult to make reliable calculations in this sector. For the purpose of this essay, however, precise figures are not essential. What matters is the general outlook.

On the one hand, enormous quantities of carbon can potentially be sequestered by photosynthesis and by organic matter in the soil. This phenomenon is called "negative emissions". On the other, such emissions can be released again at any time as "positive emissions" through harvesting, ploughing, deforestation, fertilisers and digestion.

Some farming practices maximise negative emissions in the long run. That is desirable and it also distinguishes industrial from climate-friendly cultivation.

Humus-rich soil and forests can endure for centuries. They are permanent CO_2 sinks. Among others, this mechanism should be used to gain the time needed to reduce to zero the emissions of the entire world economy (see also Katja Dombrowski's essay on the IPCC Special Report on Climate Change and Land in D+C/E+Z e-Paper 2019/09, Monitor).

The conversion of forests and natural areas into arable land currently causes most of agriculture's greenhouse-gas emissions. In second place are methane emissions from cattle farming and wet rice cultivation. In crop cultivation, the most important emissions result from the production and use of mineral nitrogen fertiliser.

Organic fertiliser matters too. When used to boost plant growth, excrements generate negative emissions, since they ensure the plants' nutrient supply and enrich the soil with organic matter. If the fertiliser is used, however, it emits greenhouse gases through volatilisation, erosion and decomposition.

The following basic guidelines are important for limiting emissions caused by land-use changes:

- As many forests and other ecosystems as possible must continue to serve as carbon sinks and fulfil other vital functions. Accordingly, existing fields must not only be farmed in a more sustainable way. Their productivity must be maximised as well.
- Arable land is used to grow either food for people or animal fodder and raw materials for bioenergy. Ever more land is being used for that latter purposes. Since the global population is increasing, we must not allow human meat consumption to grow without limit. Otherwise, the climate will take more harm.

The demand for greater agricultural productivity does not mean that more and more inputs are needed. Indeed, inputs can and must be reduced. The following goals and principles should guide the sustainable reorientation of agriculture:

1. It is possible and necessary to provide everyone with an adequate supply of healthy food.
2. Negative emissions must be increased (humus, leguminous crops, agroforestry).
3. Nutrient cycles must be closed and synergies used.
4. Climate justice demands better growth opportunities for African agriculture – and that means the international community needs to allow fertiliser budgets for them and reduce mineral fertilisers in the other parts of the world.
5. Appropriate technical, institutional and social innovations to sustainably improve efficiency in agriculture.

CROP CULTIVATION AND LAND USE

Let's start with nitrogen. It is, after water, the most important driver of plant growth, which is why ever more mineral fertiliser is being used. The problem is that both its production and application generate considerable emissions. The use of nitrogen fertiliser could be cut in half if:

- its application were targeted,
- good manure management were practised and
- leguminous crops, which capture nitrogen from the atmosphere, figured more prominently in crop rotation.

Photo: picture-alliance/robertharding

Leguminous crops are so-called "protein plants", including peas, beans, soybeans, peanuts and clover, as well as many other varieties of shrub, tree and algae. They are an important part of the solution. These plants carry bacteria inside their root nodules (rhizobia), which allow them to fix atmospheric nitrogen. They cover their own nitrogen requirements, with positive consequences for successive cultures or mixed cultures. If this natural mechanism were employed more extensively, significant quantities of nitrogen could be generated. That means negative emissions. There are synergies in regard to soil quality and nutrition moreover. Protein plants are part of a healthy diet, and the inclusion of these cultivars in crop rotation reduces the incidence of plant diseases and pests. Proper soil management can improve natural soil fertility and stimulate humus formation. It is important to grow legumes and use vegetable biomass as mulch.

Depressingly, the use of mineral fertiliser is increasing around the world. Africa is the big exception. Per hectare, only a tiny fraction of the global average is applied in this continent. The main reasons are high prices and low accessibility. Most African countries import mineral fertiliser and hardly produce any themselves. For this reason, and because of high transportation costs, fertiliser is much more expensive in Africa than elsewhere. Generally speaking, African smallholders cannot afford mineral fertiliser – at least not beyond the tiny, state-subsidised amounts.

At this point in time, however, it is still difficult to imagine the increase in productivity that Africa urgently needs happening without further application of mineral fertiliser. African agriculture needs access to affordable mineral fertiliser if it is to boost its productivity. Application elsewhere must be reduced accordingly if the generation of additional greenhouse-gas emissions is to be avoided.

