



BIODIVERSITY PROVIDES JOBS

South Africa's biodiversity is the basis for employment across a range of sectors

South Africa is one of the most biodiverse countries in the world, but also suffers very high levels of unemployment. The country's exceptional biodiversity is a national asset that supports many jobs across a range of sectors and business activities that either protect biodiversity or make use of biodiversity. In the first attempt to assess the numbers of biodiversity-related jobs in the country, more than 418 000 jobs were counted, an amount comparable to the mining industry. Every one job involved in protecting biodiversity makes possible five jobs in economic sectors that use biodiversity. Biodiversity-related jobs have good growth potential and could be sustainable over the very long-term. Since many important biodiversity areas are located outside of cities, biodiversity-related jobs have the potential to support rural development.



environmental affairs

Department:
Environmental Affairs
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DEVELOPMENT POLICY
RESEARCH UNIT



Biodiversity and employment

South Africa is one of the most biologically diverse countries in the world. Its many ecosystems and species benefit human wellbeing and economic prosperity, by providing food, medicine, clean water, healthy soils, climate regulation, cultural spaces and more. Ecological infrastructure refers to naturally functioning ecosystems that generate and deliver services to people. It is the nature-based equivalent of built infrastructure, and is just as important for supporting socio-economic development. A global study found that as much as 35% of the workforce in developing countries is dependent on biodiversity.

South Africa is experiencing an employment crisis, with unemployment rising above 27% in 2018. Over the last 15 years there have been increasing job losses in labour-intensive industries, such as agriculture and manufacturing. Lack of jobs is a severe societal problem as it perpetuates poverty and inequality, causes hopelessness among the youth and can heighten other social challenges. For this reason, tackling unemployment is a major government priority and is one of the main focus areas of the National Development Plan.

What is biodiversity-related employment?

A definition of the 'biodiversity economy' was used to set the scope for assessing the number of jobs related to biodiversity. The World Wide Fund for Nature (WWF) developed a definition of the biodiversity economy that was then adapted by the Department of Environmental Affairs as part of South Africa's "Biodiversity Economy Strategy":

*"The **biodiversity economy** encompasses businesses and other economic activities that either **directly depend on biodiversity** for their core business or that **contribute to conservation** of biodiversity through their activities."*

Given this definition, biodiversity-related jobs can be separated into two broad categories: those that contribute to conserving biodiversity and those that utilise biodiversity. Generally speaking, conserving biodiversity is the role of government agencies and non-governmental organisations, while use of biodiversity often occurs within the private sector or on a subsistence basis.

| Jobs that contribute to conserving biodiversity | | | Jobs that utilise biodiversity | |
|---|---|--|--|---|
| Protecting biodiversity | Restoring ecological infrastructure | Research and professional services | Biodiversity-based tourism and recreation | Extractive use |
|  |  |  |  |  |
| Jobs involved in the conservation of biodiversity, such as management of protected areas. | Jobs aimed at restoring functioning of ecosystems to improve the provision of benefits to people, such as the removal of invasive alien plants or restoring wetlands. | Jobs that contribute to knowledge of biodiversity, forming the foundation for management and sustainable use, such as biodiversity-related work in universities and museums. | Jobs that depend on the enjoyment of biodiversity, such as ecotourism or adventure sports, but do not involve consumptive use of biodiversity. | Jobs that depend on direct extraction of biodiversity, such as hunting or fishing. |

How were biodiversity-related jobs estimated?

Three different types of data can be used to estimate biodiversity-related employment. Each of these data types has advantages and disadvantages, and so different data are more accurate for estimating the different categories of biodiversity-related employment.

Administrative data: This type of data is directly gathered from organisations involved in the biodiversity economy. Employment information was sourced from annual reports, websites or direct requests for information. This information is generally reliable as it is based on information from the organisations themselves. However, it is time consuming to collect and the list of organisations may not be comprehensive.

Data from Stats SA: The Quarterly Labour Force Survey (QLFS) is a labour market survey undertaken by Statistics South Africa (Stats SA), categorised by industry and by occupation. This information is regularly available, but the categories do not always align well with biodiversity-related activities. Stats SA also produces some sector-based reports which contain employment information, such as the Tourism Satellite Account.

