



South Africa

1 Which bioeconomy-related policy strategies exist?

The government published the “South Africa Bio-Economy Strategy” (2013) to foster the transition towards a knowledge-based bioeconomy. Based on the experiences of two former initiatives, i.e. the “National Biotechnology Strategy” (2001) and

the “Ten-Year Innovation Plan” (2008), the new strategy seeks to guide biosciences research and innovation investments, as well as decision-making within a high-level framework.

2 Is the term “bioeconomy” or “biobased economy” used in the strategy documents?

Yes No

X

The South African bioeconomy definition refers to “activities that make use of bioinnovations, based on biological sources, materials and processes to generate sustainable economic, social and environmental development”⁸.

⁸ Republic of South Africa. DST, 2013, p.6.

3 Who is the author of the strategies?

South Africa’s bioeconomy strategy was published by the Department of Science and Technology (DST) in 2013. Although the DST plays a crucial role in leading the implementation of the strategy, the policy was defined in an inter-agency effort. The Departments of Trade and Industry, Health, Agriculture, Forestry and Fisheries, and Environmental

Affairs are involved by coordinating their research, development and innovation activities. The strategy also aims to involve relevant non-governmental stakeholders, such as industry, community-based organizations, not-for-profit companies, academia and science councils.

4 What are the key goals of the strategies?

Bioeconomy should become an important driver of the South African economy by 2030 in terms of share and growth contribution to gross domestic product (GDP).

The new strategy is not restricted to fostering the biotechnology sector but seeks to develop a comprehensive bioeconomy, which involves several cross-sectional technologies and knowledge areas. Information and communication technology (ICT), nanomaterial research and manufacture, bioentrepreneurship, social sciences as well as intellectual property management are specifically mentioned as important knowledge areas.

The South African bioeconomy strategy integrates both a technology push and market-pull approach, in order to enhance the country's socio-economic development. It specifically aims at developing a greener economy, which also strengthens the country's competitiveness. The creation and growth of novel industries should provide more sustainable jobs and enhance food security. Further goals mentioned in the strategy document relate to the alignment of scientific research with national priorities and regulations, as well as the improved public understanding of bioeconomy-related technologies.

5 What are the priority areas of the strategies?

In order to achieve these overarching objectives, the strategy seeks to improve the bioeconomy innovation capacity in South Africa. Training and education for scientists, engineers and technicians along bioeconomy value-chains is considered of highest priority to create a sufficient knowledge base. Furthermore, it is considered necessary to develop "technopreneurs" who convert diverse technologies into innovative biobased products. Education and training therefore should become integrated into research and innovation policies.

With regard to policy support for economic sectors, the Department of Science and Technology has defined agriculture, health and biobased industry as priority. In order to implement the strategy, the document refers to various funding programs, e.g. the Department of Higher Education and Training funding for academic institutions, as well as science-based innovation and patent support. Furthermore, the bioeconomy strategy defines that a Bio-Innovation Venture Capital Fund should be established as a mechanism to attract public and private capital. The fund would require about R2 billion (about EUR 150 million), of which R300 million to R400 million (15 to 20 percent) would be provided by the government over a period of three years.

Representing about 12 percent of GDP, the agro-industrial sector is considered as having the highest economic impact among the three bioeconomy-related sectors. In the agricultural sector, the bioeconomy strategy foresees to sustainably intensify agricultural production and processing. Biotechnology, including responsible genetic engineering, should generally help to improve the heat-resistance and drought-tolerance of crops and addressing the challenges of climate change, diminishing water resources and grazing land, as well as halting the loss of biodiversity. Optimizing energy crops is also considered important in order to foster the development of the biofuel industry. R&D support for agricultural biosciences and technologies is an integral part of the strategy. Furthermore, it is intended to strengthen autonomy in the development of animal vaccines and indigenous crops (such as fortified sorghum, rooibos and honey bush). The strategy also seeks to better capitalize on the country's biodiversity and capture niche consumer markets for natural products.

In the health sector, the strategy seeks to better respond to key challenges, such as child mortality, HIV and malaria infections. The development of South Africa's national system of health innovation includes three key interventions. Discovery and

bioprospecting play a major role in developing new drugs, vaccines, diagnostics, and medical devices (especially in TBC and HIV). This includes also exploring opportunities in indigenous knowledge systems. The largely informal market for natural and plant medicines should be developed. The strategy aims to replace up to 25 percent of current pharmaceutical ingredient imports within a decade of implementation. This requires capacity building in process engineering and manufacturing.

The strategy further focuses on support for research, development and innovation in biobased chemicals and industrial biotechnology. Improving the local capacity in industrial biotechnology, such as the local manufacturing of enzymes and biofuels, should increase the take up of environmentally more sustainable inputs and practices by South Africa's heavy industries. Given significant problems of water-scarcity, especially in dry areas, the strategy further promotes improvements in wastewater treatment.

REFERENCES

Republic of South Africa. Department of Science and Technology. (2013). The Bio-Economy Strategy. Retrieved from: <http://www.pub.ac.za/files/Bioeconomy%20Strategy.pdf>