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FOCUS

Ecosystem services

Humankind's existence depends on biodiversity. Functioning ecosystems provide fertile soil and clean water. Forests and wetlands regulate the climate. Yet we are destroying nature fast. By doing so, we are putting ourselves at risk. Instead, we should strive to make the use of land and seas sustainable. It is especially important to protect biodiversity hotspots. Many of them are in low- or middle-income countries. In some of these areas, indigenous peoples are at risk because the ecosystems they live in are being destroyed.

Front page: Bumblebees are important pollinators.

Photo: picture-alliance/Alexander Schuhmann





Our focus section on eco-system services and biological diversity starts on page 20. It pertains to the UN's 2nd, 14th and 15th Sustainable Development Goal (SDG): zero hunger, life below water and life on land. It also has a bearing on other SDGs.

Save biodiversity to save humanity

So far, the erosion of biodiversity does not get the same attention as the climate crisis. In environmental terms, both are equally important. The World Economic Forum's Global Risks Report lists the loss of biodiversity among the top five most concerning global risks. Indeed, we are destroying nature fast. The Intergovernmental Platform on Biodiversity and Ecosystem Services (IP-BES) has reported that the global rate of species extinction is "tens to hundreds of times higher" than it has averaged over the past 10 million years. Around 1 million of 8 million species are considered to be endangered.

Biodiversity is about much more than the diversity of species. The health of ecosystems, such as forests or savannas, matters very much. Ecosystems deliver vital services – such as the pollination of crops or the purification of water bodies. Carbon-storing forests and wetlands, moreover, contribute to regulating the climate.

Determined action is needed – and missing. We need significant change in regard to land-use and sea-use, among other things. We must reduce pollution as well as the use of chemical-industry products – from plastics to pesticides to antibiotics (see

entire Focus section of D+C/E+Z e-Paper 2021/03). As global warming and the erosion of biodiversity are mutually reinforcing, more determined climate action is necessary as well.

We have UN agreements concerning biodiversity, but they have not been followed up with sufficient action. Not one of the 20 Aichi Biodiversity Targets, adopted in 2010, was met completely by 2020, the official deadline, for example. Many subsidies that harm biodiversity have thus not been eliminated.

Things may yet improve. In October, UN members adopted the non-binding Kunming Declaration with pledges to reverse the current loss of biodiversity and ensure that biodiversity is put on a path to recovery by 2030. Binding decisions may follow in May next year when the in-person part of the UN Biodiversity Conference will be held in the Chinese city the declaration is named after. Due to the Covid-19 pandemic, it was postponed, with the first part last month taking place digitally.

Expectations are high. More than 70 countries have formed an intergovernmental group called "High Ambition Coalition

for Nature and People". It includes India, the EU and Britain. They want at least 30% of world's land and seas to be protected areas by 2030.

Humanity certainly needs ambitious and legally binding biodiversity targets. They must be defined accurately enough to facilitate precise monitoring and verification. What nation states do will matter both in terms of declared aspirations and actual performance. Appropriate funding will be crucial. Prosperous nations, which have caused disproportional damage, will have to support poorer ones beyond the pledges made so far. The latter have the most important biodiversity hotspots. More money from the private sector must be mobilised too.

All of this must happen on top of efforts to stem the climate crisis. We must make the promises of the UN Convention on Biological Diversity and the UN Framework Convention on Climate Change come true. Both is challenging, but doable – given the political will.



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Wanjohi Kabukuru is a journalist from Kenya and specialises in environmental issues. In this edition of D+C/E+Z, he elaborates what "blue economy" means and why this approach to making sustainable use of the seas and maritime resources was taken early by the Seychelles, which have also been promoting the concept internationally. He spells out how blue-economy ideas



relate to the UN Convention on Biodiversity (BCD) moreover. We are delighted to welcome him among our contributors. **PAGE 28**

► 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.

SOCIAL MEDIA

“The vast majority does not get any kind of sex education”

The recent Facebook blackout did not bother young people in low- and middle-income countries much because they, unlike their peers in prosperous nations, are accustomed to unreliable infrastructure. Like all adolescents around the world, however, they mostly use the internet for self-exploration even though their options tend to be rather limited. Girls face restrictions in particular. Prudent global regulation is needed to shield everyone from politically destructive disinformation. Payal Arora of Rotterdam's Erasmus University explained matters in a D+C/E+Z interview.

Payal Arora interviewed by Hans Dembowski

How do teenagers use the internet in low- and middle-income countries?

Well, there is this myth that they use technology to mainly lift themselves from poverty, gaining skills, acquiring professionally relevant knowledge and even starting small firms. The unspoken implication of this superhero story is that they are expected to escape the so called backward mindset of their communities in order to become more like “us” in Europe and North America. They are teenagers, however, and adolescence is not a period of self-perfection. It is a period of self-exploration. Teenagers need to find out who they are, where they belong and what they want to do with their lives. It is a search for meaning, companionship, engagement and entertainment. Unlike children, they do not simply trust the guidance of their parents, but want to find out things for themselves. The internet allows them to do that, and it also offers the necessary sense of privacy. Don't forget that most of them do not have a room of their own. Many live in one room homes with their parents, siblings and maybe grandparents.

So the screen of the mobile phone becomes their tiny private space?

Exactly, and especially for girls who typically cannot go out and hang around with friends as they please. However, access to the technology itself can be quite restricted (see Ipsita Sapra in the Magazine section of D+C/E+Z e-Paper in 2021/10). Low-income communities in developing countries tend to have an attitude one could sum up as “good

are able to get and stay online in a safe and anonymous manner.

But how is that possible if they don't have a device to access the internet?

Well, some do have a mobile phone, and many use devices that belong to a parent or a sibling. In order to protect their reputations, they often act online as though they were some kind of moral vigilantes, shaming loose and immoral rich girls who post pictures of themselves. To some extent, they reinforce the grip of conservative values that way, but at the same time, they are taking a close look at what is going on in places where the strict rules of their tightly knit community do not apply. We must not confuse what they post on social media with



Taking a selfie: many Indian girls do not have a smartphone of their own.

girls don't go on Facebook”. Being online for girls comes with high reputational risks. Social media is about unstructured time, but female teenagers in developing countries have a lot of household chores to do, so parents keep asking whether they do not have more important things to do than loiter around on social media. Families worry about their reputation and monitor daughters' behaviour closely, typically with the support of the entire neighbourhood and faith community. But nonetheless, the internet and social media give teenage girls a relative sense of freedom that their mothers did not have, if they

what they really think. They need to send the right kind of virtue signals to continue being online. Of course, many go online incognito. Another popular option is to invent a different persona which allows them to state their views truthfully without being identifiable.

Instagram can hurt girls' self-esteem because they do not feel beautiful enough. Does that affect the girls you are talking about too?

They have other bigger issues to worry about. The point is that they neither want to show

themselves nor be seen. To a large extent, they accept the norms of their community, but they are also curious and want to look around. One girl told me that her parents said she could have a mobile phone of her own after the marriage they were arranging. She reached out to her future husband and asked him to get one for her so they could get to know one another better. He agreed under the condition that he would have access to all her personal accounts so he could check what she was up to online. She told me that this arrangement was fair, because he was paying, he was running a risk himself and she would eventually be his wife.

Does online pornography matter?

Oh yes, Pornhub has become the world's sex-education agency with the widest reach, though it was obviously designed for a totally different purpose, which is to make money by stimulating men's fantasies. I do not mean to celebrate internet porn, but neither do I want to negate its usefulness among the global youth today. Imagine you are a young teenager in a developing country and you notice that you feel attracted to your own sex. Your local community will make you believe that you are a sick outsider because no one feels that way. By contrast, the abundance of gay porn on the internet will tell you that lots of people must actually have homosexual feelings.

Porn distorts body images just like fashion slideshows do, and, as you said, it is basically about fantasies. Don't teenagers need some advice on what porn is and does?

Yes, they do, but the vast majority does not get any kind of sex education. And it is actually about much more than sex. In many cultures, adolescent girls are not told anything meaningful about their bodies (see Mahwish Gul in the Focus section D+C/E+Z e-Paper 2020/04). They do not know about menstruation until it happens to them. Everything is considered shameful. Girls don't have a clear understanding of how a pregnancy starts or what diseases are transmitted sexually. Sex is linked to pleasure, but girls are not supposed to experience it. "Good" girls are not even allowed to show any interest at all. It is common for a girl to worry that she will soon have a baby only because she dared to kiss a boy. This kind of ignorance causes a lot of suffering, but is very hard to tackle. At this point, many only

get information from online porn, which is obviously insufficient sex education.

In October, Facebook had a blackout for a few hours, and WhatsApp and Instagram, which belong to Facebook, were affected too. Western teenagers were shocked. What was the response elsewhere?

People were not overly concerned as they are worried about incidents far worse. For one thing, utilities like power supply or

part of traditional publishers. Social media have become essential infrastructure with a bearing on the common good. One reason is the large network effect they have. Another problem is that users share so much personal information. Nonetheless, we allow profit-driven companies to make many important decisions. Elected policymakers should step up, take responsibility and push for global cooperation. They are shirking their duties. Only blaming internet billion-



Sex videos online are the only sex education many teenagers get.

water supply tend to be less reliable in developing countries. Moreover, people have become used to governments switching off apps or the internet for political reasons. Nigeria suspended Twitter for months. India denied Kashmir access to the internet for a long time. Local blackouts are not unusual.

To what extent do Facebook and other social-media platforms drive radicalisation among young people in Asia, Africa and Latin America? The latest whistle-blower revealed that Facebook algorithms amplify anger and hate to keep people engaged.

Well, a lot of what teenagers do online is entirely apolitical. But extremist forces are obviously using the internet, and especially social media, for purposes of agitation and mobilisation. We need an independent and global auditing body to ensure people get valid and truthful information. This job must not be left to solely nation-states or tech companies because social media transcend borders. So far, the platform providers pretend they are mere intermediaries and not publishers who bear responsibility for what they publish. In truth, the impact they have on people's lives far exceeds the im-

aires like Facebook founder Mark Zuckerberg when something goes wrong misses the point.

But he is not beyond blame. People like him consistently do what they can to escape regulation.

Sure, but the conventional media did not handle Facebook's latest whistle-blowing scandal well. Once again, they found fault with Zuckerberg, instead of focusing on broader issues on how to foster a sustainable global data governance plan that requires policymakers to cooperate and consolidate at the global level. On the upside, policymakers from divergent political beliefs share this common concern – finally some common ground.



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CORONAVIRUS

Pandemic impacts on HIV/AIDS, TB and Malaria

For the first time in nearly 20 years of its existence, the Global Fund reports setbacks in the fight against HIV/AIDS, tuberculosis and malaria. Covid-19 is the reason.

By Aenne Frankenberger

When the Global Fund was established in 2002, HIV/AIDS, tuberculosis and malaria had an iron grip on the world. The Fund's purpose is to fight these three infectious diseases. So far, the programmes it supports have saved 44 million lives, according to the Fund's recently published results report.

The Fund claims that there have been great advances against HIV/AIDS. In countries where it supports health initiatives, AIDS-related deaths have decreased by two thirds since 2002. Globally, new HIV infections went down 31% from 2010 to 2020. In the same time span, the number of patients on antiretroviral drugs rose by almost 20 million. In 2020, the Fund reports:

- 84% of HIV-positive people had been diagnosed,
- 87% of the diagnosed patients were receiving treatment, and
- 90% of the treated patients were able to lead a relatively normal life.

The 90-90-90 target set by the UN General Assembly in 2016 was thus almost achieved. The Fund emphasises, however, that the disease still poses a serious threat to vulnerable groups, including young women, drug users and sex workers.

For the first time in its history, the Global Fund reports setbacks. The amount of HIV-tests declined by 22% in 2020, and Fund-supported programmes reached 11% fewer persons. The Fund states that Covid-19 was the reason.

Of all infectious diseases, Covid-19 caused the most fatalities worldwide last year. According to the report, tuberculosis is now in the second place. Since 2002, the number of TB deaths has decreased by 28% in the countries where the Fund supports

medical efforts. The number of new infections went down by four percent. The Fund admits that the aspiration to reduce the number of TB deaths by 35% from 2015 to 2020 was not fulfilled. It had only declined



TB patient in Ahmedabad, India.

by 15% in 2019, and more recent data are not available yet.

CONFUSING SYMPTOMS

According to the results report, Covid-19 and tuberculosis are easily confused because some symptoms are the same. Many people with TB symptoms like cough or fever were not diagnosed last year. They were not put on treatment accordingly.