In other words, the use of mineral fertiliser must be rationed on a global level. The redistribution in Africa's favour is essential – not least because its population is growing fast. Agricultural productivity must keep up. To strike the balance, the global north and many emerging markets must reduce their dependence on mineral fertiliser. Nitrogen pricing would serve that purposes by making fertiliser more expensive. Such a policy could help drive a shift to more leguminous crop cultivation, mulching and the application of organic fertiliser with animal excrements (including manure). Another relevant resource would be pretreated wastewater from municipal utilities. It contains nitrogen and phosphates. The point is that humanity needs approaches that cut across many sectors in order to close nutrient cycles and to use synergies.

Cattle herds' methane emissions harm the climate: auction in Buenos Aires.

Photo: Juan Garff/picture-alliance/dpa

MORE FRUITS AND NUTS

According to Pablo Tittonell, a professor of agro-ecology, people today are producing 40 % more grains than are actually needed to feed humanity in a safe and healthy way. It is certainly important to store grain reserves in case of emergencies, but 40 % of the total annual need is obviously too much. Therefore, the share of cereal cultivation could be scaled back in favour of other, more diverse crops.

Tittonell also says that humanity could get along with half of its current cattle population without suffering nutritional harm. Indeed, diets would actually become healthier. Make no mistake: this proposal does not apply to African smallholders who often depend on their few animals in order to operate. What is at stake is the industrial-scale feedlots in the EU, Latin America and elsewhere. They generate an excess of emissions and facilitate the overconsumption that harms the health of masses of consumers.

In order to feed people a healthier diet, Tittonell argues that more fruits and nuts would be more beneficial than expanding industrial beef production. A change in land use in this direction would also mean that the trees and shrubs that nuts and fruit grow on would capture carbon emissions. Essentially, this solution is very simple. A large share of the current grazing land for cattle must be planted with trees and shrubs. That would drastically reduce methane emissions and sequester CO_2.

Such a transformation will take time. Above all, it will require prudent policymaking and effective awareness raising. Policy tools and incentives must be designed in such a way that this transformation will pave its own way. By contrast, prohibition

Soy cultivation is part of the solution as well as part of the problem. On the one hand, it can improve the fertility of degraded soils, but on the other hand, forests are cut down in order to expand soy plantations.

and appeals to personal renunciation tend to backfire.

Wet rice cultivation is a very important area of food production. Because of its methane emissions, it is also relevant to the climate. One possibility of reducing emissions is more efficient cultivation that incorporates azolla (an aquatic fern and leguminous crop) and fish production in flooded rice fields. In addition, emissions can be reduced through rice or root intensification, with higher yields being achieved with fewer seeds. The methane output per kilogramme of rice can thereby be reduced. At the moment, scientists are working hard on researching varieties with lower methane outputs.

THE SOIL AS A CARBON SINK

Soil management is a core aspect of making agriculture climate-neutral. In addition to decreasing reliance on mineral fertiliser, slurry must no longer be applied without straw. Instead, it should be applied as manure. That would reduce emissions as well as run-off. The goal is to create fertile, humus-rich arable land that is rich in organic matter and the associated soil life. Such soil is also a carbon sink. An important policy instrument to achieve this goal is site-specific livestock farming. The acceptable number of animals must be linked to the size of the landholding, so the land can be fertilised without problem. Such policy interventions will make meat more expensive.

Organically saturated soil should also not be ploughed, because ploughing can release trapped carbon. Furthermore, soil should always be protected from wind and weather so that it does not dry out and is not eroded. Conservation agriculture (CA) fulfils all of these conditions. CA is already widespread in the US and Latin America, although it is carried out there in combination with the herbicide glyphosate. Weeds are the major challenge of the CA approach, since in no-till farming they can no longer be ploughed under. Nonetheless, the use of glyphosate is not necessary as practices in Africa show. The disadvantage of CA is that it is more labour- and knowledge-intensive than using the plough. This problem could be solved, however, with the help of technical innovations and education.

CLOSING NUTRIENT CYCLES

Emission-free agriculture requires the use of treated municipal wastewater and other cross-sector approaches that impact non-agrarian practices. Using it to promote plant growth closes nutrient cycles.

Comprehensive approaches will often have societal dimensions. For example, in the Sahel region, herders could cooperate with crop farmers. Crop farmers could use animal manure and herders could graze their animals on crop residues. Such win-win constellations were once established by traditions, but those traditions have been abandoned. They should be reintroduced.

All of these climate-protection measures create positive synergies (for other locally adapted opportunities see article on climate-smart agriculture by Michaela Schaller in D+C/E+Z e-Paper 2017/11, Tribune).

Together with an effective policy framework and a willingness in society to embark on something new, this kind of transformation is feasible worldwide. Achieving it would mean climate neutrality or even additional negative emissions in the agricultural sector. At the same time, it would facilitate the production of adequate amounts of healthy food.

