

Biodiversity and Employment

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Project:

Private Business Action for Biodiversity

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As a result of the COVID-19 pandemic, the world is facing new challenges that need to be tackled. During the pandemic the extent of those challenges has become clear. In 2020 an equivalent of 255 million full-time jobs have been lost (ILO 2021). The crisis has led to heavy employment losses, especially in developing and emerging countries, which have been particularly hard hit (World Bank 2020). The economy is suffering and now it is necessary to develop measures and implement them quickly and efficiently in order to thus promote employment again and avoid continuing impoverishment.

At the same time, the loss of biodiversity is progressing relentlessly and drastically. None of the so-called Aichi Targets of the last ten-year strategy of the UN Convention on Biological Diversity (CBD) were fully met by 2020. Still, land use conversion (deforestation, urban sprawl, etc.), overexploitation of animal and plant species, pollution, the introduction of alien invasive species and climate change are among the main causes of nature destruction, leading to the so-called sixth mass extinction of life on Earth.

It is notable that so far, the positive linkages between biodiversity conservation and employment impacts have not received much emphasis. The first draft of the CBD Post-2020 Global Biodiversity Framework barely mentions employment and how the conservation and sustainable use of biodiversity can contribute (CBD, 2021). Furthermore, economists often view nature conservation as merely a constraint to economic development. However, the positive interaction is of paramount importance for overcoming the biodiversity crisis while it also offers an opportunity to mitigate the impacts of the pandemic crisis. Therefore, this relationship should be taken more into account when designing recovery measures. As evidenced in recent literature, biodiversity loss can increasingly lead to the spread of infectious diseases and increase the risk of further pandemics (TEEBcase, 2011/UNEP & ILRI 2020/IPBES 2020). As the Global Risk Report of the World Economic Forum (WEF 2020a) shows, the loss of biodiversity is one of the greatest risks for the global economy and thus threatens the existence of large parts of the population. More than 50 per cent of the global GDP depends moderately or highly on nature, its services, and the rapidly declining biodiversity. At the same time, the conservation and sustainable use of biodiversity offers short- and long-term opportunities for job creation, through so-called green jobs, and additional far-reaching and still underexplored co-benefits (Jacob et al., 2014). Calculations by the World Economic Forum found that a new 'nature-positive economy' could create up to USD 10.1 trillion in annual economic value and up to 395 million jobs by 2030 (WEF, 2020b). This shows that for a sustainable recovery, the focus after the pandemic needs to be more on a green and biodiversity-friendly economy than before.

Green Jobs and Decent Work

Part of a green economy is the establishment of green jobs. The term green jobs refers to jobs created as part of the process of developing a green economy in defined environmental areas and to improve environmental performance or to meet environmental standards in existing industries (e.g. renewable energy, energy efficiency, circular economy, sustainable mobility, protection and management of natural resources, BioTrade¹) (ILO, 2018/GIZ, 2020). The transition to a green economy serves as a catalyst for green jobs. In a nutshell, a job qualifies as a "green job" if it supports or implements environmental aspects and standards within existing or new sectors.

¹ In 1996, UNCTAD launched the BioTrade Initiative to support the objectives of the Convention on Biological Diversity. BioTrade refers to those activities of collection, production, transformation, and commercialization of goods and services derived from native biodiversity under the criteria of environmental, social and economic sustainability known as the BioTrade Principles and Criteria. [BioTrade | UNCTAD](#)

In addition, the ILO specifies that green jobs should additionally be "decent". Decent work means that the worker's human rights are respected, and the employment includes fair working conditions (ILO, 2018). Part of the decent work approach is the living wage concept, which states that everyone must receive a sufficiently high income. This is defined as an income that provides a worker with a basic but socially acceptable standard of living (Eurofound, 2018). Furthermore, the ILO also recognises gender equality in the world of work as part of a comprehensive green transformation of the economy. Decent green jobs are crucial for a green economy and the fulfilment of Agenda 2030 and its Sustainable Development Goals (SDGs) and thus provide the basis for a successful green recovery. Recovery measures must set the course towards environmentally friendly, gender equitable and socially inclusive social orders (*just transition*).