Covid-19 is thus threatening the progress made in detecting TB infections, the authors warn. From 2013 to 2019, the share of TB-infected people who were unaware of their illness fell by 17%. The Fund insists this decline must continue in spite of the Covid-19 because drug-resistant TB infections are very dangerous (see Roli Mahajan's contribution in the Focus section of D+C/E+Z e-Paper 2020/03). Cases must therefore be detected. Of all people dying of multi-resistant pathogens, one third are TB patients, according to the Fund. On the upside, the rollout of preventive treatment against TB went well last year. The Fund reports it reached 13% more children.

The Fund considers the progress against malaria to be "one of humanity's most significant public health successes". From 2002 to 2019, malaria deaths decreased by 45% in countries supported by the Fund. However, microbial resistance against Artemisinin, the most commonly used malaria drug, is increasing and mosquitos are becoming less susceptible to insecticides.

The Fund argues that these are the reasons why the battle against malaria has been stalling since 2017. Nonetheless, the eradication of the disease seems closer than ever before. In February 2021, the World Health Organization (WHO) declared El Salvador to be malaria-free. Progress was also made in the prophylactic malaria treatment of children.

The Covid-19 pandemic, however, has several impacts on health systems, including long delivery times for medical equipment. The Fund reports that malaria-prevention programmes have been obstructed. Moreover, social distancing makes large-scale awareness raising impossible. The Global Fund explains that the fight against malaria was not affected as badly by the pandemic as the fights against HIV/AIDS and TB.

LINK

Global Fund: Results report 2021.

<https://www.theglobalfund.org/en/results/>



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E-COMMERCE

An African internet giant

Jumia, a Nigerian e-commerce platform, has been making a difference in consumers' lives for nine years. Nigeria's top online shopping site is often referred to as the "Amazon of Africa". However, Jumia has also faced serious downturns in its history.

By Bimbola Oyesola

In 2011, Nigeria had 160 million people, but no organised retail sector. Jumia co-founder Tunde Kehinde sums up the business idea. "We said: let's not wait to build malls, let's launch online." Today, Nigeria has 200 million people, and the e-commerce giant has also gained a foothold in other African countries.

Challenges included a weak internet infrastructure, a complicated banking sector and logistical difficulties. Jumia responded by showing consumers that online shopping is safe, building a distribution network of its own and creating a solid logistical infrastructure. Today, Jumia owns a larger fleet of delivery trucks than DHL and distributes goods in eleven countries. To some extent, the company has reduced Africa's geographical fragmentation.

Jumia's business model enables the company to improve the lives of African consumers. The e-commerce giant helps people buy the goods they want wherever they live. Customers can order products which are not available locally and for which they would have had to travel far in the past. Even for urban people, commuting to the city centre can be very difficult. Jumia clients do not even need a working internet connection. Another person can place the order for them through a specific system on the Jumia website.

Half of Nigerians live in rural areas. Good roads are as rare as formal addresses. Jumia Logistics does not require that kind of infrastructure. It has a vast network of pickup stations and provides services in areas that were long considered barely accessible.

Two thirds of adult Nigerians do not have a bank account. With JumiaPay, the

company tailored its payment methods to African needs. It allows customers to pay in cash upon delivery, so it can sell items to people who are still uncomfortable with online payments. Paying in instalments is accepted, too, which allows people to purchase more expensive goods. Moreover, Jumia puts buyers in touch with sellers, so

Sola Johnson is another Jumia customer. Buying through Jumia is more convenient for her than going to malls or regular markets. It is also cheaper, even when there are no special sales. "Jumia is quite commendable," she says. Once she ordered something for a friend in another part of Nigeria. "The goods were delivered to his house without a hitch after he presented the code I had sent him," she recounts.

GROWTH STRATEGY

In the future, Jumia is likely to make a difference in even more people's lives. Africa's



Worker in a Jumia warehouse in Lagos.

customers can even order things that Jumia itself is not supplying.

Consumers appreciate the digital opportunities. Juliet Osho is an example. She lives in a rural area and says she needed a pilot's suit for her seven-year-old son to wear in school for "career day". A short internet search showed that such an item was available on Jumia, so she quickly made the order. When she brought the suit home only four days later, her son was happy.

population is growing and purchasing power has been rising. However, the company does not want to rely on those factors alone. Managers emphasise that they must build customer trust. Jumia must thus provide the right products, set attractive prices and make shopping convenient.

Jumia started operations in 2012. The parent company was the Berlin-based Africa Internet Group. Jeremy Hodara and Sacha Poignonnec, who had previously worked

for the multinational business consultancy McKinsey & Company, were among the founders. Initial shareholders included Rocket Internet, a Berlin-based venture capital firm, and Mobile Telephone Networks, a South African corporation. The French insurance giant Axa and the telecoms corporation Orange also invested in Jumia early on.

The company's first years in operation were marked by rapid expansion. In 2012, Jumia took up operations in Egypt, Morocco, Ivory Coast, Kenya and South Africa. Two years later, offices in Tunisia, Tanzania, Ghana, Cameroon, Algeria and Uganda were launched. By 2018, Jumia was present in 14 African countries.

Jumia started with an initial staff of 10 in Nigeria. It now has more than 5000 employees on the continent. The platform kept expanding into new markets. As early as 2013, Jumia Travel for hotel bookings and Jumia Food became operational. In 2015, Jumia Deals began publishing classified ads from third-party vendors. Jumia-Pay was launched in 2017 and was soon followed by a lending programme which grants business loans to third-party sellers.

Later, a flight-booking platform was created in cooperation with Amadeus, a technology company.

THE CRISIS OF 2019

However, 2019 proved a difficult year. In April, a spectacular initial public offering on the New York Stock Exchange made the Jumia share price rise by more than 200% in three trading sessions, peaking at almost \$70. But decline was just as dramatic. Due to allegations of fraud and concealed losses, the share price dropped to less than five dollars by the end of 2019. By that time, Jumia had been forced to suspend operations in Cameroon, Tanzania and Rwanda.

In this period, the management began to push for profitability more aggressively. For many years, Jumia had reported losses, which is not unusual for promising start-ups. The crisis, however, clearly showed that investors were losing patience. The management started to take new approaches to meet local needs, drum up business and become profitable. Jumia launched special online shopping events – Black Friday sales,

for example – in order to increase brand awareness.

In 2019, moreover, Jumia attracted millions of additional customers by partnering with more than 110,000 sellers, many of them African companies and entrepreneurs. Since then, the management has expanded its third-party marketplace, collecting commissions on the items that are sold on its platform. At the same time, Jumia began to focus less on selling high-end digital devices such as mobile phones or laptops. Instead, it repositioned its business to marketing fast moving consumer goods. These items are cheaper, but they attract more customers.

For the second quarter of 2021, Jumia once again reported losses. However, financial markets evidently have faith in its strategy and expect the company to become profitable eventually. In August, the share price was almost \$22.



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CHILDREN'S RIGHTS

Education for children in pandemic

Covid-19 has many negative impacts on children, particularly in terms of education and health care. Development projects in the Indian state of Assam show how actors can successfully support disadvantaged children in times of crisis.

By Enakshi Dutta, Cynthia Dittmar and Franziska Müller

Covid-19 has hit children hard everywhere. Among other things, lockdowns and school closures have caused painful disruptions. Many minors worried about their parents or grandparents, or even experienced someone close to them might die. Around the world, children's rights were massively curtailed:

- **Right to protection:** Domestic and sexual abuse, exploitation, child labour and child marriage increased dramatically during the Covid-19 pandemic. At the same time, minors in crisis often could not turn to outsiders for help, for example because many child-protection services were not operating. Schools, where attentive teachers could have offered support, were closed.

- **Physical and mental health:** For these reasons, anxiety disorders, psychological stress, depression and suicide increased significantly among children and adolescents. At the same time, children's physical resilience declined because parents became too poor to feed them adequately. According to the UN's child welfare organisation, in 2020, an additional 132 million people went hungry worldwide, 44 million of them children (UNICEF 2020a).

- **Child poverty:** According to UNICEF's projections, an additional 140 million children live below the poverty line in the global south now due to the negative economic impact of Covid-19. Another 150 million are suffering from multidimensional poverty. Sub-Saharan Africa and South Asia are affected in particular. Masses of children lack access to education, health care, shelter, food, sanitary facilities or clean water.

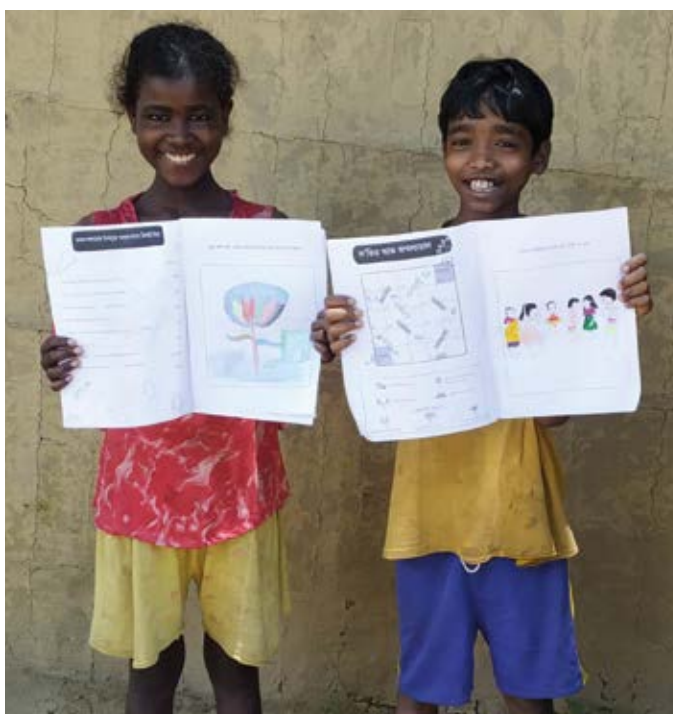
- **Education:** The most severe impact of the crisis has been on children's education, however. Due to school closure, almost all children of the global south got no instruction for over a year. Many did not return when schools opened again. The others are still struggling with a learning deficit of many months. UNICEF reports that 463 million children could either not participate in online classes or did not receive any support at home. The reasons were their domestic situations and gaps in rural infrastructure. Children in low-income countries missed about twice as much school as children did in high-income countries. Girls suffered in particular. On average, they have less access to digital technology than boys and they have to help out more at home (UNICEF 2020b). Both is true in India (see Ipsita Sapra in the Magazine section of D+C/E+Z e-Paper 2021/10).

Facilitating education for children and young people in these difficult circum-

stances is the mission of the child welfare organisation Childaid Network. This civil society organisation advocates for children and adolescents in remote regions of India's northeast, Nepal, Bangladesh and Myanmar. The focus is on children's rights, basic education, vocational training and support for small enterprises. Since the pandemic set in, Childaid Network has devoted additional attention to health care, moreover.

During the pandemic, the agency took several approaches to achieving its goals. For example, it is relying on information technology, local volunteers, small learning groups and broadcasting educationally relevant programmes on the radio. It succeeded in continuously supplying educational content to 80 % of the young target group even in the midst of the crisis.

Childaid Network's next goal is to close the learning gaps of 100,000 children from marginalised communities in India's northeast. To that end, it is employing thousands of volunteer educators. Furthermore, the local partner, Aide et Action India, is supplying state teachers, along with the corresponding didactic curricula and materials. The pilot phase, which is being conducted in ten villages, looks very promising, and in November 2021 the project will be scaled up to 1,000 villages in the Indian state of As-



Learning during a crisis: children in the Indian state of Assam.

sam. Aide et Action India, Accenture and Germany's Federal Ministry for Economic Cooperation and Development (BMZ) are making this possible.

In Assam, Childaid Network's efforts are particularly important. Even before the pandemic, the region ranked last among Indian states regarding the enforcement of children's rights. One out of every nine children dies before the age of five in Assam, and 10% do not attend school. The quality of education tends to be extremely poor. According to India's official education report of 2019, only 40% of pupils in eighth grade read and understand a text from the second grade. Since 2016, the number of registered crimes against children has once again started to rise, particularly child trafficking and sexualised violence. The pandemic has exacerbated this trend significantly. In regard to social participation, children in As-

sam are also at a disadvantage. For instance, they are rarely active in school administration committees.

In order to change all that for the better, Childaid Network, together with the Institute of Development Action (IDeA), has initiated another project in Assam: EnRiCh (Enabling Rights of the Child, see box below). The goal is to strengthen children's rights specifically during the difficult pandemic and to strive towards a future in which all children can live in dignity and tap their full potential.

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Involving local partners

In the Indian state of Assam, the Institute of Development Action (IDeA) and Childaid Network Germany have started an initiative for children's rights: EnRiCh (Enabling Rights of the Child). It was initially launched in 45 villages. The current aspiration is to reach at least 80,000 children within two years.