WHAT IS MISSING IS THE POLITICAL WILL

Political will and public awareness are the most important drivers of climate-neutral agriculture. The preconditions for bringing about a shift in the private sector are effective incentives, well-designed taxes and the redistribution of subsidies, for instance from land subsidies for agriculture to payments for environmental services. The private sector has to be part of the transformation. It must innovate, and those innovations must be geared toward sustainability.

The global north, which is largely responsible for bringing about climate change so far, must pay for the lion's share of agrarian reform. The more it creates opportunities for people living in rural areas of the global south, the more beneficial it will be. Life in the countryside would once again offer prospects for the future – and that effectively addresses the causes of migration.

LINKS

Info on IAASTD (International Assessment of Agriculture Knowledge, Science and Technology for Development):
https://www.globalagriculture.org/report-topics/climate-and-energy.html
Pablo Tittonell's TED talk "Feeding the world with agro-ecology":
https://www.youtube.com/watch?v=wvxi4mN-Za0

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Photo: picture-alliance/imageBROKER

Traditional seeds under threat

In farming communities in Burkina Faso, seeds are used, propagated, bred and traded according to an elaborated traditional system. But this system is increasingly under threat: international seed corporations are aggressively advertising their products, and the government is singing the same tune.

By Lucien Silga

Like other West African countries, Burkina Faso is a highly agricultural nation. The sector generates 35% of the gross domestic product and employs four out of five working people. Most of them are smallholders, and many produce primarily for their own consumption. Their livelihoods depend on farmland and seeds. Therefore seeds and the traditional way in which they are used and managed are vital to the nutrition of rural people. This is the basis of existence.

Farmers' traditional means of using, propagating, breeding and exchanging their seeds are under serious threat. Large seed companies are aggressively campaigning for the use of industrial and genetically modified seeds and forcing their way into the market. They are receiving support from government programmes and laws that play into their hands, as well as from a variety of other actors and donors in the country's agricultural sector (see box, next page).

In 2006, Burkina Faso passed a law regarding plant seeds. Although it recognises both traditional and "improved" seeds, it promotes almost exclusively the distribution of commercial seeds, primarily by establishing intellectual property rights on varieties and strongly regulating production and trade. Traditional varieties are only affected marginally. However, the law does not address farmers' rights to keep, use and exchange seeds within their own networks. It does restrict farmers' rights to certified varieties which are protected by intellectual property rights.

A woman spreads the seeds of the African locust bean tree out on the floor to dry. The African locust bean is an important food-producing tree in Burkina Faso.

Photo: Fischer/picture-alliance/imageBROKER

In official discourse, the traditional seed system is seen as inferior. Publicly and privately financed programmes are heavily advertising the commercial system in the countryside. The government is subsidising the production of certified varieties, presenting them as the solution to a variety of problems that farmers face, including ever shorter rainy seasons as well as regional and temporal changes to rainfall patterns. The country is feeling the impacts of the climate crisis. Another argument is that commercial varieties supposedly lead to higher yields. What is not mentioned, is that they require the use of artificial fertilisers and pesticides.

DIVERSE AND WELL ADAPTED

Despite the aggressive campaigns, the vast majority of farmers in Burkina Faso still uses the traditional land races that have been bred over generations. As Melaku Worede, the Ethiopian scholar, and other dissident scientists and non-governmental organisations like FIAN have been pointing out for a long time, landraces actually suit local needs (see D+C/E+Z 2012/03, p.102). Indeed, traditionally used varieties amount to a biological treasure trove, which offers suitable cultivars for all kinds of weather and locations. Farming communities have been breeding for centuries, and further breeding means adaptation to changing conditions. The famers know what variety to use in which circumstances. Some cope with draught, others with pests. The biodiversity of the crops keeps smallholdings resilient. At the same time, commercial breeders use traditional seeds to include desired characteristics in their products.

It is thus not surprising that, according to official data, 80% of Burkina Faso's farm-

ers rely on traditional land races. Smallholders are preserving the agricultural biodiversity they and their ancestors have always depended on. In view of the climate crisis, this approach makes sense. The weather is becoming increasingly volatile, and extreme weather situations occur more often than in the past. As in other countries, that is happening in Burkina Faso. Commercial seed may indeed deliver higher yields, but prudent use of landraces ensures that farmers are very unlikely to lose an entire harvest.

Farming communities have sophisticated seed systems, not only for traditional and local varieties, but also for varieties from other regions and so-called improved varieties. The farmers manage their seeds according to traditional practices and knowledge. The system is ruled by traditional conventions and collective community rights.

