

Biotechnology

BEAKER GETS A STIR

But private sector warns of false hopes and a long road ahead

Government is working to stimulate the growth of SA's nascent biotechnology industry, which it hopes will contribute to the growth of the economy and help reduce poverty.

Biotech can do this by improving food security and human and animal health, protecting the environment and creating more efficient industrial processes.

The departments of science & technology and trade & industry are working on a number of initiatives on the industry. These are mainly in three areas: the creation of regional biotech hubs where projects will be nurtured; reduction of financial risks for biotech entrepreneurs; and the development of incentives to attract more private-sector funding for biotech ventures.

Private-sector players are unimpressed by government efforts to stimulate the biotech industry, however. They say government support is too small and is thinly spread.

Government defines biotechnology as all techniques used to modify living organisms to produce new intellectual property, tools, goods and services.

Globally, biotech is big business. Despite the knock taken by biotech stocks last year, industry revenues rose 15% to more than US\$41bn and research & development investment was up 34% to more than \$22bn.

Locally, the industry is embryonic. Most SA companies involved are engaged in so-called first-generation biotechnology, such as brewing and minerals bioleaching.

The industry has not kept pace with advances in biotechnology, particularly the emergence of genetics and genomics, so-called third-generation biotech.

Third-generation biotech is behind the two main strands of products in this field: genetically modified foods and pharmaceuticals.

The SA industry is picking up speed, however. An audit by research group



Ben Durham Brics and mortar of biotech

Idea to Industry on SA's industry found that 170 companies were engaged in second- and third-generation biotech activities, of which only 20-30 had biotech as their core focus (less than a tenth of the number in the US). Two years ago, there were only 46 local companies involved in biotech.

Yet there are daunting obstacles in the field. These include lack of skills and poor co-operation between academics and industry.

Bioventures manager Heather Sherwin says she has encountered a lot of scepticism. The R80m fund is jointly owned by financial services company Gensec and Real Africa, an empowerment firm.

"Biotech analysts say developing countries can't develop a biotech industry or hope to compete against Europe and the US. I disagree. We can compete, but in niche areas," she says.

Good examples are young biotech companies Disa Vascular and Shimoda Biotech (see next page).

But success stories are few and far between. Now government has undertaken to stimulate the creation of an entire industry.

Science & technology chief operating

officer Adi Paterson says the R400m the department has committed to biotech over the next three years is a substantial investment relative to the size of the local industry and an eightfold increase on its previous annual expenditure.

Idea to Industry estimates that there are 1 120 biotech research projects under way in SA (compared with about 500 in 1998), and several centres are performing cutting-edge science.

Few of these projects will translate into commercially viable products and services. Scientists lack the skills to turn R&D output into products and services and their links with industry are weak.

Private investors, on the other hand, are turned off by the small size of the SA market, as well as the high risk and cost of funding biotech research.

Government's biotech strategy aims to help move R&D from the laboratory to the marketplace.

The strategy is the creation of three biotech regional innovation centres (Brics) to nurture biotech projects into profitable businesses.

Each Bric – BioPAD in Gauteng, Cape Biotech in Cape Town and Durban's EcoBio – has been given R32m to invest in year one, R39m in year two and R52m in year three.

All have short-listed promising projects in line with each region's competitive advantage: human health and industrial bioprocessing in the coastal areas, and animal biotechnology and industrial bioprocessing in Gauteng.

"The Brics must build up the technical and human expertise – and work with industry – to take projects from the ideas stage to commercial viability," says the science & technology department's biotech manager, Ben Durham.

The department is working with the trade & industry department (DTI) to develop financial instruments that reduce the risk for entrepreneurs. Government hopes such instruments will

increase the amount of private-sector funding for biotech. Bioventures is SA's only private-sector biotech venture capital fund of substance.

Trade & industry will launch a venture capital fund to finance the commercialisation of government-funded research.

In addition, science & technology is creating a fund that will cover 50% of the cost of registering a patent. The department is also working with treasury on tax incentives to encourage biotech R&D.

Despite these initiatives, private-sector biotech players remain sceptical of government efforts.

"The SA government doesn't have the resources of a single US pharmaceutical company for R&D, so we need to spend wisely and in a focused manner," cautions Sherwin.

US public-sector health and medical

R&D amounts to R211/capita compared to R3/capita in SA.

Many in the industry accuse the Brics of perpetuating government's bias towards academic research. Brics are also accused of not using experienced business people to make hubs work.

Paterson disagrees. He says Brics are staffed by people with commercial backgrounds and they have worked with the private sector to develop their investment strategies.

Projects short-listed for Bric funding include the development of vaccines against heartwater disease and contagious bovine pleuropneumonia (which affect cattle); the creation of tools to identify the genetic basis for cardiovascular disease; the development of drugs from indigenous plants; and the identification of enzymes to improve the extraction efficiency of rooibos tea.

Though SA has a core of scientific

expertise in genetically modified foods, the science & technology department has hived plant biotech off into a separate innovation centre. This will prevent the controversy surrounding genetically modified organisms from spilling over to other biotech projects.

Sherwin calls for cautious optimism and realism, warning that biotech will not create jobs and wealth overnight.

"We can develop a biotech industry, but it's going to be a hard road. The danger is false expectations. Once these aren't met, investors, including government, give up on the industry and it then fails to reach its full potential."

University of Cape Town microbiology professor Ed Rybicki agrees.

"I worry about the department's long-term commitment. If it wants to develop a biotech industry it has to commit to 10 years or longer because that's how long it takes to deliver."

Claire Bissek