On the one hand, EnRiCh directly supports local civil-society organisations. For example, it helps them during the process of building their organisations. It also supports their cooperation with local authorities. On the other hand, the initiative networks various stakeholders, including parents, committees at the village level, local administrative bodies, school administrations and children's clubs. In order to make villages more child-friendly, EnRiCh relies on campaigns, workshops and spe-

cially appointed child-rights promoters at the community level. A network for child rights throughout all of Assam has started to grow.

Whereas Indian children typically grow up in hierarchical, authoritarian conditions, EnRiCh gives them space to express themselves and realise their potential. They meet weekly in specially formed "Rhino Clubs". The clubs are named after the one-horned rhino, which is the state animal of Assam. Kids learn together, play sports, engage in creative activities and make use of libraries. They experience a sense of community and make contacts in the village and its surroundings. They also get information on children's rights, health, the environment and nutrition. They are actually important multipliers in regard to how to behave in the pandemic. For this kind of work,

EnRiCh provides a variety of materials in local languages – including handbooks, comics, posters or scripts for staging dramas.

As the second wave of Covid-19 caused high rates of infection and death in north-



Working together for children's rights: a workshop in Assam.

east India in the months April to June of 2021, IDeA and its partner organisations formed a total of 86 "Covid-19 village committees". They are made up of representatives of com-

munity leaders, young people and health workers. They kept working during lockdown. WhatsApp groups and online conferencing had been established in time. The project team equipped every committee with medical supplies and informational brochures in order to slow the spread of the virus. Over 7,000 children received workbooks and writing materials so that they could continue to learn. Tutoring was offered outdoors to small groups of pupils. Now the goal is to further strengthen governmental health care so it will be able to respond more efficiently to future crises with a stronger focus on children.

Decisive action on the part of the state is not enough. Strong local communities and a vibrant civil society are central to overcoming pandemic problems. Paying particular attention to children's rights is important in order to shield them from the worst impacts of necessary pandemic safeguards. ED/FM/CD

THE ARTS

Looted African art

Controversies are raging in Europe on how to deal with artefacts stolen by colonial powers in the past. Do they rightfully belong to the museums that currently display them and the collectors who bought them? Or should they be returned to their countries of origin? An exhibition at a museum in Frankfurt is dealing with these issues. There are no simple solutions.

By Sabine Balk

The title of the exhibition at the Weltkulturen Museum (museum of world cultures) is: “Invisible inventories – questioning Kenyan collections in western museums”. It will run until 9 January 2022 and is the result of work done over several years by the International Inventories Programme, in which Kenyan and German artists and institutions cooperate. The Goethe-Institut Kenya is involved, for example.

Participants have compiled a database of Kenyan artefacts that were brought to Europe during 70 years of British colonial rule. They are now in the possession of public museums and private collectors in Europe and North America. Some 32,500 objects are listed in the databank, and they currently belong to 30 different institutions.

The exhibition in Frankfurt is only one part of an overarching debate that concerns all formerly colonised countries (see box

next page). It is important to make sure the public takes note. Relevant aspects include:

- the artefacts’ historical and cultural value for all countries involved,
- the way they have been appropriated by western museums and
- the cultural inter-connectedness of nations.

The exhibition at Weltkulturen Museum takes into account what the loss of the artefacts means to communities in Kenya. Juma Ondeng’, who coordinates public programmes for the National Museums of Kenya, says his team has interviewed members of tribes including the Kikuyu, Luo and Kalenjin. Interviewees were shown pictures of the artefacts and asked what those artefacts are good for. It turned out that this is not easy to determine because it is often not obvious where an object is from and what purpose it served.

The Ndoome is an example. It is a wooden, leaf-shaped shield made by a Kikuyu artisan in the late 19th or early 20th century. It is in the possession of Weltkulturen Museum. Western scholars long believed it was used in warfare, but the recent survey in Kenya revealed that it was not used for fighting, but for dancing in the context of circumcision ceremonies.

Ondeng’ says he would like to have easier access to Kenyan artefacts. “We need more information,” he adds. Africans should



Work “31,302” by Jim Chuchu and Njoki Ngumi.

know about this „fantastic cultural heritage“. He insists, moreover, that many of the colonial-era artefacts should be returned to Africa because they are of great cultural and ritual relevance.

The National Museums of Kenya have assumed a role of leadership in terms of raising awareness. They hosted the first “Invisible inventories” exhibition in Nairobi from March to May 2021. Many empty showcases were put on display, symbolising the stolen artefacts.

Ina Hartwig is the local-government official in charge of Frankfurt’s museums. In her view, it is a „consequence of colonialism“ that Kenyan museums are empty, whereas their counterparts in Germany and other parts of Europe are full. Weltkulturen Museum owns 870 Kenyan objects that were made in the 19th and 20th century. Eight of them are items of the current exhibition, including the Ndoome shield.

The exhibition does not convey a single message. It reflects nuanced perspectives in a complicated debate. It was organised by Germans and Kenyans with rather different backgrounds, and they have agreed to modify the exhibition – first in December, and once more in January – to better reflect the diversity of views.



The Ndoome shield was used for ritual dancing, not fighting.

The focus is not so much on the African artefacts themselves. Only few are on display. What really matters is Kenyan voices, documented in video clips and writing. Works of contemporary Kenyan artists are shown too. One example is „31,302“ by Jim Chuchu und Njoki Ngumi, a seemingly never-ending tape of postal distribution labels. Some of it is shown in every single room of the exhibition. The point is to remind visitors of how many artefacts have been stolen – and that they mean different things to dif-

ferent people, whether in emotional or monetary terms.

The organisers emphasise that Kenyans were equal partners in organising the exhibition. There is an inherent imbalance, however, because the funding is from the west, as Simon Rittmeier, a German artist, admits. Kenyan museum manager Ondeng' agrees, emphasising that lack of funding in Africa often means that cultural projects that would be important simply do not take place at all.

LINKS

Weltkulturen Museum Frankfurt:

<https://www.weltkulturenmuseum.de>

International Inventories Programme (IIP):

<https://www.inventoriesprogramme.org>



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A difficult task

Of the artefacts that document Africa's cultural and historical heritage, 80% to 90% are either in Europe or the USA. They were looted by European powers in colonial times. The debate on restitution has been gaining momentum in recent years in Europe.

Plans to build the Humboldt Forum in Berlin triggered the debate in Germany some years ago. This large museum complex is now open to the public and it includes a big – and controversial – ethnographic collection. In France, President Emmanuel Macron kicked off the discussion in 2017, being the driver of the debate. He has promised to return all stolen items to the rightful owners even though they are now in the possession of French museums. It is evident in all countries concerned, however, that restitution is a difficult task. There are no simple solutions.

At Humboldt Forum, visitors can now see tens of thousands of African and Asian artefacts. Critics argue that the museum is not doing a good job. They want it to provide more information on the items' history and to discuss

in public whether they should be returned to the countries of origin. One of the most prominent exhibits is the unique Luf boat from Papua New Guinea, where German imperialists enforced their "protectorate" with utmost brutality in the 19th century. The Humboldt management acknowledges it could have done more to research how and why the 16 meter long vessel was brought to Germany, but it does not plan to return it to Papua New Guinea.

Things look different for another set of precious artefacts. The so-called Benin bronzes are from the former

kingdom of Benin. Its territory is Nigerian. British troops plundered and destroyed Benin palaces in a revenge operation in 1897, and some of the looted art was later sold to German collectors and museums, which currently store some 1100 bronze objects. The Humboldt Forum has some of them, for example.

Germany's Federal Government has concluded an agreement with its Nigerian counterpart to return the valuable bronzes. Restitution is set to begin in 2022, but it has not been decided how many objects will be returned immediately.

In France, Macron's initiative has been making waves since 2017, when he asked two experts to write a report on how

to deal with the artefacts. Their recommendation was to give all of them back to the countries of ownership even if the current ownership cannot be proved to be legitimate to 100%.

Not all experts agree. Guido Gryseels directs the African museum in the Belgian town of Tervuren and is in favour of a more nuanced approach. He told the German newspaper *Süddeutsche Zeitung* that cultural artefacts must not be returned to places that lack appropriate museums. Most African art in his museum is from what is now the Democratic Republic of the Congo, which, in his view, is not in a position to handle the cultural treasure properly. To local people, he says, what matters is getting access to the objects, not owning them. However, Gryseels does not deny that Africa has a claim to be in control of its cultural heritage.

The general consensus is that people everywhere have only just begun to come to grips with colonial history. The debate must go on, and quite obviously, museums have a role to play (see Anke Schwarzer in Summer Special of D+C/E+Z e-Paper 2021/08). The discussion of all pertinent and unresolved questions will take time. What is at stake is ultimately global power relations. SB



Benin bronzes on display at a museum in Hamburg, Germany.

Poverty in old age

On paper, Zimbabwe has a national pension scheme to support its senior citizens. All workers between the ages of 16 and 65 are required to pay into the scheme. In exchange, they receive the promise of an adequate income once they retire.

But don't tell that to Odrack Matande of Harare, age 87, a former labourer for the National Railway. When he was laid off from his job at the age of 58, there was no pension as he had not reached full retirement age of 65 years. There were also no jobs for a worker of his age. Then, when he turned 65, there was no pension to support him.

"In Zimbabwe, pension income effectively was written off because of hyperinflation," says Jonathan Mandaza, chairman of the Zimbabwe Older Persons Organisation, which advocates for people over 65. "That is in addition to the fact that pensions never have and never will match the incomes received during one's working life." "From independence in 1980 to today, there never has been any scheme to help the aged here," Mandaza adds. "Yet we were the backbone of the liberation struggle."

Odrack Matande has scraped by on donations from neighbours and churchgoers. "I have for years depended on handouts from well-wishers," Matande says. "Sometimes I get a bit of money from my tenants, but they often don't pay because they are also suffering. My chil-

dren cannot help either as they are facing their own struggles."

His story is not unusual in Zimbabwe. According to Mywage.org, an organisation that collects and compares labour market information, pensions in Zimbabwe are tiny, ranging from \$10 to \$100 per month. The research organisation also says that pensioners in Zimbabwe have been dispossessed by deliberate action.

"In February 2009, following the switch to multi-currencies, pension and life funds started converting policies to US dollars," says Mywage's report on Zimbabwe. "The prices arbitrarily reduced the balance on accounts to values less than \$100, regardless of how long each policy had run."

Monthly pension payouts in Zimbabwe are so low, it says, that "banks are currently exempting pensioners earning \$25 per month from paying service charges. Whilst employees and workers have been dutifully contributing part of their salaries into the various pension funds, inflation and the multi-currency exercise have had a devastating effect."

Monthly pension payouts "are so low as to be worthless," the report continues. "They cannot cover living expenses. With the sharp rise in the cost of food it is a daily struggle to survive and many have to rely on charity."

According to Priscilla Gavi, executive director of HelpAge Zimbabwe, a non-governmental organisation, old-age poverty is rampant in Zimbabwe. As of July 2021 there were approximately 713,000 people over age 65 in Zimbabwe. Of these, "80 % live in abject poverty with no source of income, no resources to fall back on, no medical insurance and no pension," Gavi says.

Zimbabwe's hyperinflation has hit the country's elderly hard. Inflation peaked at an eye-popping 557 % in 2020, according to Statista, a German research company. For the elderly, the lack of pension income has been compounded by the loss of savings to hyperinflation, Gavi says.



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Only a few days left until the UN climate summit takes place in Glasgow. But many governments' current ambitions for reducing emissions are not sufficient to keep global warming below 1.5° Celsius.

What must happen for the climate summit to inspire new hope? Our editor Jörg Döbereiner analysed the situation. 🌟

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RULE OF LAW

Business tycoon faces prison

In terms of its constitutional role, Malawi's judiciary is becoming increasingly assertive. People appreciate that it is putting a check on the government.

By Raphael Mweninguwe

A few weeks ago, the High Court in Blantyre sentenced Thom Mpinganjira, a Malawian business tycoon, to nine years in prison with hard labour. He was found guilty of attempting to bribe judges of the Constitutional Court when they were hearing a case concerning the outcome of the May 2019 elections. The judges ultimately annulled the elections because Peter Mutharika, the incumbent head of state, and his Democratic Progressive Party (DPP) had manipulated the results. In retrospect, people now speak of the “tipp-ex elections”.

Mpinganjira evidently tried to sway the judges in Mutharika's favour. The sentencing of one of the country's top business leaders sends a clear message: the judiciary is serious about its duty to uphold the rule of law. Moreover, it can act fast. These are not trivial messages.