Because of the close relationships farming communities have to plants, animals and nature in general, and because of the central importance of these natural resources to their way of life, farmers have certain rights to seeds and varieties. These rights have been enshrined worldwide, for instance in the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA). The UN-Declaration on the rights of peasants, that was adopted in 2018, confirms these rights. However, these rights are not recognised by all countries, and even where they are recognised, the implementation of respective laws may remain unconvincing.

With support from civil-society organisations, farmers' associations in Burkina Faso are fighting for the government to implement their international rights, particularly ITPGRFA Article 9 on the rights of farmers. Thanks to their efforts, the parliament passed a law regarding access to plant genetic resources for food and agriculture. The law contains provisions addressing how profits from the use of these resources are to be distributed. One chapter explicitly governs the rights of farmers and puts Article 9 of the ITPGRFA in force in Burkina Faso.

On this basis, legal provisions that recognise and effectively protect the traditional seed system must now be passed. Farmers get the right to keep, use and trade their seed varieties. Regulations must then be accompanied by policy measures and public research. Producers, moreover, must focus on the needs of small-scale agriculture. Maintaining the traditional seed system in its entirety is the only way to preserve Africa's enormous diversity of species and varieties and the knowledge of its farming communities.

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Public-private cooperation in the agricultural sector

Many different actors are advocating for the dissemination of so-called improved seeds in Burkina Faso. They include the state, international donor agencies, research institutions, charitable foundations, seed companies and civil-society organisations. Together they wield an enormous amount of financial power.

In most cases, these actors are interconnected, and multinational seed corporations are driving many projects. There is a huge number of public-private partnerships in which private-sector companies cooperate with governments to advance their own economic interests.

One example is the Alliance for a Green Revolution in Africa (AGRA). It presents itself as an African initiative, but it is primarily financed by the Bill and Melinda Gates Foundation and the US development agency USAID. AGRA works closely with Grow Africa, a consortium of over 200 companies whose goal it is to increase private-sector investments in and profits from agriculture in Africa.

In this context, it is important to note that the seed industry has declared Burkina Faso a target country for the introduction of genetically modified varieties. Despite the spectacular flop of genetically modified cotton, which was supposed to be resistant to a particular kind of caterpillar, the government wants to bring genetically modified black-eyed peas to the market in the near future.

Genetically modified black-eyed peas will soon be cultivated in Burkina Faso.

Furthermore, experiments are currently under way in Burkina Faso, relying on advanced methods of biotechnology. Gene-drive technology, for example, can change the genetic make-up of entire populations of species. It is being used to make mosquitos sterile in order to reduce the mosquito population and thereby slow the spread of malaria. Civil-society organisations oppose this approach, pointing out that the experiments are being carried out without the prior consent of the local people and against national and international biosecurity agreements. Is

Attitudinal change

In view of poverty, food insecurity and environmental degradation, Ethiopia urgently needs comprehensive rural reforms. Getachew Diriba, the prominent agricultural economist, demands a bold, inter-generational strategy.

Getachew Diriba interviewed by Marianne Scholte

Your recent book "Overcoming agricultural and food crises in Ethiopia" has made quite a stir in your country. What motivated you to write it?

Before I retired in 2017, I was the World Food Programme's country director in China. That was a turning point for me. My picture of China went back to the great famine of 1959 to 1961, when millions died. But I found that China transformed the agricultural sector in one generation. The human capacity for change is enormous. I set out to understand what the Chinese had done. I am from a rural community in Oromia, Ethiopia's largest region. I still go back there often to visit my family and friends. In the first chapter of the book, I discuss my home village as a microcosm of what has happened in Ethiopia – population increase, deforestation, land degradation. Through an accident of history, I had the opportunity to go to universities in Germany and Britain, obtain a PhD in agricultural economics and live the life I have lived. My mission for the rest of my life is to campaign for improving the lives of Ethiopian smallholders.

What exactly did you learn in China?

China's transformation began with its smallholders. I went to the village where it all started – where 18 farmers signed a secret pact to divide up the land among themselves instead of doing collective farming. Each one did what was personally deemed best. The result was that they proceeded to produce in one year what they would have normally produced in five years. The cadres got wind of it, and it went all the way up through the ranks of the Communist Party to Deng Xiaoping, then the top leader. He famously said: "It doesn't matter if the cat is black or white, as long as it catches mice." That is how China's reform process started, which then led to special economic zones, market dynamics and mass internal migration. The youth left the rural areas. The resulting shortage of labour forced farms to consolidate and mechanise. It is important to understand that cultural change, institutional change and determination were at least as important as technological change.

How do you assess Ethiopia's current situation?

