

A National Biotechnology Strategy for South Africa

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Executive Summary

South Africa has a solid history of engagement with traditional biotechnology. It has produced one of the largest brewing companies in the world; it makes wines that compare with the best; it has created many new animal breeds and plant varieties, some of which are used commercially all over the world and it has competitive industries in the manufacture of dairy products such as cheese, yoghurt and maas and baker's yeast and other fermentation products.

However, South Africa has failed to extract value from the more recent advances in biotechnology, particularly over the last 25 years with the emergence of genetics and genomic sciences (the so-called 3rd generation). Already many companies and public institutions elsewhere in the world are offering products and services that have arisen from the new biotechnology. In the USA alone, there are 300 public biotechnology companies with a market capitalisation of \$353 billion and an annual turnover of \$22 billion p.a. Moreover, the growth of biotechnology industries is not restricted to the developed countries. Developing countries such as Cuba, Brazil and China have been quick to identify the potential benefits of the technology and have established measures both to develop such industries and to extract value where possible and relevant.

The strategy outlined in this document is designed to make up for lost ground and to stimulate the growth of similar activities in South Africa. Biotechnology can make an important contribution to our national priorities, particularly in the area of human health (including HIV/AIDS, malaria and TB), food security and environmental sustainability. In the pursuit of these priorities, we are fortunate in that we can be guided by the experiences of other countries. For instance, we know that to achieve success a country requires a government agency to champion biotechnology, to build human resources proactively, and to develop scientific and technological capabilities. In addition, successful commercialisation of public sector-supported research and development (R&D) requires strong linkages between institutions within the National System of Innovation and a vibrant culture of innovation and entrepreneurship, assisted by incubators, supply-side measures and other supporting programmes and institutions.

Some of these components of a successful biotechnology sector are already in place in South Africa. However, a number of gaps are identified in this document and certain interventions are suggested to address these problems. The recommendations are divided into two categories, namely new institutional arrangements and specific actions for Government departments. In the case of the former, the Panel has recommended the establishment of a Biotechnology Advisory Committee (BAC), under the auspices of the Cabinet's Economics Cluster, the responsibilities of which will include the implementation of this strategy, co-ordination of biotechnology R&D and alignment with national priorities.

A key component of the strategy is the creation of several regional innovation centres (RICs) to act as nuclei for the development of biotechnology platforms, from which a range of businesses offering new products and services can be developed. The RICs will be required to work in close collaboration with academia and business in order for the centres to become active nodes for the growth of the biotechnology sector. Using both existing funds and new allocations specifically designated for biotechnology, and employing well-trained scientists, engineers and technologists in a multi-disciplinary environment, the centres will stimulate the creation of new intellectual property (IP). The successful protection and exploitation of this IP will be made possible by a new venture capital fund and an array of new and existing support structures. It is emphasised that the main focus of the RICs will be the creation of economic growth and employment through innovation.

A number of recommendations are made to Government, including support, both financial and at a policy level, for the formation of the BAC, which will be responsible for the implementation of this strategy. The proposed actions will require an annual budget of R182 million (USD 22 million), of which R135 million (USD 16 million) is required for the funding of the RICs and the associated R&D programmes, R20 million (USD 2.4 million) for the venture capital fund, R25 million (USD 3 million) for additional funding to strengthen the link between academia and industry and R2 million (USD 0.24 million) to run the BAC, plus a once-off establishment cost of R45 million (USD 5.5 million) for the RICs. This document also urges the Government to complete a number of important revisions to the legislative and regulatory environment, including the extension of the activities of the Bio-ethics Committee and the revision of the Patents Act, in order for the strategy to be successful.

Finally, careful attention must be given to the development of the appropriate human resources and to the public understanding of biotechnology. It is Government's responsibility to ensure that new biotechnology products or services do not threaten the environment or human life, or undermine ethics and human rights. Several actions to meet these responsibilities are proposed in this document.

The full text of the National Biotechnology Strategy can be accessed by visiting the internet homepages : www.africabio.com and www.dacst.gov.za.