Mpinganjira owns a leading commercial bank and runs several other financial businesses. His case offers a litmus test for the judicial system in regard to the prosecution of high-profile individuals and those connected to the political elite – and it was concluded after one year and eight months.

In the past, the courts have been hearing several high-profile cases. Many have been kept pending for years. For example, a case concerning the corruption of Bakili Muluzi, another former president, has been going on for more than 12 years. The equivalent of more than \$2 million is said to have been embezzled during his time in office.

The general assumption used to be that judges basically shy away from ruling against the government and its officials. The election annulment, however, changed matters dramatically (see my comment in the Debate section of D+C/E+Z e-Paper 2020/03). Mutharika lost the re-run election. Lazarus Chakwera was the majority's

choice, and he is now the president. He has promised to not unduly interfere in the work of governance institutions.

The irony, of course, is that the new head of state has benefited from court action. Had the 2019 election not been annulled, he would now not hold office. It is obvious, however, that Chakwera did not play a role in the annulment decision, so Malawians tend to trust him.

The Anti-Corruption Bureau (ACB) arrested Mpinganjira in January 2020 when the Constitutional Court was still hearing the election case. Later in 2020, the High Court found him guilty of offering judges the equivalent of more than \$120,000. Mpinganjira's lawyer has indicated there will be an appeal against the ruling, however, and he is applying for his client's bail.

Reyneck Matemba, who used to head the ACB before he became the new government's solicitor general in December 2020 has expressed satisfaction with the ruling. He says that prosecutors faced numerous challenges which included personal threats during the trial. Blessings Chinsinga, a lecturer at the University of Malawi, sees

things in a similar light. The trial was concluded with unexpected speed, he says, and one reason may have been that neither the judges nor the ACB were being unduly influenced by anyone. He speaks of an “enabling environment for the prosecuting authorities to do their work better”.

According to Mustafa Hussein, another University of Malawi lecturer, the sentencing of the bank tycoon told “politicians and the powerful elite that nobody is above the law”. It is true that the new president has stated: “I will make sure that the judiciary, the Anti-Corruption Bureau (ACB), the police, the army and any other institution are free. Anyone found to be corrupt, will face the law.” Hussein admits, however, that an “invisible hand” may have played a role in the tycoon's sentencing. For example, the new head of state might have secretly signalled to judges to press ahead with cases against his predecessor and his supporters. But even if Chakwera did so – which seems unlikely – his public statements would make it harder for him to influence judges in the future should credible corruption charges ever arise against him and his administration.



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Malawians tend to trust Lazarus Chakwera, the new president.



Angry young people protesting in a suburb of Johannesburg in July 2015.

STATE BUILDING

Rights and duties

Citizens' rights contribute to political stability in places where nationhood is supported by a social contract that ensures a minimum sense of inclusiveness. By contrast, marginalisation and exclusion lead to frustration and resentment.

By Henning Melber

A social contract is a reciprocal affair. The state must fulfil duties, such as ensuring public services and the rule of law. In return, citizens must accept duties too, such as paying taxes and obeying laws, which should be fair and just.

It is worrisome that, in Africa's multi-ethnic societies, the general public's understanding of both nationhood and citizenship tend to be rather weak. Government agencies do not provide good services, and masses of people identify neither with society nor the state.

According to UN statistics, Africa's population will double by 2050. Nearly 41% of the continent's people are below the age of 15, while 15- to 24-year-olds constitute almost 20%. The African Development

Bank reported in 2020 that close to half of the employed youth perceived a mismatch between what their jobs require and what they had been taught. Most are either unemployed or underemployed.

Masses of youngsters are living in "waithood". That is the period of suspension between childhood and adulthood. They have very little scope for making a difference in society and lack political representation. They are thus denied full citizenship, but long for opportunities and would much appreciate effective support. They are increasingly concentrated in major cities.

The UN Economic Commission for Africa has suggested that civic education might have a positive impact on the attitude of younger generations. Systematically informing young people about citizenship will not be enough, however. Governments must do more to educate the general public on issues of citizenship. As even members of the civil service are often ignorant, awareness-raising efforts should target them too. Co-operation with faith leaders, trade unions and other civil-society organisations would certainly help.

There is an even more fundamental challenge. If teaching people about how rights and duties interact is to make sense, government agencies must fulfil at least some of their obligations. An appropriate administrative infrastructure, for example, must allow everyone to register new-born children and acquire birth certificates. Keeping count of citizens is essential for providing adequate social services, from primary-school education to competent election-role management. Identity documents are useful for claiming rights, and they make people identify more with the central state.

The sad truth at this point, however, is that no African country has a complete birth registration system, though matters have been improving in many places. More generally speaking, social-systems have been making some progress too, and international financial institutions have supported the trend to some extent. History tells us that nation building was often reinforced by social-protection systems (see Markus Loewe in the Focus section of D+C/E+Z e-Paper 2018/11). When a state proves beneficial in daily life, its people begin to identify with it.

The human-rights scholar Bronwen Manby has pointed out that "citizenship is not just a legal concept but also a profoundly political question of self-definition". She is right. Policymakers must pay attention to these matters if they want to consolidate sustainable states marked by strong social cohesion.

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We are running out of time in our fight against climate change: Fridays for future protest in Milan, Italy, 2021.

OUR VIEW

On climate, advanced nations must deliver

The upcoming UN climate summit in Glasgow, Scotland, will be the most important conference since the one in Paris in 2015. The Paris Agreement on Climate Change inspired the hope that humankind, in global cooperation, can avert further disaster. The climate crisis has kept escalating, however, as the atmosphere's carbon dioxide concentrations kept rising. We can still prevent the worst. For that to happen, the advanced nations must radically scale up their action. They must also do more to support low-income countries.

By Jörg Döbereiner

Human-caused emissions have made average temperatures on Earth increase by more than 1° Celsius to date. Even the most optimistic scenarios of the Intergovernmental Panel on Climate Change show that surface temperatures will keep rising – at least until the mid-21st century. Time is running out

for achieving the goal agreed in Paris. It is to keep global warming well below 2° and, if possible, below 1.5°.

UN members' nationally determined contributions (NDCs) must serve this purpose. An important reason why the Glasgow summit matters so much is that nations must update their NDCs, which show governments' ambitions in regard to reducing emissions.

According to the independent Climate Action Tracker (CAT), many sovereign states have not updated their NDCs yet even though that is an obligation under the Paris Agreement. It is similarly worrisome that other countries have published insufficient updates. That is what many advanced nations, including the EU and the USA, have done. At this point, far too few NDCs are geared to achieving the 1.5° goal.

Insufficient action by advanced nations is unacceptable. These countries have a particular responsibility because they

have caused a large share of all greenhouse-gas emissions since industrialisation set in. On the other hand, low-income countries are especially vulnerable to the impacts of climate change. This setting is deeply unfair. Accordingly, developing countries are raising shared demands. They want faster emission reductions, more financial support from rich nations and more transparent reporting. These demands make perfect sense.

Limiting global warming is not merely a moral obligation that prosperous nations must live up to. Limiting global warming would actually serve their self-interest. Though they are better placed to protect themselves from impacts, they are set to lose lives and property nonetheless. The economic impacts will be huge. Swiss Re, the multinational reinsurance giant, reckons that North America's gross domestic product will be 6.9% smaller if temperatures rise by 2° by 2050 than it would be without climate change. The comparative figure for Europe is 7.7%. The higher temperatures rise, the more devastating the economic damage will be.

Recent events will probably impress many people more than mere figures do. This summer, the west coast of the USA witnessed terrible forest fires and the east coast unprecedented floods. Canada recorded an incredible heat record of 49.5° Celsius, and Japan suffered heavy rains, landslides and flooding. In Germany, overflowing rivers killed at least 180 people. In financial terms, the damage amounts to billions of euros. Not every extreme weather event is caused by climate change, but scientists tell us that the intensity and frequency of such events will increase the higher temperatures rise.

The summer of 2021 should serve as a final warning. Advanced nations must adopt NDCs that are up to purpose. Humankind must achieve the goals agreed in Paris. Whether Glasgow ends in disappointment or inspires new hope will ultimately depend on what commitments the advanced nations make.



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IMF

Georgieva stays at the helm

Kristalina Georgieva will remain the top leader of the International Monetary Fund (IMF). The executive board re-endorsed her in spite of a scandal dating back to her time at the World Bank.

By Hans Dembowski

Georgieva used to be the World Bank's chief executive and is accused of manipulating information. According to an expert report prepared by a law firm, she put pressure on the World Bank team preparing the Ease of Doing Business Report 2018 with the result of China rising from the 85th slot to the 78th slot in the report's index.

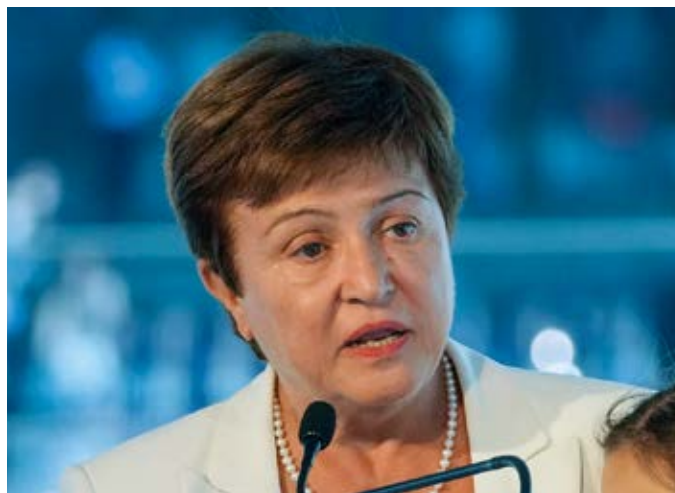
Quite obviously, the leadership of a multilateral institution must not interfere in its experts' assessments. Manipulations of this kind do undermine faith. Nevertheless, the IMF's executive board was right to re-endorse her (though that may change should further evidence of wrongdoing emerge). Georgieva has been doing excellent work in regard to Covid-19, the climate crisis and, most recently, the expansion of special drawing rights (see Kathrin Berensmann in the Debate section of D+C/E+Z e-Paper 2021/10).

Georgieva is only guilty of comparatively minor shortcomings at the World Bank. Some of her critics pretend that she caused serious harm to investors who consider the Doing Business index when making decisions. This argument is overblown. The index rankings probably matter when countries in consideration are similar. If a private-sector company isn't sure, for example, whether to set up a production site in Malawi or Zambia, the Doing Business index may indeed make the difference.

China, however, differs dramatically from all other countries. In terms of population size, only India is in the same category. China's economy, however, is much bigger – the second biggest after the USA. China's domestic market is huge and the Communist regime achieved spectacular economic growth for decades. Nonetheless, investors face considerable and country-specific chal-

lenges. The authoritarian regime neither feels bound by the rule of law – nor relies on the language of a former colonial power. China is special in so many ways that no one who considers investing there will worry much about whether it ranks in the mid-80s or high-70s on any global index.

No matter how well an index is designed, moreover, it should always be considered with caution. It cannot be an unequivocal yardstick. How easy it is to do business somewhere, for instance, depends on many things. Three of many other issues



Kristalina Georgieva remains managing director of the International Monetary Fund (IMF).

included in the Doing Business index are how long it takes

- to register a new company,
- to obtain a building permit, and
- to file taxes.

All three obviously matter. It is not at all obvious, however, whether they are all of equal importance. If not, which is the most relevant? Experts keep debating what formula serves best to aggregate indicators for many different criteria in a way that results in a single number per country. Accordingly, the methodology of how global indices are compiled tends to change over the years.

When the Doing Business series was started after the turn of the millennium, the ease of firing staff was included in the index

calculation. That decision proved controversial. What is good for an individual employer, after all, is not necessarily good for an entire sector and even less for society in general. Due to the dispute on how labour regulations should figure, the issue was eventually dropped from the index calculation entirely. An important, but hard-to-assess issue thus slipped off the radar.

The World Bank has recently decided to discontinue the Doing Business series. The reputational damage has become too big. Indeed, the manipulation that Georgieva was allegedly involved in was only one of several such cases. A former chief economist of the World Bank has felt compelled to apologise to Chile, admitting that the country's ranking had been kept lower than deserved during the presidency of Michelle Bachelet, a socialist. It is noteworthy,

moreover, that China rose much faster in the ranking after Georgieva left the World Bank. Last year, it was in the 31st place.

Governments of low- and middle-income countries mostly appreciate Georgieva's work at the IMF. She pays attention to their concerns. It may matter that she is the first person from a developing country to lead this institution. Bulgaria is an upper middle-income country.