In the past four decades, the number of Ethiopians who permanently or intermittently depend on food aid has increased. Today, some 20 million people depend on donor-agency support. The rural areas cannot absorb any more people. Forests are gone; land is degraded; soil has been eroded. Per capita, the land holdings keep getting smaller. Now 86% of our rural households no longer have enough land to support themselves. They are in perpetual food crisis, and we accept this situation as normal. Caught in a downward spiral of environmental collapse, we pretend that it is a success to get food aid to millions of people. Yes, donor action is saving lives, but it is merely ensuring survival, not lives in dignity. Ethiopia is suffering a crisis of vision. We need to aim higher, change habits, culture and institutions. We need a bold, inter-generational strategy.

But Ethiopia cannot do much about climate change, the main driver of the environmental crisis.

Climate change is only one of several drivers, though drought is certainly an important one. But it is irresponsible to blame all of Ethiopia's pain and poverty on the droughts that climate change has brought about, not least because droughts have always occurred. Our current crisis does not have only one cause. Rapid population growth matters very much. An annual population increase of 2.7% means we need an annual 540,000 metric tons of additional food – for bare survival. Moreover, the population issue is particularly significant because we have not adopted technology. Our farmers are still ploughing the land with ard ploughs attached to oxen. Farms entirely depend on rainfall, but we do not have any water-capture or water-management systems. Most farmers do not have access to improved seeds or fertiliser. Ethiopia only has 500 tractors and perhaps 600 combine

Oxen plough: Ethiopian farmers are still using Neolithic technology.

Photo: Vnoucek, F./Lineair

Urban food demand can boost employment: dispatching goods from a dairy processing facility on the outskirts of Addis Ababa.

harvesters for 17.5 million Ethiopian smallholder farms. The government wants to change things, but we are still basically using Neolithic tools, so we do not produce enough food to feed our 110 million people.

What are the most important bottlenecks and how can they be dealt with?

We can discuss an endless list of specific policy issues, but first of all, we must appreciate the magnitude of the challenge. Innovation results from the recognition that something is wrong. Do we accept or reject the pitiful life that millions of Ethiopians are subjected to? We need effective leadership that recognises the scope of the problem and the need for change. And then we will need action on several fronts:

- In legal terms, the main obstacle is land ownership. It is exclusively vested in the state according to the constitution. That means that land cannot be sold or subleased. This is a huge obstacle to land consolidation and mechanisation and also to obtaining land for private enterprise.
- In regard to technology, farmers need information and extension services. Important issues include mechanisation, seed, fertiliser and water management.
- Implementing innovation costs money, so farmers require loans. Ethiopia needs a financial institution dedicated to agriculture.
- It is necessary to ensure environmental sustainability.
- We need decentralised urbanisation, with flourishing markets in small and mid-sized towns. New jobs can be created in food and agro-processing. That, in turn, will require training and skill development. Germany's GIZ could certainly support us, the quality of German vocational training is generally acknowledged.

To bring these things about, however, we first need an attitudinal change. We must reject poverty and create a spirit of hope, dignity, responsibility and creativity. We need to think bigger and aspire to wellbeing for the next generation.

If small plots are consolidated and agriculture is mechanised, will all the people released from the field work find urban jobs?

No, not at first, but this is why social-protection systems were created in the west, and we will have to create them too. Bear in mind that 20% of our people already depend on humanitarian aid, which is a welfare system, if you will. The truth is that we have no choice. We cannot survive in the 21st century without modernising our agricultural sector. The gap between national food production and national demand is huge. We are spending precious foreign exchange to import grain we could be producing ourselves. Traditional farming is failing us. The environment is collapsing, and rural people need livelihoods.

Do the government and the private sector have the capacity to implement change?

Capacity is never a given commodity; it is created to address human problems. So far, Ethiopia's government has attempted to do literally everything, from road construction, school building and health services to land allocation and job creation. As a result, society is paralysed. People expect the government to supply everything. This kills motivation, innovation and job creation. The government has an important role to play that the private sector cannot fulfil, for example, in infrastructure. But the private sector must be an important partner.

Please give an example.

Well, for decades, smallholder farmers have suffered because the government's local agricultural extension office did not manage to supply them with the right kind of fertiliser at the right time. The private sector, on the other hand, cannot afford to sit on stocks of unsold fertiliser for a long time. So private distributors are highly motivated to get supplies to customers at the right time. This is one area, among many, in which the private sector normally performs better than government agencies. What we need is efficient and effective inter-linking of the private and public sectors.

But won't that require skills and knowledge that, so far, are lacking?