Biodiversity-relevant and -friendly Jobs

Biodiversity-relevant and -friendly jobs are an important sub-area of green jobs, but so far there is no internationally valid definition. This paper refers to the definition of the European Commission/DG Environment, according to which jobs qualify as biodiversity-relevant if they either have the conservation of biodiversity as a specific objective (e.g. professionals in nature conservation, its management, restoration and protection of habitats and species, as well as in specific research, monitoring and advisory tasks) or they have a significant impact on biodiversity and/or protect biodiversity for the purposes of maintaining the institution's main activities, even if biodiversity conservation is not the main objective (e.g. biodiversity management in agriculture, forestry, material procurement and marketing of products by the processing and retail industries) (EU DG Environment, 2012). The former also includes those non-professional activities that are required to support biodiversity-focused organisations, e.g. administrative, financial and human resources activities. Jobs are biodiversity-friendly if they have a positive impact on biodiversity. The sectors with potential for biodiversity-relevant jobs are diverse. Possible jobs can range, for example, from reforestation with naturally occurring tree species, to landscape gardeners, to those working in biodiversity-friendly supply chains. The agriculture, forestry and fisheries sectors are crucial in this context, as they include jobs with a clear link to biodiversity and depending on their orientation of activities can support or lead to a loss of biodiversity. Another typical area for biodiversity-friendly jobs is nature conservation: in addition to rangers, environmental educators and nature-based tourism businesses, numerous other jobs can be created around protected areas. The still frequently expressed assumption that nature conservation primarily prevents economic development is not valid when viewed holistically (Institute for European Environmental Policy, 2017):

- Many new jobs are created in and around protected areas (such as in the tourism and recreation industry),
- existing jobs are maintained in the surrounding area in the long term through the provision of ecosystem services (e.g. drinking water supply, pollination, prevention of erosion and flooding), and
- the survival and well-being of producers, especially in agriculture, forestry and fisheries, who are directly dependent on natural resources, are safeguarded and their resilience strengthened.

IUCN defined six different categories of protected areas, based on their management objectives (IUCN, 2013): strict nature reserve, wilderness area, national park, natural monument or feature, habitat/species management area, protected landscape/seascape, and protected area with sustainable use of natural resources. Even though those protection areas are different from one another in specific aspects, all of them offer the opportunity of combining the above-mentioned economic development on various levels with biodiversity conservation and the sustainable use of

biological resources. Apart from protected areas, conserved areas also offer interesting new development opportunities (OECM, “other effective area-based conservation measures”²).

Biodiversity conservation and sustainable use are gaining increasing international attention in the context of numerous conventions and initiatives, such as the update of the Nationally Determined Contributions (NDCs) to the Paris Climate Agreement and the Decade of Ecosystem Restoration starting this year. This is not least the case because the 14th and 15th Sustainable Development Goals (SDGs) aim to halt the loss of terrestrial and marine biodiversity, and their achievement is a key determinant of the success of other SDGs. Regarding the economy, this applies in particular to SDGs 8 (Decent work and economic growth), 9 (Industry, innovation and infrastructure) and 12 (Sustainable consumption and production).

However, although investing in biodiversity conservation offers various short- and long-term employment opportunities, biodiversity-friendly green jobs have so far been too little addressed in the global debate.

Brown vs. Green Recovery

As a result of the Corona pandemic, workers from many industrial and service sectors around the world have lost their jobs and the globally interconnected economy has been significantly affected by the temporary collapse of supply chains. There is an urgent need to improve the economic situation and promote employment in order to stop the global impoverishment of broad sections of the population, most of whom are already vulnerable and poor. This requires government and private investment. Many countries have adopted so-called recovery measures in response to the pandemic, but “brown” measures, i.e. investments in traditional, environmentally harmful industries, currently predominate (Vivid Economics & Finance for Biodiversity Initiative, 2020). These investments add onto the already existing environmentally harmful subsidies and both the investments as well as the subsidies burden the state budget twice: first through additional state expenditure, and later through increased costs for repairing damage inflicted on the environment, nature and health (Umweltbundesamt, 2016). Globally, biodiversity-damaging subsidies in 2019 ranged from US\$273.9 billion to US\$542.0 billion per year, depending on the definition (Paulsen Institute et al., 2020). These are funds that could be invested in the protection of biodiversity and would bring enormous additional benefits (co-benefits) for the economy and society instead of a double burden.

According to the latest publication of the Greenness of Stimulus Index (Vivid Economics & Finance for Biodiversity Initiative, 2021), recovery measures adopted worldwide will increase negative impacts on our environment. The world's leading economies have announced stimulus packages that will channel approximately US\$4.6 trillion directly into sectors that have a large and lasting impact on nature, but less than US\$1.8 trillion of those are green. Thus, the world has currently failed to use the pandemic as a launching pad for better recovery.