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FOCUS SECTION

Ecosystem services

“Unchecked, the erosion of biodiversity will doom humanity to disaster. Hunger would spread further, and eradicating it as envisioned in the UN’s second Sustainable Development Goal (SDG 2) would become even more difficult.” **SUNDUS SALEEMI ON PAGE 21**

“Century after century, African farmers have been breeding cultivars that are closely adapted to their local environment. The so called ‘landraces’ are marked by a great genetical diversity.”

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“The goals of high yields and safeguarded biodiversity do not rule each other out entirely. Indeed, they can become mutually reinforcing if and when land is used in an eco-friendly way.”

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“The ecological integrity of oceans requires stronger regulations with consistent monitoring and stringent enforcement.” **WANJOHI KABUKURU ON PAGE 28**

“Survival International, the London-based human-rights organisation, insists that no development should take place on Onge land without the indigenous people’s free, prior and informed consent.”

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“The rate of species loss today is beyond normal. Every 11 minutes, one species currently becomes extinct.”

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Soil fertility hinges on small animals and microorganisms.



GLOBAL ENVIRONMENT

A question of survival

Humanity's food security depends on biodiversity and ecosystem services. High-tech agriculture is not the solution, but part of the problem.

By Sundus Saleemi

The vast majority of nations have ratified the UN Convention on Biological Diversity (CBD). It was agreed at the Earth Summit in Rio de Janeiro in 1992 and took force in late 1993, when 60 nations had ratified the treaty. The CBD is an acknowledgement of the intrinsic value of biological diversity on earth as well as a recognition of its importance for humanity. The Convention's goals are the protection, preservation and restoration of biodiversity, which is defined as the "variety of life on earth and the natural patterns it forms". This variety includes plants, animals and micro-organisms. Apart from the diversity between species, the genetic diversity within species is important.

Planet earth's ability to sustain life depends on biodiversity – and not only, because the dwindling of species and the climate crisis are interrelated (see box next page). Unchecked, the erosion of biodiversity will doom humanity to disaster. Hunger would spread further, and eradicating it as envisioned in the UN's second Sustainable Development Goal (SDG2) would become even more difficult.

According to estimates of the UN Food and Agriculture Organization (FAO), approximately 9.9% of the world population faced hunger in 2020, while 12% faced severe food insecurity. Additional serious challenges are under- and malnutrition. Nutrient deficiencies undermine a person's health. The impacts include stunting (low height for age), which currently affects about 22% of the world's children under five, and wasting (low weight for height), which affects almost seven percent. The Covid-19 pandemic has exacerbated food insecurity, with more people suffering hunger in 2020 than in 2019.

In view of these facts, it is important to understand the links between biodiversity and food security. Indeed, agriculture,

forestry and fisheries depend on biodiversity in many different ways. The dwindling of species and the erosion of genetic variety within species has a negative impact on productivity and can make established agricultural practices unviable.

ECOSYSTEM SERVICES

Biodiversity is the basis of ecosystem services, which the CBD defines as "benefits

based on aquaculture but on the harvesting of natural resources.

Not only the wild growth of food depends on ecosystem services however. The cultivation of crops does so too. Relevant issues include pollination, soil health and the resilience to shocks. Ecosystems, moreover, have an impact on micro-climates, water supply and air quality.

Bees are the most important pollinators. The evidence shows that pollination by bees improves the more other insect populations are also in abundance. Global declines in bee and other insect populations adversely affect crop yields, according to recent studies. As a matter of fact, various other insects are pollinators too, and so are some bats and birds.



Bees are the most important pollinators.

humans derive from ecosystems". The most obvious of these services is the direct provision of food. In developing countries, the diets of many people include wild-grown food (such as fruits, vegetables, tubers, fish and hunted animals). Prosperous nations consume wild food resources too. Most of the world's aquatic food consumption is not

Studies prepared on behalf of the UN conclude that land insect populations have declined on average by one to two percent annually in the past 40 years. At the same time, yields of crops have been 13% lower for animal-dependent crops than for others. According to a publication for the UN Food Systems Summit, 75% of crop types, in-

cluding fruits, vegetables and various cash crops, are pollinated by animals.

Biodiversity in soils enhances a field's productivity. Healthy soils support higher yields. Soil quality depends on microorganisms, insects and small animals, which all contribute to the decomposition of matter into essential nutrients, but also help to retain soil nutrients. Microorganisms play a key role in nitrogen and other nutrient cycles. Bacteria fix atmospheric nitrogen and break down proteins in dead organic matter, with compounds boosting plant growth. Earthworms in soils have an impact on physical properties. Various organisms are in symbiotic relationships with one another.

Agriculture's resilience to shocks, moreover, depends on the biodiversity of its plants and animals. The greater the diversity is, the less damage extreme weather or new diseases are likely to cause.

If people's food supply depends on a single crop variety, disaster can strike fast. That happened in Ireland when the potato blight disease caused famine in 1840s. Moreover, genetic diversity within cultivated species helps farming systems withstand stress caused by drought, heat or excessive rain. Accordingly, the FAO praises farmers in Ethiopia and in the Sahel region for systematically growing several different varie-

ties. This approach helps to prevent devastating crop failures because shocks do not affect all cultivars in the same way. Indeed, environmentalists have been arguing for decades that traditional land races are very important in this context (see interview with Melaku Worede in D+C/E+Z 2012/03, p. 102).

It is sometimes argued that high-tech agriculture with hybrid seed, innovative pesticides and ample use of fertilisers are what will save humanity. This is a fallacy. Monocultures are particularly vulnerable, pesticides are poisonous and fertilisers result from energy-intensive production processes. Food-production systems of this kind are actually major drivers of biodiversity loss, reducing the gene pools that facilitate the breeding of varieties resilient against various kinds of shocks.

SCIENTISTS SOUNDING THE ALARM

Scientists' understanding of how agricultural productivity is related to biodiversity keeps improving. The trends they detect are worrisome. The Intergovernmental Platform on Biodiversity and Ecosystem Services (IPBES) reckoned in 2019 around a million species of animals and plants were threatened with extinction. Supposedly "modern" agricultural practices are part of the problem. The IPBES is based in Bonn

and serves at the equivalent of the Intergovernmental Panel on Climate Change (IPCC). Both bodies regularly publish reports. The FAO too has released various reports relating to biodiversity and ecosystem services.

Humankind has too long systematically failed to fully grasp the economic relevance of ecosystem services. Since they are not paid for, economists' models have generally taken them for granted. This must change, as was stated compellingly in a flagship report which was prepared on behalf of the British government. Partha Dasgupta of Cambridge University was the lead author (see Katja Dombrowski in the Magazine section of D+C/E+Z e-Paper 2021/04).

Food researchers emphasise the need for efforts at local, national and global levels to protect and preserve biodiversity in all its forms. Our common future depends on fast and determined action to stem the dangerous erosion of biodiversity.



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Mutually reinforcing UN conventions

Ecosystem services are of vital importance for mitigating the climate crisis. Ecosystems sequester atmospheric carbon and thus reduce greenhouse-gases in the atmosphere. The complex nature of sequestration makes it difficult to estimate impacts precisely, but it is well understood that this interaction matters very much.

Research suggests that the greater an ecosystem's biodiversity is, the greater its capacity for carbon seques-

tration becomes. Oceans and seas, for example, remove carbon dioxide from the atmosphere and dissolve it in water. It is consumed by marine algae and aquatic plants which either store carbon or convert it into environmentally valuable compounds. The carbon-sequestration capacity of forests similarly depends on their biodiversity.

The climate crisis and the erosion of biodiversity are therefore mutually reinforcing

trends. Global heating puts stress on species, while the loss of species exacerbates global heating.

Humanity must get a grip on both. It is, of course, no coincidence that the UN Earth Summit in Rio de Janeiro in 1992 resulted in three interrelated multilateral conventions. Apart from the Convention on Biodiversity (CBD), that was the UN Framework Convention on Climate Change (UNFCCC) and the UN Convention to Combat Desertification. The former has attracted more public attention than the CBD, the latter less attention. Implementation of the CBD is organised in a similar way as the UNFCCC. There are

regular conferences of parties (COPs) where UN member nations assess recent trends and agree on global targets (see Günther Mitlacher in the Opinion section of D+C/E+Z e-Paper 2019/01).

COP 15 was supposed to take place in Kunming, China, this year. Due to the Covid-19 pandemic, the first part took place in a digital format last month, but the decisive in-person sessions were postponed to 25 April to 8 May 2022. The idea is to adopt a plan that would resemble the Paris Agreement on Climate Change. The goals could then include cutting the current extinction rate tenfold, for example. SAL

RURAL LIFE

Ecosystem lessons

A civil-society organisation in Malawi is reaching out to grassroots communities. Its messages include that farms depend on pollinators – and that the use of chemical pesticides often proves harmful. The cultivation of traditional landraces, moreover, can improve food security and typically results in a secure, healthy and nutritious diet.

By Rabson Kondowe

Malawi's great diversity of insects is more valuable than many farmers believe. Indeed, it is crucial for the sustainability of agriculture. The civil-society organisation Soil, Food and Healthy Community (SFHC) is raising awareness to improve matters. "We encourage farmers not to use pesticides," says Laifolo Dakishoni of SFHC. "Applying chemicals kills all insects, including pollinators which are very beneficial."

SFHC runs a research and training centre for farmers in Ekwendeni in the north of the country. "We try to make sure that farmers see the ecosystem as one thing," Dakishoni explains. One message the centre conveys is that, to conserve an ecosystem, one must not destroy organisms that are a key part of it. Crop production depends on a broad variety of pollinators.

SFHC started working two decades ago. As Dakishoni reports, most farmers initially laughed off the assertion that some insects are good for their crops. SFHC involved them in participatory research, and they witnessed personally that pollinating insects make the crucial difference. wide spread "For instance, we covered pumpkin flowers with a net to keep insects away, and we left other flowers uncovered and accessible to insects," the SFHC activist recalls. The results were obvious. The covered flowers simply died, but pumpkins grew where uncovered flowers had been pollinated.

The yields of Malawi's farmers tend to be low, so poverty is widespread. In Dakishoni's eyes, supposedly modern farming practices are part of the problem, not the solution, with the application of synthetic chemicals, for example, causing

more harm than good. It is true, of course, that many insects are harmful, so it makes sense to control those pests. SFHC teaches village communities how to do so without resorting to environmentally harmful synthetic pesticides that the chemical industry sells to farmers (see box next page). For too long, agricultural biodiversity has been neglected, he says. The truth is that the diversity of crops and livestock makes farms able to cope with shocks. Pollination is only one of many relevant issues. Monocultures are vulnerable, while diversity makes systems resilient.

LANDRACES MATTER

Century after century, African farmers have been breeding cultivars that are closely adapted to their local environment. The so called "landraces" are marked by a great genetic diversity. Melaku Worede, the Ethiopian scholar who won the Right Livelihood Award in 1989, and other dissident scientists have argued for decades that they suit local needs (see the interview with him in D+C/E+Z 2012/03, p.102). In the past, traditional village knowledge included what tradition-

al cultivar suits what circumstances best. Some do not need much water and cope well with heat, others survive flooding or resist pests. The great diversity of landraces offers locally-adapted plants for all sorts of weather, soils and locations. As rural communities bred landraces systematically for centuries, they ensured their traditional crops stayed well adapted to the local environment and whatever changes it underwent.

It is ironic that commercial breeders use genetic information from landraces to keep optimising high-yield seed. Worede and other environment-minded scientists insist that high-tech farming is not viable without the genetic resources provided by traditional agriculture, while traditional farms do not necessarily need expensive high-tech input. While the cultivation of hybrids supported by intensive application of agrochemicals may result in higher yields per hectare, it is not sustainable. Moreover, it is unaffordable for most African smallholders.

Malawi is one of the most vulnerable countries impacted by climate change. In recent years, frequent droughts have seriously hurt food production and reduced food security. According to the 2021 Global Hunger Index, the country ranks 81st out of 116 countries.

SFHC wants to improve the situation. The organisation promotes agroecological farming practices to help communities increase soil fertility with an eye to sustaining nutritious and diverse diets.



Farmers producing organic pesticides.



The organisation currently works with more than 6000 farmers in more than 200 villages in northern and central Malawi. The farmers are encouraged to grow local varieties. SFHC also tells them to grow several different kinds of crops in one field. According to experts, the landraces are crucial in mitigating the effects of climate change. Their diversity enhances farms' resilience.

A BRIGHTER FUTURE

In Ekwendeni, these farming techniques have helped to provide a much brighter future for regional farmers. Mwapi Mkandawire

is one of them. Her farm is very diverse, she grows corn, soya and peanuts, all without the application of synthetic chemicals. She appreciates the results. "My household does not experience food insecurity, not even in the slightest," she says proudly.