I see a lot of untapped potential for skills training, knowledge promotion and capacity development. It has not been tapped because of the way in which not only the government, but Ethiopian society in general approached things. Skills can be developed fast. Driving a tractor is not rocket science. In the book, I talk about two Ethiopian industries – the Franco-Ethiopian Railway, which disintegrated and failed, and Ethiopian Airlines, which innovated and became one of the largest and safest airlines in Africa. Both industries were Ethiopian, both employed Ethiopians from the same educational system. Ethiopian Airlines proves we can succeed. It is a matter of how we frame the system.

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GETACHEW DIRIBA has worked for various aid agencies, including GTZ, KfW, Care and the World Food Programme. After retiring in 2017, he published his book on Ethiopian reform needs.

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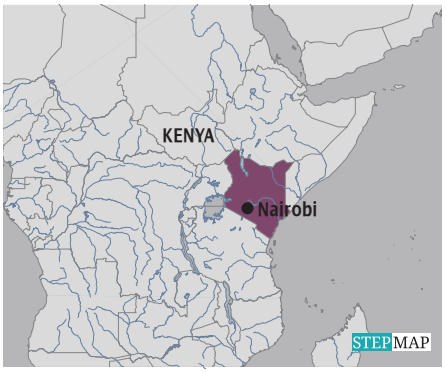
Farming in the metropolis



Urban agglomerations can benefit from promoting practices that seem rural at first glance. Nairobi offers a case study for the need to develop urban agriculture to tackle poverty and food insecurity. Low-income Nairobians grow their own food as a survival tool, mitigating hunger and malnutrition.

By Katie Cashman

Urban gardening in Nairobi is a form of small-scale subsistence farming. Of these farmers, most are women. They are responsible for feeding their families. They know only too well from personal experience, that food insecurity is a serious issue in urban areas (see box next page).

Low-income neighbourhoods of Nairobi have limited space, so most urban farms are small-scale plots growing staple foods like greens and maize. They only require few inputs, tools and technology.

Urban agriculture improves the resource-efficiency of the urban ecosystem by linking production to consumption. Some experts even speak of that cycle as the urban metabolism. In any case, the goal is to minimise waste by reusing resources. In capitalist consumer societies, by contrast, vast amounts of waste are generated.

Urban gardening, however, serves resource efficiency. As chemical fertilisers are unaffordable, small-scale farmers use animal manure or compost. Wastewater is also a viable input for urban vegetable cultivation when appropriately treated. It can supply the nitrogen, phosphorus and potassium that some crops need to grow. The opportunities for inputting organic waste and wastewater into food production are limitless, but integrating these practices requires knowledge on the part of the farmers and those who regulate the systems.

There are many promising trends. Some residents of Kibera, Nairobi's biggest slum, have developed a "sack gardening" technique. Indigenous vegetables are cultivated in reused sacks, such as cement bags. Holes in the sacks allow the vegetables to grow out the sides. In 2008, Solidarités International, a non-governmental organisation, promoted this trend of vertical gardening by distributing free seedlings and offering technical advice. This form of urban agriculture has been shown to increase food availability. Participants reported they became less likely to skip meals.

In Kibera, locally grown vegetables are also sold to local kiosk vendors, for example, with a small share of the revenue set aside for garden maintenance. This model was developed by the Kibera Public Space Project 01 with the Kounkuey Design Initiative. A business called "Grow Kenya" sells compost generated from on-site community toilets. A women's collective harvests water hyacinth, an invasive weed, to make baskets and crafts.

Urban agriculture optimises the use of space. As Katrin Bohn and André Viljoen (2005) pointed out, food can be grown on a great variety of plots: "big, small, horizontal, sloped, vertical, rectangular, triangular, irregular, on brownfield sites, on greenfield sites, in parks, on reclaimed roads, on spacious planes, or squeezed in corners". In their eyes, spatial efficiency serves three ecological functions:

- biodiversity conservation,
- waste management and
- energy efficiency in the production and distribution of food.

Urban agriculture not only has ecological advantages. Especially when cultivated in shared spaces like community gardens, urban farms yield social benefits as well. The simple truth is that city residents need green spaces.

A public space assessment from UN-Habitat found that, in Nairobi, slightly more than eight percent of the land serves public recreation. The international standard, according to UN-Habitat, should be at least 15 %. Compounding the problems in Nairobi, almost one third of the recreational land is not accessible to the public. Opening hours, fees and other barriers limit access. As is true all over the world, the situation tends to better the more affluent neighbourhoods are.

Urban space is precious.

Photo: Cashman

In a low-income estate called Dandora, youth reclaim underutilised spaces and managed them communally. The results have been an increase in employment and a reduction of crime. Maintained and used community spaces enhance security. The group called the Dandora Transformation League, among other activities, rents out a community garden for weddings and events. It has also established community parking lots to generate revenue.