However, there are also governments that are setting a positive example and are focusing on green recovery measures. Besides the EU and South Korea, New Zealand has also launched a major stimulus programme with contributions to a green recovery (WRI, 2020). Worth US\$1.1 billion, the programme aims to create 11,000 jobs through major investments in wetland restoration and riverbank rehabilitation, the removal of invasive alien species and boosting tourism. By all appearances, the US can become another leading country after the change of government (Vivid Economics & Finance for Biodiversity Initiative, 2021). With the new stimulus package of the Biden administration, the US will

² “‘Other effective area-based conservation measures’ (OECMs) is a conservation designation for areas that are achieving the effective in-situ conservation of biodiversity outside of protected areas.” [OECMs | IUCN](#)

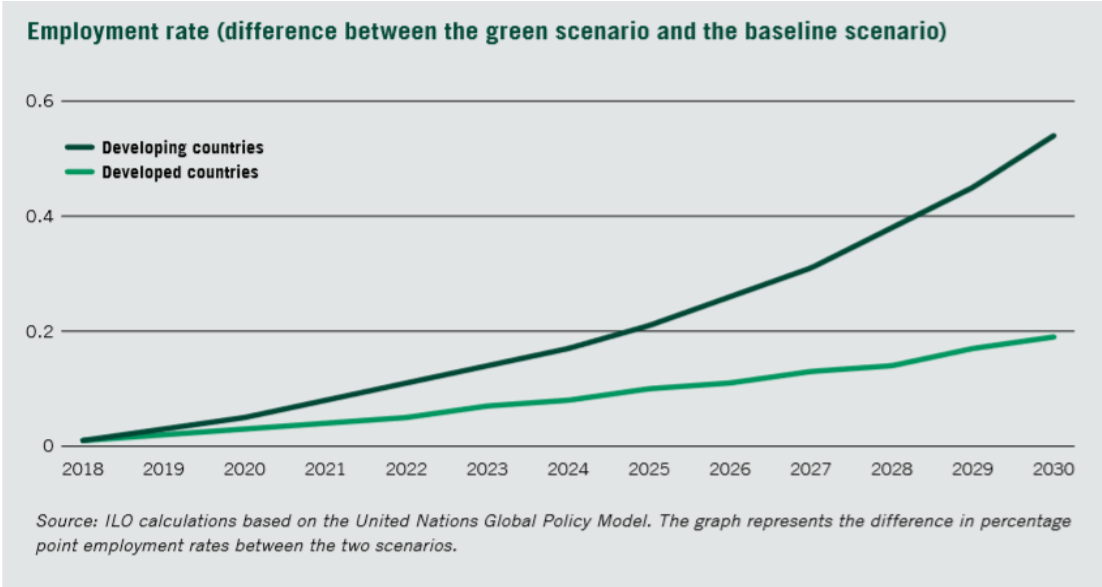
improve its position in the index in terms of the ratio of green to brown measures. If the climate plan promised by Biden is implemented as announced, the US position in the index would improve dramatically, even to the point that the US would move into second place on the global ranking of the greenness of stimulus index (it is currently on the 15th place).

Even though the topic of green recovery is being discussed at international level, the reality shows that most governments give little or no consideration to green measures due to the existing pressure to act (Hepburn et al., 2020). Particularly biodiversity and nature have been severely neglected in stimulus activities to date (Vivid Economics & Finance for Biodiversity Initiative, 2021). However, if business as usual were to continue in the aftermath of the pandemic, this would often have dire humanitarian and economic consequences, such as loss of biodiversity and jobs, and thus the destruction of livelihoods. Yet many examples show that a transformation to a green economy can be associated with economic development opportunities and significant employment effects. The reasons for this are (Jacob et al., 2014):

- the avoidance of environmental degradation costs
- economic opportunities due to the use of new environmental technologies and environmentally friendly business models
- utilisation of economic development potentials and innovations based on the sustainable management of natural resources

Some recent international studies and modelling show that green recovery has a high economic potential, helping not only the environment but also individual countries in the transformation towards sustainable development and generating positive employment effects (e.g. WWF & ILO, 2020/WRI, 2020).

