

**PUBLIC UNDERSTANDING OF BIOTECHNOLOGY (PUB)
BUSINESS PLAN**

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**SUBMITTED BY THE FOUNDATION FOR EDUCATION, SCIENCE AND
TECHNOLOGY TO THE
DEPARTMENT OF SCIENCE AND TECHNOLOGY**

Executive Summary

This business plan outlines activities relating to the Public Understanding of Biotechnology (PUB) which is an initiative of the National Department of Science and Technology (DST). This is one of a number of parallel governmental initiatives, resulting from the publication of the National Biotechnology Strategy in 2001 and the high level of commitment to investigating the potential of the technology in South Africa. With cabinet endorsement, the strategy demonstrates the obligation of the South African government to using science and technology, and specifically biotechnology, as a major tool to facilitate economic growth and to improve the quality of life for the population.

The Foundation for Education, Science and Technology (FEST) has been identified as the implementing body of the PUB programme. This business plan is a first step, outlining the activities proposed for the three-year period within the constraints of the financial resources from DST amounting to R5 million per year.

The overall aim of the PUB programme is to promote a clear, balanced understanding of the potential of biotechnology and to ensure broad public awareness, dialogue and debate about biotechnology and its current and potential future applications. The PUB programme will cover biotechnology in general, including applications in the health/medical, agriculture and industrial sectors as well as Genetic Modification (GM) and related issues. Cloning is also a very controversial subject within biotechnology that is currently under the global spotlight and will also be covered by this programme. Aiming to investigate modern biotechnology and to harness the benefits while ensuring necessary caution, the PUB programme will not be prescriptive but rather stimulate dialogue through education and awareness raising.

The strategies and tactics identified include clarifying the roles of the partners involved to ensure a consistent message and coordinated effort. A series of audits will be undertaken initially to assess current communication methods/networks, information products, target audiences, and media coverage. Key audiences will be consulted to assess their information needs and agreed messages will be pre-tested using focus groups. Once gaps and further feedback are identified, an optimum strategy of communication products will be developed and implemented, using a variety of innovative methods. Capacity will also be increased in communicating biotechnology and related issues. School curricula and educators will be targeted significantly, aiming at creating a sense of national pride and excitement about the technology, to encourage careers in biotechnology and related areas.

It is hoped that the new organizational structure under the National Research Foundation (NRF) will further strengthen existing capabilities and provide new opportunities for input and expertise. Building expertise and capacity in communicating this complex topic is a major thrust of this programme, as well as training scientists to better communicate the basic science and the relating social, ethical and economic issues. It is anticipated that full implementation of the PUB programme will be underway by April 2003, following the recruitment of additional personnel and completion of the

consultation process. This immediate implementation is essential to counteract the current confusion concerning this technology - balanced information is needed in all sectors and at all levels of society to ensure more informed decision making.

The PUB programme will not be an easy task, especially in light of the current polarization of views regarding modern biotechnology, often sensationalized by the media. Participation and commitment of all stakeholders is essential for implementing a credible and effective communication campaign. The key will be to package an exciting, balanced message of biotechnology and use innovative avenues to capture the imagination. With significant biotechnology awareness activities already underway by a number of partners, the aim will be to identify gaps and complement existing activities. This coordination will aim at minimizing the duplication of effort and optimizing the use of resources.

At FEST, we are excited to be the implementing agency of the programme and will strive for excellence in this endeavour. We understand that it will be a team effort, bringing together a cross section of society and it will be the collaboration and relationships that will enable the success of the programme, as well as the support of DST and NDA.

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Situation Analysis

Biotechnology is specified by the South African government as one of the innovation platforms of the future, critical to promoting economic and social development. With innovation as one of the three pillars upon which the new R&D strategy of South Africa rests, the government is committed to establishing and funding this technology.

Another related priority area is greater human capacity in the area of science and technology in South Africa, increasing the number of experts in specific areas, as well as the number of women and people from previously disadvantaged communities. Biotechnology is a technology of the future and the current ageing national capacity and expertise must be substantially built up to participate fully in this challenge. Science communicators are needed to “translate” the relevant science into understandable language on issues that people want to hear.