Moreover, smallholder farmers have generated income by selling surplus crops. Tapiwa Mkandawire has benefited from that kind of opportunity. He states: "Not only does my family have food on the table from the crops that I grow, but I am also able to sell some of the harvest." In the past, he did not think that would ever be possible.

Once these farmers get trained by SFHC, they help their fellow farmers in their community by sharing what they have learned – such as the use of compost to cut the cost of expensive fertilisers and the use of organic pesticides. The general experience is that yields improve and farm families' incomes rise.

Other civil-society organisations are making related efforts. For example, Slow Food International has set up more than 450 school and community gardens across the country, all of which use neither chemi-

cal pesticides nor fertilisers (see my contribution in the Focus section of D+C/E+Z e-paper 2020/11). The gardens serve training purposes with double goal of:

- promoting locally viable agriculture and
- ensuring people get a healthy and pleasing diet.

Nonetheless, Dakishoni says that preserving Malawi's biodiversity is proving to be quite challenging. The reason is that government and civil-society activists are working at different levels without much coordination. "There is quite a number of organisations that are geared to preserve biodiversity in the country," he says. If those involved knew more about what the others are doing, the impact would be greater, and policies could be implemented more effectively.



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Eco-friendly pest management

Organic farming does not require synthetic pesticides. There are several ways to control pests.

One option for reducing insects on a field is to set up a Malaise trap. It consists of nets which are set up in a tent-like structure. Insects that fly into the trap are guided – by light, for example – into an alcohol-filled pot, where they die. The method was invented by the Swedish scholar René Malaise in the early 20th century. In Malawi, the civil-society organisation Soil, Food and Healthy Community (SFHC) is teaching farmers how to apply this method. It is not simple, because the effectiveness depends on setting up the trap

in the right place and in the appropriate manner. The great advantage is that these traps have no impact beyond the field concerned.

With support from Norwegian and Canadian experts,

moreover, SFHC has been training Malawian farmers to make their own organic pesticides. These pesticides are not as poisonous as high-tech chemicals, and they can be applied in a targeted manner. A big advantage is that they decompose naturally, whereas synthetic pesticides typically have persistent components that do long-term

harm to the environment. A related benefit is that food produced with organic pesticides is normally not contaminated with toxic particles.

In a global perspective, moreover, it is important to reduce the use of synthetic pesticides. That is a demand of prudent chemicals management (see Hans-Christian Stolzenberg in the Focus section of D+C/E+Z e-Paper 2021/03). Further intensification of the world economy would lead to disaster.

Accordingly, SFHC also promotes using local manure and crop residues to fertilise fields rather than using industrially-produced fertilisers. Both organic approaches – regarding pest control and fertilisation – help to protect the local ecosystem and, at the same time, boost yields. RK



A malaise trap set up by SFHC in Malawi.



Land can serve more than one purpose at once: agroforestry in East Timor.

AGRICULTURE AND BIODIVERSITY

Tackling the land-use trilemma

Around the globe, land is currently being used in unsustainable ways. The implication is that resources are being wasted and biodiversity is depleted. This is true both in developing countries and industrialised economies. From the current agricultural paradigms, humankind must urgently move on to a coherent and shared ecosystem policy.

By Susanne Neubert

Land has become a scarce good around the world. We use it for different purposes, of which three matter in particular in the debate regarding sustainability. They are:

- food security based on agriculture,
- the conservation of biodiversity and natural ecosystems in protected areas and
- climate mitigation through the afforestation of deforested places.

All three purposes are vitally important, but they compete for land, a rather limited resource. We are therefore facing a trilemma: choosing one of the three op-

tions means we risk neglecting the other two.

The problem becomes particularly obvious when we consider agricultural biodiversity. The conventional approaches of high-yield farming typically deplete fields' biological diversity. One reason is the application of pesticides. To a large extent, the dramatic erosion of global biodiversity is thus a consequence of the land-use trilemma.

The good news is that the goals of high yields and safeguarded biodiversity do not rule each other out entirely. Indeed, they can become mutually reinforcing if and when land is used in an eco-friendly way. The trick is to make best use of – and even maximise – the ecosystem services which are provided, for example, by pollinators and other species. This is feasible, provided farmers pay more attention to biodiversity.

There are at least three relevant dimensions to biodiversity:

- the biodiversity of natural ecosystems and landscapes (“natural biodiversity”),

- the agricultural biodiversity (“agro-biodiversity”) of fields with typical flora and fauna and

- the biodiversity of plant and animal races that farmers breed (“genetic resources”).

As we are witnessing a mass extinction in regard to each and every one of these dimensions, experts are sounding the alarm. To tackle the dilemma of land-use, it is helpful to focus on the first two dimensions because they compete for land with one another.

DESTROYING NATURAL BIODIVERSITY

Agriculture is indispensable because it provides humanity with food. It has always led to land-use changes. As in earlier times, these changes still go along with carbon emissions and a reduction of biodiversity.

Large-scale deforestation with the goal of clearing arable land typically occurs in countries with low yields per acre and fast population growth. Both trends are evident in the vast majority of sub-Saharan countries. In most cases, cleared land is used to produce plants to feed the people. National food security is supposed to be achieved that way. However, this approach generally degrades land quality. Soils become less fertile because smallholder farmers are usually too poor to invest in restoring nutrients. Insufficient fertilisation results in low productivity – and then causes further deforestation as people need to clear additional fields.

On the other hand, large-scale deforestation also occurs in countries that export agricultural commodities. Brazil is a prominent example. It is well known that rainforests are burned down so the cultivation of soy and other kinds of animal feed can be expanded. These commodities are grown for exports to Europe and other advanced economies where farmers need them.

In this way, global trade is allowing an increasing number of people to rely on diets based on meat and other animal products. The trend started in advanced nations and has spread to urban areas everywhere. One result is that about 2 billion people are now overweight.

In Germany, the world's leading pork exporter, more than 60% of agricultural land is currently used for growing animal feed and live-stock farming. If Germans based their diets on cereals and soy instead,

large areas could serve the conservation of natural biodiversity.

DESTROYING AGROBIODIVERSITY

Current agricultural methods are not only destroying natural biodiversity however. The biodiversity of fields is being depleted as well. A multitude of herbs and grasses is affected, and so are insects including bees and other pollinators. Tiny animals and microorganisms in the soil are being harmed as well.

Industrial-scale agriculture is marked by considerable inefficiencies and leakages. Animal husbandry, extravagant fertilisation and excessive use of pesticides thus threaten both natural biodiversity and agrobiodiversity.

It would be wrong, however, to believe that low-input agriculture automatically leads to greater agrobiodiversity. Unless farmers restore nutrients to the soil by applying biomass, manure or mineral fertilisers, they degrade the fields. The biodiversity of the soil suffers, and eventually only par-

tilination and metabolism are prominent examples. Others are the balance of predators and prey, top-soil development and water bodies' capacity for self-purification. Every one of these ecosystem services is indispensable for farming (see Sundus Saleemi on page 21 in this issue). Replacing them technologically would be impossible – or at least prohibitively expensive.

Nonetheless, we have mostly neglected the ecosystem services that result from the diversity of species. The reason is probably that we benefit from those services with-



Industrial-scale agriculture harms biodiversity. The reasons include excessive use of both fertilisers and pesticides as well as intensive livestock farming, which requires vast areas for the production of animal feed.

In prosperous nations, industrial-scale agriculture has caused massive damage. It depends on intensive application of chemicals. It does not do much crop rotation, but relies on huge amounts of fertiliser, liquid manure and pesticides like Glyphosate to ensure that only the high-yield cultivar will thrive.

Chemical residues and excessive use of fertiliser, moreover, do not only affect the field and its soil. They contaminate surrounding areas. Impacts are evident kilometres away. For example, groundwater is polluted with nitrate, with biodiversity-diminishing impacts on rivers, lakes and even the sea.

particularly resilient, but largely useless weeds remain. Diminished soils, moreover, are especially exposed to erosion, with organic matter being blown away or washed away. When that happens, farming communities typically respond by clearing additional arable land, and the vicious circle keeps spinning.

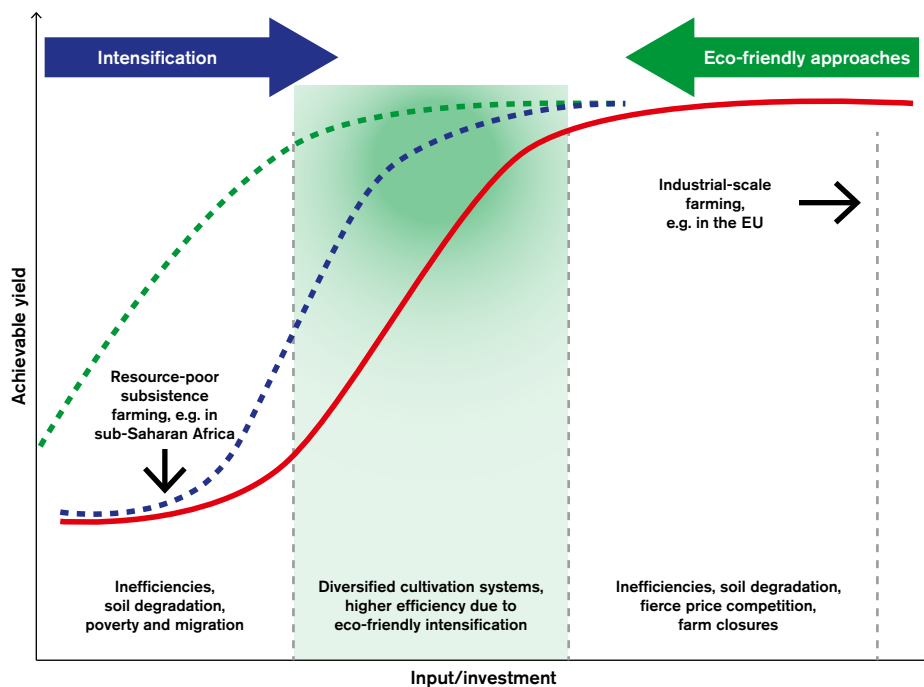
STOPPING THE EROSION OF SPECIES

If we want to rise to the challenges, we do well to remember that abundant biodiversity is not just a goal in itself. It is actually a blessing to human beings thanks to a broad variety of ecosystem services. Pol-

out payment or effort. Humans are used to taking ecosystem services for granted without any input of our own. Typically, we do not even notice them. However, awareness is slowly growing for how ecosystem services are being diminished.

The first step to protecting –and eventually expanding – those services, is take their value into account (see Katja Dombrowski in Monitor section of D+C/E+Z e-Paper 2021/04). We must rise to this challenge.

Mass extinction is currently affecting both natural biodiversity and agrobiodiversity. To improve matters, we need radical change at the global level. We must not



Neither resource-poor agriculture (left) nor over-intensive agriculture are environmentally sustainable. The first needs more inputs, including fertiliser for example, whereas the latter must reduce pesticide application and prevent nitrate pollution.

only safeguard natural ecosystems, but also diversify what is happening in agriculture. Multi-cropping is the indispensable alternative to monocultures. While we keep maximising yields at any cost, we must still strive for high yields. Otherwise, the clearing of additional arable land will continue. That land, however, must be reserved for natural ecosystems.

The global transition to sustainable land-use will thus hinge on multipurpose strategies in agriculture as well as other sectors. Agroforestry approaches, for example, link agriculture and forestry. It is possible to expand conservation areas while still permitting specific forms of farming. Even in restored peatlands, paludiculture is feasible, so farmers can indeed grow some crops. Multipurpose strategies offer the key to a sustainable future.

ENDING INEFFICIENCIES AROUND THE WORLD

At the same time, we must put an end to insufficiencies. An option in low-yield areas such as sub-Saharan countries is to systematically combine mineral fertilisation and organic manure to ensure soil nutrients are restored appropriately. Such an approach

will not only lead to higher yields, but will also facilitate more biodiversity both on fields and in wildlife. Further clearance of land will be avoided, and field vegetation will become more diverse and abundant. Prosperous economies, on the other hand, must end inefficiencies by reducing the application of chemicals (see graph).

Last but not least, we must question current patterns of land-use in countries where industrial-scale agriculture is common. It is high time that farmers focused on immediate human needs rather than livestock farming, such as the production of pigs in Germany, for example. Such a policy shift will solve several problems. Less land will be needed to produce animal feed. The degradation of land through the application of liquid manure will be reduced. People's diets would become healthier, with meat prices rising. As a pleasant side-effect, more space will become available for conserving biodiversity and mitigating the climate crisis.