There is a growing awareness that economic development has to be managed in a way that it does not entail environmental damage. An ILO report shows that countries that decoupled economic development from greenhouse gas emissions between 1995 and 2014 reduced working poverty³ by an average of 4.6 percentage points per year, while the other countries were only able to reduce poverty by 3.7 percentage points per year (ILO, 2018). A positive example is Costa Rica (one of the so-



Source: The difference in percentage point employment rate between the two scenarios from ILO

³ Working poverty measures the share of workers living in extreme or moderate poverty, that is, on less than US\$3.10 purchasing power parity (PPP) a day (ILO, 2018).

called megadiverse⁴ countries), which has doubled its forest area in recent decades, thus preserving biodiversity, while tripling its economic power (Goering/WEF, 2020).

A survey by UEBT showed that consumers in 16 surveyed countries around the world are increasingly demanding biodiversity-friendly supply chains and products and are showing this in their consumption behaviour (UEBT, 2020). Consequently, there are also incentives from a private sector perspective to invest in biodiversity conservation and sustainable use of biological resources. As the development of consumer demand in recent years clearly favours a transformation to the green economy and is expected to continue to do so in the future, there are even more reasons to now invest in green recovery, both public and private investments, in order to keep up with the developments that are already taking place (UEBT, 2020).

For green recovery to be successful, studies on the impact of economic policies suggest that economic success is strongly influenced by two characteristics: the speed with which stimuli have an impact in the real world and the short- or long-term economic multipliers, i.e. the return for each dollar of expenditure (Hepburn et al., 2020). Therefore, to successfully implement green recovery measures, they would have to lead to increased employment quickly and efficiently. And indeed, there are already numerous examples that prove that green recovery measures have the potential to provide increased employment in the short and medium term through green jobs. In addition, these jobs are assumed to be more resilient to crises than jobs in business-as-usual business models and to offer the possibility of better livelihoods.

Green recovery through biodiversity-friendly measures

Various studies and publications show that the protection and sustainable use of biodiversity is of utmost importance and that lack of action will cause or has already caused enormous economic damage (e.g. UEBT, 2020/ WRI, 2020/ WWF & ILO, 2020/ WEF, 2020a/ etc.). Biodiversity loss in the oceans, for example, (e.g. through invasive marine species carried in the ballast water of ships, overfishing and nutrient pollution) results in economic damage of at least US\$ 200 billion per year (UNDP and GEF, 2012) and is thus significantly harmful to building a sustainable blue economy. For these reasons, biodiversity protection is indispensable in a sustainable and successful recovery process to make the economy and, as a result, the labour market more resilient.

Biodiversity-friendly measures to which labour markets respond quickly include spending on nature investments, which can be of both government and private origin (e.g. reforestation, restoration, designation of protected compensation areas, enhancement of rural ecosystems through more diverse landscape features) (Hepburn et al., 2020). In response to the global financial crisis, the federally funded American Recovery and Reinvestment Act of 2009 (ARRA) included US\$167 million for coastal habitat restoration and created an average of 17 jobs per US\$ million spent - far higher than traditional industries such as coal, gas and nuclear power generation (WRI, 2020). In the US alone, ecosystem restoration is an industry that in 2014 generated US\$9.5 billion in economic output (sales) and employed 126,000 people, indirectly generated another US\$15 billion in revenue, and thus also creating an additional 95,000 jobs (Bendor et al., 2015). Researchers have found that every million dollars invested in Nature-based solutions can create nearly 40 jobs, including foresters, botanists and other employees in seed banks and nurseries, technicians to operate machinery and workers to

⁴ Megadiversity Countries is a term used to refer to the world's top biodiversity-rich countries. Conservation International identified 17 countries by 1998. [Megadiverse Countries definition | Biodiversity A-Z \(biodiversitya-z.org\)](#)

transport and plant new trees – all of those are jobs with different skill levels (Dasgupta 2021). This is almost 10 times the employment rate of fossil fuel investments.

In addition to protecting nature, there are also major employment and economic benefits to channelling recovery funds into managing and safeguarding protected areas. Protected areas lead directly to jobs related to their protection and management or indirectly to tourism. In Europe, the Natura 2000 network, a coordinated network of protected areas in the EU, supports 4.4 million jobs while generating ecosystem services and socio-economic benefits worth between US\$226 billion and US\$339 billion per year (WRI, 2020). By 2050, it is expected that biodiversity conservation could create up to 500,000 jobs in Europe related to the Natura 2000 network (Institute for European Environmental Policy, 2017). McKinsey estimates in a report that a doubling of current nature reserves by 2030 would lead to an additional 400,000 to 650,000 direct jobs from nature conservation management alone (McKinsey & Company, 2020). All these figures speak in favour of investing in protected areas as part of a green recovery.