IMPLEMENTATION MUST FOLLOW REFORMS

Urban agriculture is now considered a promising approach to improving food security and environmental sustainability. Legislation must support it. Reforms have been adopted in many cities around the world. Nairobi is one of them.

In the past, Nairobi City Council used by-laws as well as national legislation to prohibit food cultivation on public streets and the keeping of livestock in the city. It worried about health problems and food safety. Civil-society organisations (CSOs) campaigned for change. They argued that legalisation would improve incomes and health. The CSOs insisted on the reform of land laws given that small-scale urban farmers would clearly be overburdened if they were required to get any kind of formal permit.

In 2015, the "Urban Agriculture Regulation and Promotion Act" took force. It was designed by Kenya's Ministry of Agriculture. The goal was to support residents of high-density and informal settlements. The new law provides for supportive structures such as instructional spaces and training, and it also regulates several relevant issues such as marketing, storage or organic-waste management.

This reform is promising, but it needs to be implemented properly. Unfortunately, the law neither has specific provisions on how to acquire permission to use public land for community gardens, nor does it spell out how the government must provide resources such as water, seeds and tools.

To tap the full potential of urban gardening, much more needs to happen. Many urban gardeners are not even aware of the new law. For example, not a single member of a community garden in Mathare knew recently that urban agriculture had been legalised. They still feared the government would destroy their project. Once they were made aware of the reform, they asked for the kind of government support the law foresees, but they were denied since they did not offer any bribes. Passing reasonable laws is not enough; follow through and administration is just as important.

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KATIE CASHMAN
is a consultant for urban sustainability who was working with UN-Habitat (United Nations Human Settlements Programme) in Nairobi when she wrote the article.
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Urban food insecurity

Urban poverty tends to be underestimated. While it is true that more poor people live in rural areas than in cities, some of the poorest people actually live in the big agglomerations of developing countries. They suffer food insecurity.

In Kibera, Nairobi's biggest slum, about 20% of residents frequently go a whole day and night without food. Slum residents had the worst health and nutritional status of any group in Kenya in 2014, according to the African Population and Health Research Centre. The reasons were lack of basic services and poor sanitation.

Since the mid-twentieth century, urbanisation trends show an influx of low-income, rural people to urban centres in search of employment. Africa is currently the least urbanised continent. Only about 40% of Africans live in urban areas. Things are changing fast, however, as the continent has a very high urbanisation rate at four percent per year, according to UN-Habitat.

Many African cities are unable to provide the rapidly growing population with adequate housing. For this reason, slums and informal settlements host increasing proportions of the population.

Half of Nairobi's people live in such conditions. The slums of Nairobi show the city's vast wealth inequality. In Kenya, urban areas have higher income inequality than rural areas. As the International Food Policy Research Institute (IFPRI) reckoned, 1.3 million rural Kenyans and up to 4 million urban Kenyans were food insecure in 2008. Things are similar in other African cities.

Vegetables are part of a healthy diet.

Unless a country is at war, hunger and malnutrition do not normally result from the unavailability of food. The problem is unaffordability. That is true in Kenya too, where the urban poor spend up to 75% of their income on staple foods alone. This problem is exacerbated when maize prices rise due to world market trends. Maize is Kenya's staple grain.

In the global food system, 4,600 kilocalories of food are harvested daily, but only 2,000 are eaten. On the one hand, inadequate transport and storage infrastructure means that a lot of food rots before it can be sold. On the other hand, consumers are known to throw away a large share of the food they purchase. No doubt, humankind must improve resource efficiency. As the experience gathered in Nairobi and other cities shows, urban gardening can make a meaningful difference, improving food security at the same time (see main story). kc

Photo: Cashman

Re-engineering the value chain

A great challenge in food systems is to get perishable goods to consumers fast. In Kenya, Twiga is making that happen. As Peter Njonjo, the co-founder and chief executive, told Hans Dembowski, this business-to-business platform uses digital technology to manage the supply chain from smallholder farmers and processing companies to informal urban grocers, improving the livelihoods on all sides.

Peter Njonjo interviewed by Hans Dembowski

What difference is Twiga making in the lives of smallholder farmers?
Twiga ensures they have access to a fair and transparent marketplace via mobile phone, resulting in higher prices for their goods. In the past, they often lost money, time and products because sales depended on multiple layers of brokers to get their goods to wholesale vendors and then retail markets. Each middleman took a cut that ate into their family's income. Twiga offers higher and more stable prices than middlemen. To date we have about 17,000 farmers in our network.