FROM AGRICULTURAL POLICY TO ECOSYSTEM POLICY

To rebalance global land-use in ways that facilitate sustainability, we need an appro-

priate policy environment. One option is to reform the existing policies such as the European Union's CAP (common agricultural policy) or African countries input subsidy programmes (ISPs) in ways that establish something like a "Shared Ecosystem Policy" (SEP). To tap the full potential, policymakers must take a comprehensive approach, not only reconsidering agriculture, but reconciling it with all other forms of land-use. The best possible results will be achieved if policymakers emphasise the benefits of ecosystem services.

To tackle the land-use trilemma, we thus must focus on synergies in a holistic perspective. Doing so will require a shared policy framework.

At regional levels, it is possible to take what is called an "integrated landscape approach" by involving various stakeholders. This term stands for negotiating land-use compromises within specific, locally and culturally defined regions in ways that reconcile economic, social and environmental requirements.

We must also consider long-distance interactions, of course. After all, rainforests are burned down in the global south to enable livestock farming in the global north. Distributive justice is important too, so we will need a new sense of solidarity spanning urban and rural communities internationally. Nothing less is needed than a new mindset everywhere. We have no time to lose. Let's go!

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In August 2020, an oil-spill harmed the coast of Mauritius as well as the Blue Bay Marine Park.

OCEAN LIFE

More than a catchword

Humanity depends on maritime resources and must exploit them in ways that will allow future generations to do so too. In this context, “blue economy” is an important term. African governments are paying attention.

By Wanjohi Kabukuru

When the world was struggling with the financial crisis in 2008, James Michel, then the president of the Seychelles, launched far-reaching structural reforms to redesign the archipelago's economy. The guiding idea was that the oceans are an all-encompassing anchor of sustainable economic and require environmentally prudent governance. The Seychelles fast became an international leader, emphasising issues of ocean health in the global arena.

A key term in this context is “blue economy”. The emphasis is on both growth and environmental sustainability. For humankind, maritime resources are indispensable. They must be used in a way that ensures they will be available in the long run. Blue-economy principles affect a broad range of industries – including fisheries, shipping, tourism and mining.

The blue economy is closely interrelated to climate protection. A crucial reason is that “the mighty oceans represent the world's largest carbon sink”, as the Seychelles former head of state points out, who now heads a think tank named after himself. The James Michel Foundation promotes blue-economy principles. On the other hand, global heating is leading to ocean acidification, coral bleaching and other kinds of damages.

TOXIC POLLUTION

Much needs to happen. Pollution is poisoning the oceans. Plastic waste and micro-plastics are two of the big challenges (see Sabine Balk in the Focus section of D+C/E+Z e-Paper 2021/03). Another is oil-spills due to shipping accidents. In mid-2020, for example, the Japanese bulk carrier *Wakashio* ran into a coral reef close to Mauritius. The oil-spill devastated marine life around the Blue Bay Marine Park.

No doubt, the ecological integrity of oceans requires stronger regulations with consistent monitoring and stringent enforcement. The James Michel Foundation

and other expert bodies point out that the seas are being subjected to plunder through overfishing, illicit sand dredging and environmentally hazardous mining. “The sea has not so much been used as misused”, says Michel. In his eyes, humanity has paid more attention to making use of land than to making use of seas. “The sea is far more extensive, with so much of it still unknown”, he insists.

Creating protected conservation areas matter very much. The Partnership for the Interdisciplinary Studies of Coastal Oceans (PISCO), which is led by scholars from universities based on the west coast of the USA, has surveyed studies of 150 marine reserves across the globe. The researchers found that biodiversity increased by around 21% where full protection was established, with biomass even increasing by 446%. Unfortunately, the international community has not established protected areas as ambitiously as it agreed to do in multilateral settings (see box next page).

National governments must live up to their duties – and not only in regard to conservation efforts. Given that the blue economy is of vital importance to humanity as a whole, failure is not an option. Civil-society organisations are campaigning for the cause internationally. Tom Dillon of the US-based Pew Charitable Trusts says: “Our collective efforts will help secure a healthy ocean that is more resilient to climate change and yields benefits to both nature and people.” Pew is part of the Blue Nature Alliance which cooperates with partners around the world.

Pope Francis is perhaps the most prominent proponent of the blue economy. His widely acknowledged encyclical “*Laudato si*” on environmental protection explicitly states: “The growing problem of marine waste and the protection of the open seas represent particular challenges.” The pope called for “an agreement on systems of governance for the whole range of so-called global commons”.

Following the example set by the Seychelles, several African governments are now on board. In 2018, Kenya hosted a global sustainable blue economy summit. Shortly after, the African Union launched the African Blue Economy Strategy. Its projections include that, by 2030, ocean-dependent industries will generate revenues worth \$405 billion in Africa and employ some 57 million

people. Those numbers are expected to rise to \$576 billion of value created and 78 million jobs by 2063.

SCOPE FOR ECONOMIC GROWTH

Merely in business terms, the challenges are huge. According to the UN Conference on Trade and Development (UNCTAD), more than four fifths of the volume of world merchandise trade is carried by sea, but no African country is among the top-35 ship-owning nations. African ports account for mere 4% of global containerised trade. Neither the continents' shipping nor its ports consistently meet "global trends and standards", UNCTAD warns.

Africa's tourism sector is lagging behind as well. In 2019, the last year before the Covid-19 pandemic severely hampered this sector, 1.5 billion tourists crossed borders. African countries only welcomed some 5%, as statistics compiled by the World Tourism Organisation show. Beaches are important attractions, but the sector is clearly underdeveloped in Africa.

Overfishing, moreover, is a phenomenon that reduces the abundance not only of specific species, but of ocean life in general. Industrial-scale fishing vessels from prosperous nations are – sometimes even illegally – depleting the stocks that artisa-



James Michel, then president of the Seychelles, with Pope Francis in Rome in 2015.

nal fishing communities in Africa depend on, while oil rigs and mining cause further harm (see Nnimmo Bassey in the Focus section of D+C/E+Z e-Paper 2017/04).

The huge challenge African governments must rise to is to develop all industries concerned in ways that increase prosperity without further degrading the seas and the life they contain. Africa certainly deserves scope for growth and development,

however, given that the people are comparatively poor, populations are growing and the economies concerned have not contributed much to bringing about the environmental hazards that haunt the globe.

Most recently, the James Michel Foundation started the Big Blue Wall Initiative, hoping to involve 10 nations in the western Indian Ocean in related efforts. The International Union for Conservation and Nature (IUCN) endorsed the initiative at its world conference in Marseille, France, in September 2021. The twin goals are

- to develop a regenerative blue economy benefitting 70 million people in the region and
- to conserve and restore biodiversity along the shores and in the open sea.

"Blue economy" is clearly much more than a fancy catchword for conferences and high-profile reports. "It will continue to evolve," says Michel, the president-turned-think-tanker. "It will gather further support along the way. It can engage us all, and so it should. The sea is our future."



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Missed target

The notion of an environmentally sustainable "blue economy" fits in well with a range of international agreements. For example, the UN's 14th Sustainable Development Goal (SDG) is to safeguard "life below water". It includes the commitment to "conserve and sustainably use the oceans, seas and marine resources".

Protection of the great variety of maritime species is enshrined in the UN Convention on Biological Diversity (CBD) moreover (see Sundus Saleemi on page 19 of this issue). In

2010, the CBD's conference of parties adopted 20 targets in Aichi, Japan. To conserve "at least 17% of terrestrial and inland water areas and 10% of coastal and marine areas, especially areas of particular importance for biodiversity and ecosystem services" by 2020 was the 11th Aichi Biodiversity Target. It has not been met.

Currently, only 7.7% of Earth's maritime area is protected according to the UN World Database of Protected Areas. This unsatisfying trend is also confirmed by the Global

Biodiversity Outlook 5, a report that was prepared on behalf of the CBD Secretariat.

Conservation International, a Washington-based not-for-profit organisation, has identified five key pointers to a successful marine protected area:

- fishing must be completely banned so spawning is not restricted in any way,
- enforcement patrols must take place effectively,
- a large size of about 100 square kilometers is needed,
- proximity to other protected areas is helpful because it allows exchange, and
- long-term protection is important, as biodiversity increases over time.

Research shows, moreover, that marine protected areas serve the health of coral reefs. They also help to manage and replenish fisheries' stocks outside the protected areas.

The Blue Nature Alliance is an umbrella organisation of non-governmental and multilateral agencies. It wants more ocean space to be protected fast. Its target is to establish an additional 18 million square kilometers of conservation areas by 2025. Relevant regions include Antarctica's Southern Ocean, Fiji's Lau Seascape as well as the Seychelles and the wider western Indian Ocean. WK

ECOSYSTEMS

Particularly vulnerable tribal group

Nature conservation does not only protect rare animal and plant species. Indigenous peoples depend on it too. A striking example are the Onge, who live on Little Andaman, an island in the Indian Ocean. The survival of their culture – and indeed the lives of the remaining individuals – are at risk, threatened by plans to build a new mega-city on their land.

By Anup Dutta

As the name suggests, Little Andaman is one of the Andaman and Nicobar Islands. This remote belongs to India, though the Indian mainland is more than 900 km away from the northern most Andaman island. The distance to Myanmar is only about 200 km.

Tropical islands are typically hotspots of biodiversity (see Nicolas Zuël in the Focus section of D+C/E+Z e-Paper 2020/07). That is true of the Andaman and Nicobar Islands too. Forest officers have counted over 2500 species of flowering plants of which 223 species are endemic and not found anywhere else. An official note prepared last year also

mentions 55 species of mammals (32 endemic), 244 species of birds (96 endemic) and 76 species of reptiles (24 endemic). With 179 species of corals, moreover, the islands have India's richest coral reef. Many of these species are rare and endangered.

Historically, the archipelago was also marked by great cultural variety, with different indigenous peoples speaking different languages. Their cultures evolved over many centuries without contact to the outside world, but closely in touch with nature. Indeed, indigenous communities' way of life is so interconnected to ecosystems that they are often considered to be guardians of the forest (see Carmen Josse in the Focus section of D+C/E+Z e-Paper 2019/02). Today, however, their descendants are called "particularly vulnerable tribal groups" (PVTGs) (see box).

THE ONGE

The Onge are a tiny community on Little Andaman. The census of 2011 counted 101 members. By law, a large part of the island belongs to this PVTG. The indigenous com-

munity is entitled to live there in harmony with the ecosystem that fits its age-old traditional way of life.

The Boxing Day Tsunami of 2004, which devastated the shores of the Indian Ocean, showed how well the Onge are adapted to their environment. The huge wave swept away their dwellings, and they were feared dead. However, every single Onge survived. Their traditional knowledge included that it is necessary to flee inland whenever the sea begins to withdraw from the coast. The Onge understood that it would soon hit back fiercely.

Nonetheless, the number of the Onge is so small that the survival of their culture is obviously at risk. Recent plans made in far-away New Delhi, India's capital city, may put an end to it altogether. Quite likely, their implementation would even claim the individual lives of the remaining Onge.

The idea is to build two new megacities, one on Little Andaman and the other on Great Nicobar. Both would be free trade zones that, according to government officials, would grow to compete with global business hubs like Singapore, Hong Kong or Dubai.

The mega-cities proposal was made by NITI Aayog, an important government think tank. NITI stands for "National Institution for Transforming India", and Aayog means "Commission" in Hindi. The planners, moreover, see scope for developing tourism. After all, the archipelago is close to internationally popular resorts in Thailand and Malaysia.

NITI Aayog promises both urbanisation schemes will be "sustainable". However, it is neither obvious that large-scale business activity will take off at all, nor that it will prove lasting. Should it do so, however, serious environmental damage will be inevitable. In any case, the Onge will be exposed to considerable danger.

The vision of prosperous new megacities is fascinating (see Hans Dembowski's blog post). Masses of Indians would indeed like to live in modern cities and enjoy the benefits of up-to-date infrastructure. However, the Andamans and Nicobars are very far away from the Indian mainland. The new free trade areas could thus not benefit from proximity to the huge Indian market. Hong Kong, by contrast, is part of China's densely populated and highly industrialised Pearl River Delta, while Singapore serves as



A man of the Onge tribe relaxing on a hammock.

a financial centre for nearby Malaysia and Indonesia.

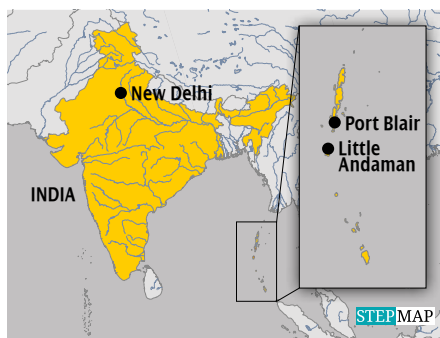
Today, only about 17,000 people live on Little Andaman. No doubt, the influx of many migrants from the Indian mainland would dramatically change the island's ecology. They would not even have to count in the hundreds of thousands. Even if a new town arises instead of a megacity with millions of people, it would literally crowd out the tiny Onge community.