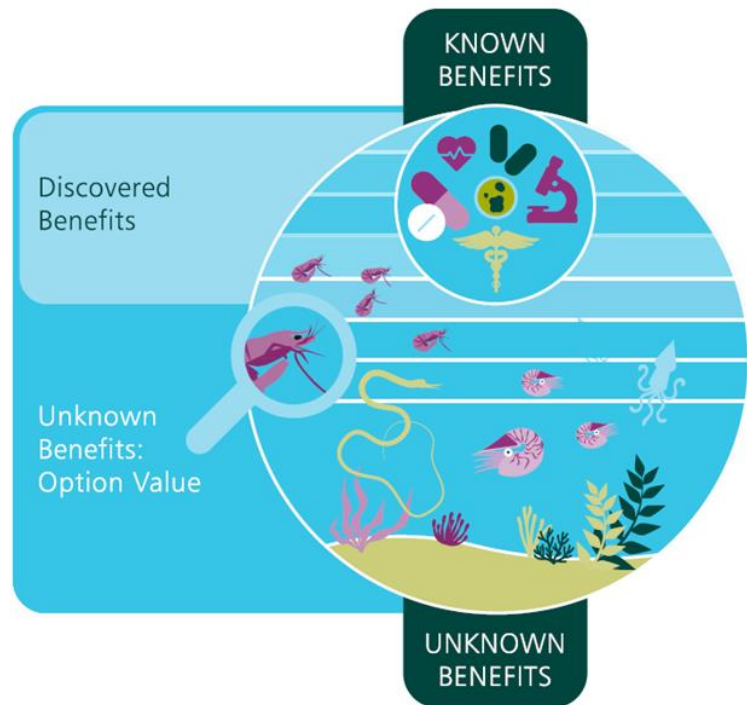
Nature-based investment funds are mostly fast-acting because worker training requirements are often low and many projects have minimal planning and procurement requirements (Hepburn et al., 2020). Many countries have already prepared "shovel-ready" projects through their biodiversity-relevant NDCs (e.g. in ecosystem-based adaptation measures) and could thus respond quickly. These projects typically create low-skilled and quickly implementable jobs - on average between 7 and 40 jobs per US\$1 million invested (WRI, 2020). In addition to the quickly implementable jobs created by biodiversity conservation projects, there are also long-term employment effects, especially from higher-skilled jobs. Often, however, in many emerging and developing countries, the recognition of training professions in nature conservation by the legislators is still needed in order to achieve corresponding qualifications and appropriate remuneration; this applies, for example, to rangers, supervisors for local groups or other national park employees.

To overcome the crisis, the economy needs quick employment effects at first, but once these have started, the qualification of workers is particularly important for a better resilience of the labour market and economic growth. The lower-skilled jobs within the previously mentioned projects form the basis for further training and qualification measures, thus leading to longer-term and higher-skilled employment. Possible higher-skilled jobs in biodiversity include, for example, setting up and running early warning systems against forest fires, running forestry gene banks for reforestation, or advising on biological pest control in biodiversity-friendly agricultural supply chains. They all support long-term biodiversity conservation and a sustainability-oriented economy.

The creation of green employment in rural areas is of developmental importance, because it can make an important contribution to the sustainability of rural areas through additional and diversified livelihoods. The added attractiveness through the additional job opportunities can offer a mitigating effect to rural exodus.

The above-mentioned examples and arguments do not yet take into account the so-called co-benefits, i.e. positive environmental, economic and health aspects resulting from biodiversity conservation. While these are often more difficult to capture, their value should not be disregarded, as co-benefits are usually extensive and cross-sectoral, such as improved water and air quality, reduced erosion, higher crop yields through improved pollination, and food security. According to FAO, each US dollar invested in restoring degraded land yields an estimated economic benefit in the range of US\$7 to US\$30, including such co-benefits as improved food production, carbon sequestration and water quality (FAO, 2018). Another example of co-benefits that have already been researched are urban

forests. Here, research has shown that urban forests offer opportunities for cost reduction in areas such as the reduction of energy production (both summer and winter), wastewater reduction, and urban safety and health (WWF & ILO, 2020). Further research found that for every full-time job created by green infrastructure projects, an average of two additional jobs are created across the economy. In South Africa, for example, 418,000 jobs are directly related to biodiversity, representing 2.6 per cent of national employment (SANBI, 2019). However, the co-benefits of green recovery measures not only increase direct employment, but also benefit industries that are directly and indirectly dependent on biodiversity, thus strengthening the economy not only in the short term, but also in the medium to long term.