Biotechnology is a cross-cutting issue relevant for a myriad of applications, especially in response to challenges being faced by countries of southern Africa, such as the AIDS epidemic and the current food crisis. The National Biotechnology Strategy, published in June 2001 following wide public consultation, clearly demonstrates the commitment of the government to the technology. With the establishment of Biotechnology Regional Innovation Centres (BRICS) around the country, efforts are already underway to tailor research to meeting national needs and to filling the gap of entrepreneurialism often lacking, and to transform data into a commercial product, process or service.

In this context, it is essential that the populous understand and debate this technology being promoted and funded by the government. Both the economic and social potential benefits of the technology must be understood as well as the simultaneous safety measures. The lack of understanding about this technology is currently providing a vacuum for unbalanced and often, non-factual information to be disseminated, which has led to the confusion of the general public. In order to attain a common vision, efforts must be made now to ensure credible, factual, balanced and relevant information is disseminated and that the public is engaged in a dialogue, rather than receiving a prescribed view. Such is the strength of the radical opposition to the technology (especially GM), that unless a coordinated stand on all the facets of the technology is taken now, marginal groups may succeed in preventing the development and implementation of the technology in South Africa, as has occurred in other countries. A key message must be sent about the practical applications of biotechnology in different areas, including medical/health, agriculture and industry – and how this technology can positively impact the lives of South Africans.

The success of the PUB programme will depend upon maximum public participation – finding out what audiences want to know, as well as providing information on what they need to know to make educated choices. This dialogue should result in informed audiences, able to make informed choices at all levels. Results of the FEST GMO survey undertaken in October 2001 involving 1000 South Africans aged 16-60 in major metropolitan areas indicated that the majority of respondents support biotechnology as a means to improve foodstuffs and achieve certain benefits. Just over 40% were unsure

of the technology – indicating a significant need for awareness-raising and education activities.

With its unique history, FEST is the ideal organization for implementing this programme. Established in 1950, FEST has adapted and changed significantly over the years, but the original aim of promoting the public understanding of science remains. The two educational magazines, Archimedes and Easy Science, are a legacy of the continued public engagement and credibility as a source of information. It is anticipated that the incorporation of FEST as part of the NRF will further strengthen the capabilities and capacity in this area, and provide more direct access to additional expertise, networks and innovative measures.

In a global context, the current circumstances all point to the need for an immediate PUB programme. With the complex trade issues facing the development of the technology in Europe, and extensive public opposition to the GMOs, there is a need for a very transparent communication process to prevent similar happenings in South Africa. Following the developments during the World Summit on Sustainable Development (WSSD) and the issue of GM food aid being rejected by several Southern African countries, the controversy is coming even closer to home. Within South Africa, biotechnology and related issues are also under the spotlight. FEST recognizes that an integrated effort, combining forces and expertise is needed – tapping into the strengths of other organizations/stakeholders and ensuring a consistent message from a diverse group of organizations and groups with varying agendas.

As with any new technology, there are risks. Yet we cannot take the risk of not investigating the potential of this technology which has applications in so many areas. We have a responsibility to de-mystify this technology and the controversy surrounding it as well as promoting it, in line with the government commitment while ensuring necessary caution.

Objectives and Outcomes

The overall objective of the PUB programme is to promote a clear, balanced understanding of the potential of biotechnology and to ensure broad public awareness, dialogue and debate on its current and potential applications. Each stakeholder may have a smaller objective contributing to this overall aim – i.e. understanding of a particular aspect of modern biotechnology.

An understanding of the national regulatory system and approval process must also be communicated. Before these safety mechanisms can be trusted, they must first be explained and understood.

A mistake is often made in telling people “*what you want them to know*”. More often than not, people do not want to understand the science itself, but the related issues (social, ethical, legal and moral) that impact their lives. For each key audience we must first find out what they want to know – what their concerns and needs are - and respond, *before* telling them what we (the stakeholders), want them to know.

Involvement objectives:

- To build and maintain the credibility of the PUB programme partners in the minds of both the partners and key audiences;
- To coordinate actions so communication on biotechnology and related issues is credible, consistent and effective;
- Increase dialogue with partners/key audiences; and
- To involve partners/key audiences as early as possible in resolving an issue.