According to the plans, the new urban structures on Little Andaman would indeed occupy about 30% of the territory that currently belongs to the tribe. Moreover, the Onge might easily succumb to diseases they are not immune to.

SOUNDING THE ALARM

Survival International, the London-based human-rights organisation, is sounding the alarm. It insists that no development should take place on Onge land without the indigenous people's free, prior and informed consent. It is their legal right to assess all plans that affect their territory and have the final say.

Though the new urban agglomeration is officially being billed as "sustainable", Sophie Grig of Survival International says: "There is nothing about it that looks very sustainable." NITI Aayog's proposals in-



clude an international airport, a casino strip, berthings for cruise ships, a theme park, hotels, golf courses and an opera house.

Worst of all, the official plans do not foresee the Onge's free, prior and informed consent. According to the documents, currently protected tribal areas could simply be "de-notified", so the tribal community would lose its rights. Indeed, the proposal bluntly states: "If required, the tribals can be relocated to other parts of island."

Not all government officers are convinced that the urbanisation schemes are a good idea. Nilanjan Khatua, who is responsible for the Andamans and Nicobars at the Anthropological Survey of India, says that an impact assessment should be done before any plans are implemented.

By contrast, Vivek Rae, the central government's former chief secretary for the

Andaman and Nicobar Islands is enthusiastic about large-scale urban development plans. He speaks of "strategic advantages" and "considerable untapped economic potential". In his eyes, India is guilty of having neglected the islands for a very long time.

The full truth, of course, is that the Andamans and Nicobars have not seen much development in the past because they are so very remote and because not many Indians wanted to move there. Moreover, there is a lot of seismic activity – in September 2021 alone two earthquakes were registered. The first had a magnitude of almost 4 on the Richter scale, the second exceeded the mark of 5.

To a large extent, the Andamans and Nicobars still remain a sanctuary of wildlife. While the ecosystems have survived so far, the indigenous peoples who depend on them have disappeared – or are likely to do so soon.

LINK

Survival International webpage on the Onge
<https://www.survivalinternational.org/tribes/onges>



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Indigenous communities at risk

The depressing truth is that several tribal peoples have disappeared from the Andaman and Nicobar Islands. Their languages are gone forever. Not ever having had exchange with outsiders, these communities are particularly susceptible to infectious diseases.

Under colonial rule in the 1920 and 1930s, mortality rates were high, and the languages of the Aka-Kols, the Oko-Juwoi and the Aka-Bea were wiped out. The British then tried to bring what are

now called the "particularly vulnerable tribal groups" (PVTGs) into mainstream society, but that made things even worse. Various infectious diseases claimed thousands of lives.

The small-island ethnic groups never consisted of very many people. Today, not quite 400,000 people live in the Union Territory. In 1951, a mere 31,000 did, and that number of course included the inhabitants of Port Blair, the biggest town. The islands' population

grew mostly due to migration from India.

It is well understood that the archipelago's remaining indigenous tribes are threatened by extinction. One of them, the Sentinelese, even refuse contact. Nonetheless, there have been repeated attempts to reach out to PVTGs since India became independent in 1947. India's central government is in charge of the islands, which are formally a "union territory" and do not have a state government of their own.

Things sometimes went dreadfully wrong. In the late 1990s, the Jarawa tribe contracted two deadly outbreaks

of measles. In the same period, sexually transmitted diseases endangered the largest aboriginal group, the Great Andamanese, to near extinction. According to the latest census, a mere 380 Jarawa were left in 2011 – and only 44 Great Andamanese. In May 2020, there was an outrage in the media when coronavirus began to spread among one of the PVTG communities. Government officials agreed there was reason to worry. The impact was not as bad as feared, however, and in recent months vaccination campaigns have immunised many members of the islands' PVTGs. AD



The Odzala-Kokoua National Park in the Republic of the Congo is under review to receive funding by the Legacy Landscapes Fund.

WILDLIFE

Better funded conservation areas

Humanity needs a diverse natural world. We depend on the services it provides and we need its help in the fight against the climate crisis. However, many important protected areas in developing countries are underfinanced. KfW Development Bank aims to change that – with a new fund.

By Friederike Bauer

For thousands of years, vultures performed a public health service for India. They ate carrion of all kinds – including dead sacred cows – thus removing health hazards from the street. Things changed after the pain-killer diclofenac arrived in the 1990s and became a popular veterinary drug.

Diclofenac is extremely inexpensive, so it quickly came into widespread use, especially by dairy farmers and owners of draught and pack animals. In vultures, however, the drug causes kidney failure. They died en masse. Within a single decade, the population shrank by more than 95%. With dire consequences: there was no longer a dead cow disposal service. Also, perhaps

even more seriously, the number of feral dogs increased because, with no vultures around, they now ate more carrion.

Dogs carry rabies and they bite humans, so there was a sharp increase in rabies infection. The decline in vulture populations probably caused the deaths of 50,000 people.

This example shows the kind of consequences that the extinction of a single species can have. It also shows that the impacts cannot be gauged in advance because there can be chain reactions.

The disappearance of a species is not in itself unusual. Animals and plants live in a constantly changing environment. Either they adapt to change or they are superseded by species that manage to adapt better. The appearance and disappearance of species is part of the eternal cycle of evolution.

But the rate of species loss today is beyond normal. Every 11 minutes, one species currently becomes extinct. That is as much as a hundred times faster than in the time before the world was dominated by humans – a clear indication that, as in the case of di-

clofenac usage in India, humans are causing the deaths. If we think of Earth's history as a 24-hour day, human beings do not make an appearance until two minutes to midnight. But even in that short time, humanity has overused three quarters of the Earth's resources.

According to the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), 1 million of the estimated 8 million species on Earth are currently endangered. Whether – and to what extent – the species concerned will prove vitally important to humans is something that scientists cannot yet accurately predict.

What they do know, however, is that the more species safeguard an ecosystem, the more stable that ecosystem becomes. Accordingly, it provides its services more reliably.

Diversity thus is a kind of life insurance. If one species fails – due to drought or heat, for instance – others take over its functions. So by accelerating the extinction of species, we are cancelling more and more of our life insurance.

BASIS FOR LIFE AND ECONOMIC FACTOR

Whether we are rich or poor, live in the northern or southern hemisphere of the Earth, we all depend on the services that na-

ture provides. We need water, air, food, medicinal herbs, forests and a great deal more besides. Nature also plays an indispensable role in economic life (see Katja Dombrowski in Monitor section of D+C/E+Z e-Paper 2021/04). For example, it enables the fisheries sector alone to turn over around \$350 billion a year – much of it sadly unsustainable – and, absent Covid-19, earns Africa around \$29 billion a year from ecotourism. It is also reckoned that 80% of the UN Sustainable Development Goals will become unattainable if species continue to die out at current rates.

The main drivers of diversity depletion include not only the overexploitation of natural resources but also the changes in land use, mainly due to the relentless expansion of agriculture (see Susanne Neubert on p. 25 of this issue). Another driver is human-made climate change because many species are fatally stressed by higher temperatures. Conversely, biodiversity loss itself fuels climate change.

Forests, peatlands and soils are natural carbon sinks that can effectively help mitigate atmospheric carbon dioxide. They must not be further decimated, drained or eroded. An important reason is that natural carbon sequestration is significantly cheaper and more predictable in its consequences than expensive geoengineering with so far untested technologies. Climate change and biodiversity are thus intricately linked; one cannot be tackled without the other. Biodiversity conservation is an important building block for climate protection.

Well-managed conservation areas are considered an important way to safeguard biodiversity – provided that local communities are closely involved. Without them, nature conservation will fail. Ample evidence has been furnished in recent decades.

Despite commitments to ambitious international targets, however, only around 16% of the world's land area and around eight percent of the oceans are currently protected – significantly less than the 30% recommended by scientists (see Wanjohi Kabukuru on p. 28 of this issue).

NOT ENOUGH MONEY FOR DEVELOPING COUNTRIES

All too often, however, protection is not effective enough in the areas concerned. There is a simple but serious reason: 80% of all species are concentrated on around 20% of the Earth's surface. Most of that 20% is in developing countries. They typically lack the money to manage conservation areas well and to involve the local community convincingly. This is especially true in coronavirus times, with disadvantaged countries struggling in particular to cope with devastating pandemic impacts.

A large share of international funding for nature conservation is spent in more prosperous countries. It is not flowing to the biodiversity hotspots in the developing world. Only 19% serve this purpose. Accordingly, vast areas go unprotected, even though governments have declared them to be conservation areas.

Such areas have become known as “paper parks”: sanctuaries that exist only on paper and do not fulfil their actual purpose. According to the German Federal Ministry for Economic Cooperation and Development (BMZ), around 90% of 282 protected areas examined in sub-Saharan Africa are underfunded, for example. To help remedy this deplorable state of affairs, KfW Development Bank has developed a new financing instrument – the Legacy Landscapes Fund (LLF) (see box below) – on behalf of the BMZ.

As emphasised by outgoing Gerd Müller, Germany's federal minister for economic cooperation and development, and Stefanie Lang, the LLF director, more funding for biodiversity needs to be flanked by a commitment by the international community to place 30% of the Earth's land and ocean under protection by 2030. In an op-ed in the German daily *Handelsblatt*, they called for a new “Paris moment” for biodiversity, like the one climate policy experienced in the French capital in 2015. The Kunming Biodiversity Conference in China, which enters a decisive phase in April 2022, would be a good opportunity.



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New fund for conservation areas

To counteract the cycle of rising temperatures, diminishing biodiversity and risk of disease – some speak of a “triple crisis” – KfW Development Bank has established a new financing instrument a few months ago on behalf of Germany's Federal Ministry for Economic Cooperation and Development. Called the Legacy Landscapes Fund (LLF), it is intended to close

the funding gap for biodiversity conservation in the global south. The idea is to safeguard vital biodiversity for all of humanity by saving as many species as possible in species-rich but income-poor world regions.

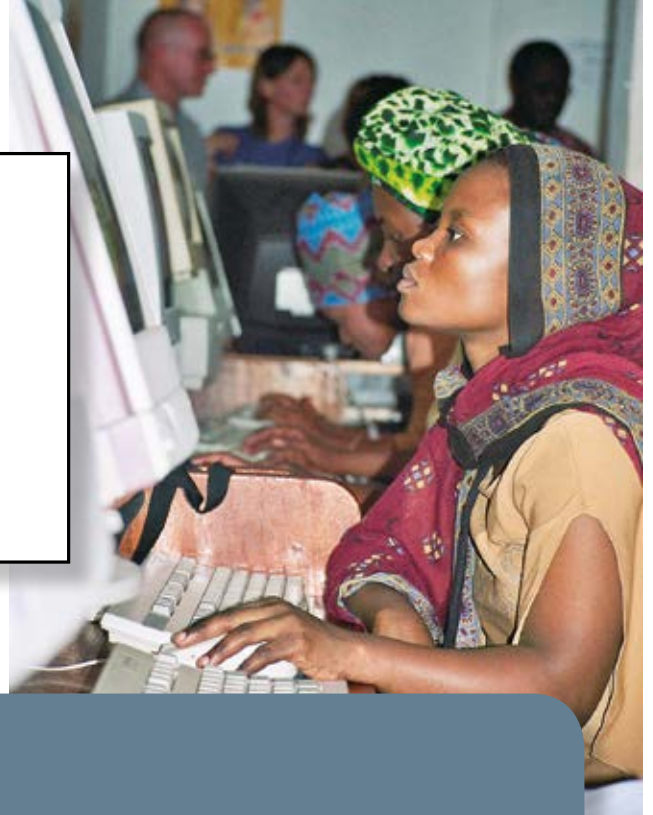
The LLF is designed to support at least 30 of the world's most important conservation areas with \$1 mil-

lion a year each. That amount is the funding gap that generally needs to be closed to make a park operate well. The places set to receive financial support in the near future will have an aggregate area of more than 60,000 square kilometres. That is twice the size of Belgium. If the fund attracts more money, the area may well increase.

What is special about the LLF is its structure and composition. It is a foundation under German law, but public and

private donors from all over the world can join. The aim is to create a major international foundation with maximum reach. Already on board are the Gordon and Betty Moore Foundation, the Rob and Melanie Walton Foundation, the Arcadia Foundation and the Wyss Foundation. According to LLF Director Stefanie Lang, talks are currently being held with numerous other donors, including major corporations. “There are many interested parties,” she says. **FB**

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