Source: Option Value from Dasgupta (2021)

Biodiversity and employment promotion in Germany's international cooperation

As described above, the importance of promoting employment through the protection and sustainable use of biodiversity only became an international issue comparatively recently. On behalf of BMZ and BMU, GIZ has been increasingly addressing this issue for several years and is increasingly implementing projects on biodiversity that also focus on employment effects and measure these through indicators. Last but not least, since 2010, the implementation of the Nagoya Protocol on Access to Genetic Resources and Fair and Equitable Sharing of Benefits of the Convention on Biological Diversity and the associated discussion on non-monetary benefits (e.g. through training measures) have created a more favourable climate for the creation of jobs and the qualification of workers in various developing and emerging countries and have already demonstrated initial concrete effects (The ABS Capacity Development Initiative, 2018).

One of these projects, which addressed the issue of employment early on, is the project "Support to De-bushing" in Namibia. This project focused on the development of enabling conditions for a national de-bushing programme and the necessary capacity development, as bush encroachment posed a threat to biodiversity in the country. This project, which was implemented from 2014 to 2017, has led to a total of 1041 jobs (including short- and long-term) and increased the skills of the employees, which has also improved their future opportunities on the labour market.

Furthermore, in recent years, GIZ has launched a number of projects that specifically address the promotion of employment through the protection and sustainable use of biodiversity. Among them is the project "Promotion of Green Jobs", which supports unemployed or underemployed young people in rural areas in Morocco with little or no education, with the aim of fundamentally improving their employment and income situation. To this end, the project creates and optimises training opportunities for occupations with sustainable content, such as in the fishing industry or the valorisation of forests and natural products. In addition, small and micro enterprises as well as young entrepreneurs in the green sector are offered help with financing and qualification for management,

thus contributing to sustainable economic growth. The project aims to create additional employment for at least 2,000 young people between the ages of 16 and 35 by 2022, at least one third of whom will be women. Furthermore, at least 1,000 young people and start-ups will be supported in increasing their income through their projects.

The BioInnovation Africa project, started in 2019, aims to strengthen European-African partnerships for biodiversity-based innovations and products through equitable benefit-sharing for their conservation and sustainable use. In addition, the project aims to engage with the private sector in sustainable and mutually beneficial business partnerships based on high ethical, social and environmental standards. Based on these partnerships and a market-based approach, user groups such as farmers and wild collectors⁵ as well as micro, small and medium-sized enterprises (MSMEs), especially in rural Africa, will be enabled to find new and fair employment opportunities by integrating the sustainable use of biodiversity and its local processing into new or improved regional and global value chains (BioTrade). By aligning with the UNCTAD BioTrade principles and ensuring fair benefit sharing (in the sense of the Nagoya Protocol on Access and Benefit Sharing), ecological and socio-economic sustainability criteria are applied simultaneously, which also include fair working conditions. The project thus supports the large and increasingly important potential for biodiversity-relevant employment promotion that lies in the BioTrade sector.

However, entrepreneurs and employees in developing and emerging countries also benefit through indirect employment effects. One example is the Private Business Action for Biodiversity (PBAB) project, which supports small and medium-sized enterprises (SMEs) in implementing biodiversity-friendly practices along the value chain and biodiversity-friendly production and marketing in order to improve the quality of products and the market position of the SMEs. This results in improved and secure market access and more stable prices. Training measures and instruments for the integration of biodiversity aspects indirectly improve employment and income in the respective countries and at the same time promote the conservation and sustainable use of biodiversity.

Another project example of indirect employment effect is the Mercado Verde project in Brazil. By improving the government's promotion policy for the marketing of sustainable Amazon products, small farmers and traditional population groups from the Amazon region have better market access for their sustainably produced products. Thus, they preserve and use the forest instead of clearing it and converting it into arable land and pasture. As a result of project implementation, cooperatives and smallholder associations in the four states of Acre, Amapá, Amazonas and Pará have increased their sales of sociobiodiversity⁶ and organic farming products by 25%, providing biodiversity-friendly economic boosts at the local level.