Dialogue objectives:

- To find out the perceptions, concerns and communication needs of partners relating to biotechnology and related issues;
- To provide maximum opportunities for partner/audience input including, where appropriate, a chance to help make and carry out key decisions;
- To keep partners/audiences routinely informed throughout the process, so they do not feel abandoned and do not lose their sense of what is happening;
- To build a relationship with partners and key audiences (personal as well as bureaucratic), that incorporates both feelings and data; and
- To develop/agree on a common vision on the potential of biotechnology in SA.

Outcomes:

- Informed partners/key audiences and improved decision-making abilities;
- Empowered partners/key audiences who feel ownership of decisions made with regards the research information;
- Relationships based on mutual trust established with partners/key audiences;
- Partners/key audiences who are involved in research activities;
- Increased dialogue/positive conflict amongst partners/key audiences;
- Better understanding of partners' /key audiences concerns/perceptions/needs; and
- A common and shared vision is established with regard to the potential of modern biotechnology applications in South Africa.

Management and Personnel

The skills required by the team implementing the PUB process are very diverse. High levels of expertise are required in the areas of communication and biotechnology, and an in depth knowledge of the issues related to biotechnology. Experience of the media is also essential as well as professional expertise in the area of lobbying and advertising. Consumer research and analysis skills will also play a significant role in evaluating the base level of knowledge and opinion, and followup surveys will act as indicators of the progress made.

For such an extensive programme, additional human resources will be required for full implementation. A number of avenues will be followed for this recruitment, including tapping into other programmes such as media and communication fellows (DST) as well as biotechnology and communication graduates from local technikons and universities. In line with the R&D strategy of South Africa, women and people from previously disadvantaged communities will be especially encouraged.

In the cases where specific expertise is required, this will be investigated and sought through independent consultants.

The PUB programme is an integral part of the national biotechnology strategy and as such, cannot be undertaken independently of the other parallel initiatives underway (BRICs, Bioinformatics etc). Collaboration will be sought with the implementing agencies of the other initiatives to ensure optimal outputs and complementarity. The PUB programme will be implemented under the auspices of the Biotechnology Advisory Committee (NACI), responsible for coordinating R&D and aligning it with national priorities.

Business Development Strategy

A strategy is an overarching way of communicating with stakeholders to achieve objectives, and is broken down into a number of tactics. A number of strategies and tactics have been suggested to date through wide consultation – this is not yet complete and will be added to as the process continues. Once the strategies are all identified, a call will be made for the submission of proposals. The tactics suggested in this section are examples of possible tactics that could be implemented.

Integrated partnerships - Clarify the communication roles for the parties involved

Example of Tactics:

- Identify all partners who want to be involved in communicating biotechnology and related issues;
- Encourage communication partners to agree on communication roles and level of commitment;
- Negotiate communication responsibilities among partners/stakeholders;
- Use an awareness campaign (using organizational e-mail, newsletters, networks etc) to promote the involvement and responsibilities for the partners, both internally and externally – including:
 - Investigate the possibility of incorporating the SA Biotechnology initiative as part of the “Proudly South African” media campaign; and
 - Investigate costs of engaging a professional communications company to undertake the awareness campaign.

Networks and communication pathways

Example of Tactics:

- Identify relevant partner networks, any important gaps and level of access;
- Negotiate alliances with relevant organizations to either use their existing communication mechanisms or use new joint tactics for communication;
- Research and compile database of annual and one of globally significant events e.g. World AIDS day, World Consumer Day, DNA Anniversary etc and piggy back where possible; Examples include:
 - 23 April 2003 – possible launch/media event of the PUB programme, coinciding with the anniversary of publication of the Watson and Crick paper on DNA structure – the basis of biotechnology;
 - DNA art commissioned in UK – locate funds for exhibiting in South Africa;
- Assess communication networks to ensure there are clear lines of communication for all partners to easily provide unsolicited feedback on activities;
- Develop a channel for ensuring FEST receives relevant information and statistics on biotechnology and related issues from involved partners and stakeholders;
- Produce a strategy for optimum use and expansion of existing networks;
- Identify and use mechanisms for information exchange with targeted networks and promote these communication pathways for providing feedback;
- Identify key representatives of targeted networks, and develop a programme of consultation with these representatives and their constituencies;