Existing estimates: For several sub-sectors of the biodiversity economy there are existing employment estimates made by industry associations or researchers. These estimates are usually based on expert industry knowledge or surveys of businesses. It is necessary to conduct vetting of the source of such information, so that only reliable estimates are included. Existing estimates are only available for some sub-sectors. Another challenge is that they are often conducted once-off and can quickly become outdated.

| Category | Preferred data type | Data used |
|---|---------------------|--|
| Protecting biodiversity | Administrative data | A list of 96 organisations was developed, including government departments, public entities, conservation agencies and non-governmental organisations, for which administrative data on employment was sourced. |
| Restoring ecological infrastructure | | |
| Research and professional services | Data from Stats SA | The QLFS occupation codes from Stats SA align fairly well with professions related to natural science. These include occupations such as botanist, zoologist, biological scientist or natural science technician. |
| Biodiversity-based tourism and recreation | Data from Stats SA | A model was developed to extract biodiversity-related jobs in tourism from the Stats SA's Tourism Satellite Account. This model determined that 12.5% of all tourism jobs are directly related to biodiversity. |
| Extractive use | Existing estimates | Employment estimates were available for four sub-sectors: wildlife ranching, traditional medicine, fisheries and indigenous tea. In future it may be possible to include employment estimates for additional sub-sectors if these become available, such as indigenous horticulture, harvesting of natural fibres, grass-fed livestock, and pharmaceuticals based on indigenous species. |

What are the policy implications of biodiversity-related jobs?

Sustainability: Biodiversity-related employment is based on renewable resources that, if appropriately managed, can provide the basis for ongoing economic activity in the very long term.

Growth potential: Several sub-sectors of the biodiversity economy, such as tourism and game ranching, are growing rapidly and have the potential for further job creation. The increasing policy recognition of the role of ecological infrastructure in food security, water security and disaster risk reduction mean that there could be expanded employment in the restoration of biodiversity.

Rural development: Jobs in many of the biodiversity-related employment categories are likely to be located outside of major urban centres, so have the potential to support rural development.

Labour absorption: Many of the sub-sectors of biodiversity-related employment are labour-intensive, with a substantial proportion of low-skilled jobs that can contribute to labour absorption.

Other benefits: Jobs involved in conserving and managing biodiversity are also an investment in an important resource that provides many other services and benefits to society, such as food security, water security and climate resilience. Healthy ecosystems are also the foundation for many other economic sectors.

? How many biodiversity-related jobs are there?



For each job dedicated to protecting biodiversity... **1:5** ... there are 5 jobs that depend directly on using biodiversity.

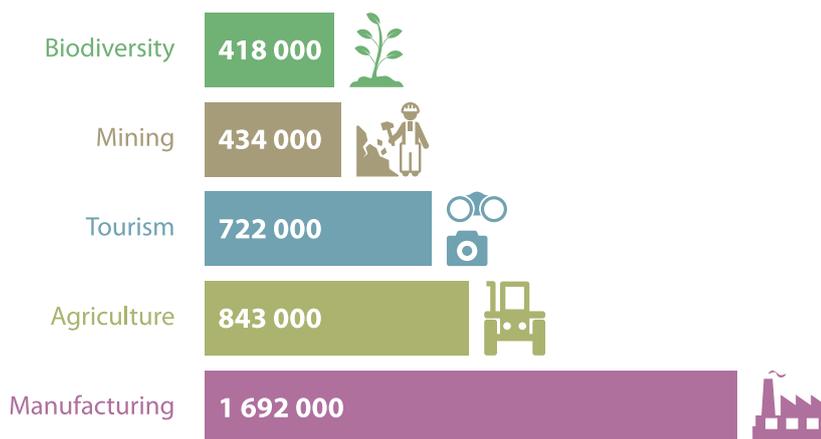


Only 1%

of government spending goes to biodiversity. But this expenditure, with contributions from NGOs and the private sector, makes substantial biodiversity-related employment possible.



? How do biodiversity-related jobs compare to other sectors?



For more information: Driver, A., Mukhadi, F. & Botts, E.A. 2019. An initial assessment of biodiversity-related employment in South Africa. Developed by the South African National Biodiversity Institute (SANBI) in collaboration with the Development Policy Research Unit. Working Paper 201902. DPRU, University of Cape Town. (<http://www.dpru.uct.ac.za/wp-201902-initial-assessment-biodiversity-related-employment-south-africa>)

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