Also worth mentioning are some reforestation programmes implemented by GIZ (such as the Forest and Environment project) that deal specifically with non-timber forest products (NTFP) as an alternative source of income. This avoids deforestation and enables new biodiversity-friendly income opportunities for inhabitants in rural areas. Two of the largest reforestation programmes are the projects " Forest Landscape Restoration in Central America and the Dom. Republic and Implementation of the Green Development Fond/REDD+ (Reducing Emissions from Deforestation and Forest Degradation) Landscape" and the global project "Restoration of Forest Landscapes and Good Governance in the Forest Sector (Forests4Future)". These projects actively contribute to the promotion of employment in the individual countries. A study commissioned by Forests4Future found

⁵ Producers collecting botanicals in the wild rather than cultivating it

⁶ Sociobiodiversity describes the approach, particularly prevalent in Amazonia, of sustainable use of natural resources by traditional populations and indigenous communities, especially through collection management in natural or near-natural ecosystems, which contributes both to the conservation of biodiversity and to the protection of the communities concerned. [2017 Green Economy mit Fokus auf die Soziobiodiversität in Amazonien.pdf \(giz.de\)](#)

that the German forest development cooperation portfolio induces 1 to 3 employees per 1,000 ha of developed protected areas through the tourism development of protected forest areas (Unique 2019).

Another GIZ approach to the transformation to a green economy is the Green Economy Transformation Project (GET). Among other things, this project is working on a Green Jobs Dialogue with South Africa, which includes also aspects of conservation and sustainable use of biodiversity.

As part of its special initiative "A World without Hunger", the BMZ has established Green Innovation Centres in 15 partner countries. These aim to improve the regional supply of food through innovations in the agricultural and food sector, thereby increasing the income of smallholder farms and creating jobs. Several of them are dedicated to the introduction of agro-ecological farming systems and support nature-positive approaches. In addition, there are activities specifically approved for green recovery, with which ongoing development measures have been scaled up.

In response to the pandemic, the BMU has compiled an additional Corona Response Package as part of the International Climate Initiative (IKI) with the aim of maintaining and strengthening existing social structures and supporting the rapid transformation to a climate- and biodiversity-friendly economy (IKI, 2020). As part of this package, selected projects and initiatives already underway will receive an additional mandate. For the additional mandate, the package has three focal points: Emergency measures for nature reserves and biodiversity hotspots, support for a green economic recovery and pandemic prevention.

All these projects show how GIZ is currently working on the topic of biodiversity and employment at different levels: at the local and global level to establish the topic of biodiversity and employment internationally. Especially the number of recently started projects shows that the topic has gained additional relevance also within GIZ and will soon lead to additional practical implementation experiences in the field.

Recommendations for a stronger consideration of employment in the context of biodiversity-relevant green recovery measures

In view of the climate and biodiversity crisis, green recovery is a highly appropriate approach to overcome the economic consequences of the pandemic and thus to maintain or sustainably revive economic performance without endangering global biodiversity. After all, without the protection and sustainable use of biodiversity, a strong sustainable economy is not possible in the long term. For green recovery measures, this means that besides the creation of environmentally friendly and CO₂-neutral jobs, biodiversity should also be given greater consideration.

It must be ensured that the economic upswing post COVID-19 does not endanger biodiversity but protects and promotes it. The consequences resulting from a biodiversity-damaging economic upswing might initially be positive, but they lead to negative economic consequences in the medium to long term, as disregard for biodiversity conservation increases the risk of future pandemics or even economic crises as a result of ecosystem collapse (OECD, 2020a). The weakening of environmental and climate policy requirements (e.g. environmental licensing procedures) and international agreements (e.g. Paris Climate Agreement, Agenda 2030, Biodiversity Convention) as well as the disregard of fundamental labour and social standards in the planning and implementation of green recovery measures must be avoided at all costs, but they must rather be extended to be in line with international standards.

Investing in biodiversity means investing in a sustainable future, in a common good as important as education or health (GIZ, 2021). Economic development depends on biodiversity and the ecosystem services it provides, so sustainable production and consumption patterns must become the norm.

In this regard, it is necessary to reduce brown subsidies, because these support industries that are based on the abuse and overexploitation of biodiversity and have environmentally damaging effects. In order to not endanger biodiversity during the economic upswing, but to actively protect it, new types of investments are necessary. **Increased investment in the conservation, sustainable use and restoration of biodiversity needs to be ensured, and funding for biodiversity needs to be promoted.**

To this end, the **financial sector must engage in biodiversity financing**. The financial sector has already begun to recognise the need for biodiversity conservation (GIZ, 2021). To support this trend and bring sustainable finance to the table, the importance of biodiversity needs to be translated into financial language by qualifying the monetary risks of biodiversity loss and quantifying the possibility of economic gains through biodiversity valuation.