What difference are you making in the lives of informal retail grocers?
We deliver quality goods to their doorstep. Before, fresh-produce vendors had to get up at 4 am and head to the wholesale market. Now, Twiga is bringing the goods they need directly to their shops and stalls. We have a network of about 6,000 vendors. We currently cover about 40 % of a typical informal retailer's offerings. Our prices are actually 10 % to 20 % below those in wholesale markets, with consistently high quality.

In what sense does Twiga depend on digital technology?
Twiga's approach is to "re-engineer" the agricultural value chain. We use digital technology to empower the farmers we source from as well as vendors we deliver the goods to. We process data in real time. Moreover, Twiga is cooperating with financial-service providers who rely on digital devices, so vendors can now finance regular purchases with loans that are interest-free for the first three days. Our e-commerce platform allows informal grocers to place orders, view their order history and plan future orders.

Twiga agent at informal grocery in Nairobi.

Twiga started out with distributing bananas. Why is this fruit strategically important?
Well, Nairobi consumers love bananas and spend about 2.5 % of their disposable income on them. Bananas rot fast, moreover, so it is important to market them fast. We link farmers and retail vendors efficiently.

In what sense is your distribution system better than the conventional wholesale supply chain?
Twiga has built digital systems that allow us to process data in real time so we can continuously adjust prices and routes responding to what is on offer and what is demanded. We now provide many of the farm produce vendors want, including potatoes, tomatoes, onions, water melons and many other goods. On top of that, we also distribute staple foods like sugar, rice and maize. Our product range also includes milk, juices and even sweets. It covers about 75 % of what urban households buy. We keep broadening the range of products, so we are becoming ever more valuable in our partners' eyes.

Why are informal grocers so important?
The plain truth is that urban Africans depend on them. Cities are growing fast, and there typically are only very few formal shops and supermarkets. By aggregating the orders of thousands of informal grocers, we can improve quality and efficiency. We supply goods at attractive prices and at the right time.

If the pattern is the same across Africa, will your business model work in other places too?
Yes, 100 % in sub-Saharan Africa. We keep learning and perfecting our business model. In Nairobi today, a banana which is sourced only a few miles away costs the same as a banana costs in London after having been transported for thousands of miles. On the other hand, people in many African countries spend about 50 % of their disposable income on food, versus only 13 % in London. We are driving change to the benefit of farmers, grocers and consumers, and we plan to expand to other African cities soon.

How many people are you currently employing and what is your monthly turnover?
We have 500 employees, and our monthly turnover was about the equivalent of $1 million in spring.

PETER NJONJO
is Twiga's co-founder and chief executive. The interview was done by e-mail. Hans Dembowski first met him during a trip organised by DEG, the German development finance institution, which is supporting Twiga with loans because of the contributions the company is making to improving both urban and rural living. DEG belongs to KfW banking group.
Twitter: @njonjo2012

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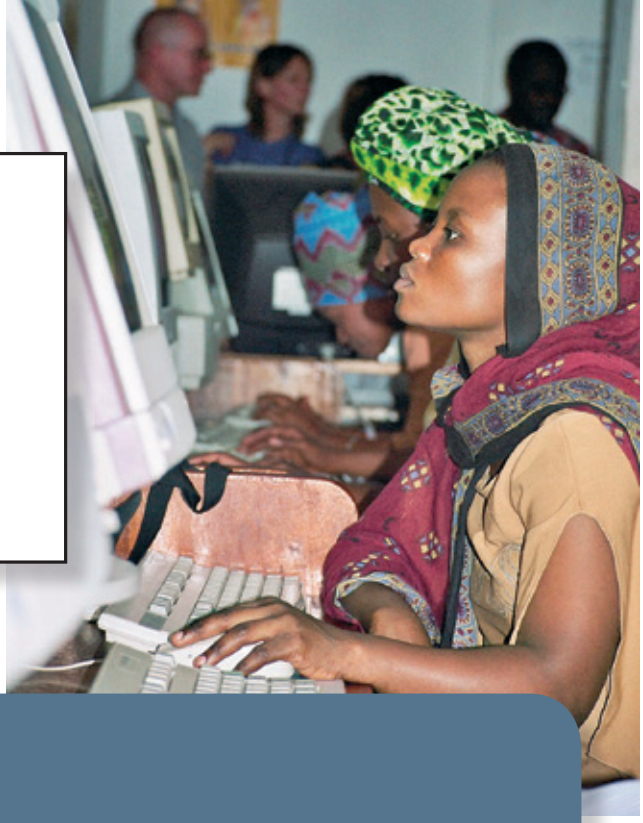

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