It is important that biodiversity enhancing measures are also accompanied by efforts to reduce biodiversity damaging activities and that risk management is expanded to include these aspects accordingly. Billions of dollars still flow directly or through subsidies or other incentives into projects and sectors that harm biodiversity (CBD Alliance, 2020). **There is a need to reduce biodiversity-damaging investments and shift them to biodiversity-enhancing ones.** As the compiled figures in the previous sections show, investments in biodiversity also pay off in terms of employment. Investing in biodiversity conservation creates immediate employment opportunities while protecting the natural capital that underpins the economy, human health and well-being (OECD, 2020a). In addition, such investments can not only create immediate jobs, but also have a short- and long-term economic multiplier effect.

Broadly speaking, appropriate governance structures and leadership are needed for the integration of biodiversity. For this, subsidies, employment programmes and infrastructure need to be rethought in favour of nature (GIZ, 2021). Voluntary commitments by financial actors and companies are not enough. **At the political level, the creation of rules through regulation and the creation of incentives for biodiversity-friendly production systems are necessary.**

In this respect, **there are areas that have particularly positive employment effects and in which investments should be prioritised.** In their study, the ILO and WWF found the following areas, among others, to be effective and to have immediate employment and income opportunities (WWF & ILO, 2020):

- Restoration of terrestrial and coastal ecosystems, agroforestry, urban forestry, community-based ecosystem management, integrated mangrove and fisheries farming systems, community-based and precautionary ecosystem-based fisheries management and the design of marine protected areas for improved long-term productivity and ecosystem-based adaptation.
- Existing areas of sustainable natural resource use, such as community-based forestry and ecotourism, especially in critical vulnerable ecosystems.
- Large-scale ecosystem restoration projects that increase the sustainability and climate resilience of forestry and agriculture while creating employment opportunities for farm workers and local low-income communities.

Furthermore, the development of new nature-positive products, processes and methods is essential to enable the creation of new businesses and the growth of existing ones, thus creating additional jobs, increasing productivity and making progress towards green recovery (OECD, 2020b). Innovative business/marketing models and biodiversity-friendly product and process innovations are needed to

promote the economy and make it sustainable and biodiversity-friendly in the long term. **Small and medium-sized enterprises have a significant potential to create jobs and contribute to economic growth, especially at the local and regional level. Therefore, innovations must be promoted especially there** to enable new green business opportunities for their growth. In addition, their business models need to be made greener and thus investments need to be made in **biodiversity-friendly corporate supply chains**.

In general, **projects working on biodiversity should focus more clearly on the link between biodiversity and employment**. This means that new projects could specifically focus their activities on this relationship and already existing projects should take it more into account. By respecting this relationship within the project activities, the project has the opportunity of tackling those two areas at the same time.

This paper aims to show that post-pandemic green recovery can combine strengthened labour markets and biodiversity conservation as well as its sustainable use. Recovery is not a contradiction to biodiversity conservation and management. On the contrary, biodiversity conservation and a successful recovery are mutually dependent. The consideration of biodiversity in the recovery process will positively influence the strengthening of the labour market, since healthy ecosystems and biodiversity are important assets for a sustainable and resilient economy. This also needs to be recognized within global decision-making processes. Thus, **the Post-2020 Global Biodiversity Framework should consider the linkages between biodiversity and employment when defining concrete activities**.

The extent to which the conservation of biodiversity has direct positive employment effects, as shown here, can and must be defined more concretely in research and international debate. In general, unfortunately, direct employment effects of biodiversity are often not recorded in development measures, which is mainly due to the fact that there is no universally valid definition of biodiversity-friendly jobs that can be used to quantify them. Accordingly, it is necessary to **formulate an official definition of biodiversity-friendly jobs**. This may need to be adapted to the individual circumstances and conditions of each country. Furthermore, the indirect effects of biodiversity conservation and protection have not yet been sufficiently researched, and it is also difficult to understand which co-benefits result from it. **It is important to find ways to capture the indirect employment effects**, as these are potentially high and would enrich the international discussion on the promotion of biodiversity conservation and its employment effects. More generally, there is a need to **invest in research to monitor, quantify and assess the multiple co-benefits of biodiversity-friendly investments**, especially in terms of their impact on socio-economic benefits such as job creation (WWF & ILO, 2020). Ultimately, to avoid pandemics in the future, nature needs more space. **The "do no harm" principle should therefore be applied in economic stimulus programmes, and measurable targets and monitoring systems are needed for this** (GIZ, 2021).

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