- Identify local 'champions' who can promote and improve understanding and ownership of biotechnology issues (e.g. Former James Bond actor Roger Moore as UN Goodwill Ambassador – Zambia Food Crisis);
- Use a campaign to increase community involvement in sustainability issues, especially through farmer, women, traditional healer and consumer groups;
- Annually evaluate the implementation of the network strategy through auditing of communication pathways; and
- Evaluate the level of increased involvement in biotechnology issues from targeted networks through qualitative analysis (surveys). Impact assessment of the networks can be monitored through before and after surveys.

Information Coordination

Example of Tactics:

- Assess and research current levels of knowledge and opinion on biotechnology and related issues using qualitative measuring tools. This will include an in-depth survey of key audiences at different stages of the PUB programme: 1) initially, to locate baseline level of knowledge and opinion on biotechnology and related issues; 2) Half-way survey to evaluate if opinions of key audiences are changing and knowledge increasing; 3) Post PUB survey to evaluate impact of PUB programme;
- Coordinate an audit on information currently available on modern biotechnology and related issues and produce a database of available information, where it's from, what format it's in, and for whom the information is relevant;
- Produce directories of information, communication resources and key contacts, including a database of key spokespeople for media on biotechnology issues (credible, balanced, independent experts);
- Promote database and directories through identified communication pathways;
- Maintain and update database and directories as required;
- Evaluate the usefulness of database and directories through feedback sheets;
- Identify key journalists/newspapers/other media outlets and their particular focal areas relevant to modern biotechnology and related issues (who is writing what and why, including editorial agendas);
- Evaluate media coverage in terms of quality (Content analysis) and quantity (media monitoring);
- Investigate services and cost of engaging private advertising/media company for consultation;
- Pre-test mechanisms and products on agreed target audiences through focus groups to ensure they reflect relevant, agreed messages, and that they are clearly understood;
- Evaluate communication mechanisms and products in terms of message design and reception;
- Develop the overall "packaging", tone, and hook of the messages on biotechnology – make it an exciting, appealing message highlighting why it is important to the SA economy and the potential for improving quality of life;
- Ensure that the messages given out on biotechnology by the partners and stakeholders are consistent and complementary; and
- Use feedback from pre-testing to modify messages, methods and products.

Communication Products - Produce clear, concise, relevant, timely printed and electronic media and other products, (e.g. posters, books, reports, posters, displays, art, drama, audio and video)

Example of Tactics:

- Determine the usefulness of current communication products to partners and key audiences;
- For each communication product, determine its purpose, the target audience and the demand for such products;
- Identify important gaps in current communication products and produce a list of suggestions and their relevance for identified key audiences;
- Develop project-specific and issues-specific communication tactics to ensure the agreed messages are communicated;
- Organize public meetings exchanging updates and positions on key issues;
- Targeted information exchange workshops for each of the key audiences and field days demonstrating new processes or products;
- Undertaken one-one-one information sharing sessions with key individuals and evaluate these sessions through verbal or written participant assessment at the end of such sessions;
- Use creative mechanisms such as drama, art, radio, music etc. Examples include:
 - Purchasing airtime on community radios – short snippet adverts as well as longer educational programmes, etc.
 - National “road shows” targeting shopping malls and schools.
 - DNA Anniversary Art exhibition – possible launch of PUB programme.
 - Biotechnology script competition organized in association with local drama Depts. and schools.
 - Incorporation of biotechnology issues into scripts of TV Soapies such as *Isidingo* etc and edutainment programmes such as *Soul City*.
 - Point of purchase information sources i.e. in shops and markets (labelling?).
 - Use celebrities (soap and sport stars as “champions” of the technology).
 - Provide funding and technical assistance for consumer organizations to inform and educate members.
- Establishment of a “help desk” resource on biotechnology and related issues – providing key names and contact points for further information on specific issues;
- Development of a web page portal – to include regular updates on the PUB initiative and important information, including databases of partners, experts for media and links to other relevant websites etc. To be hosted and maintained by FEST using the existing server or a new domain to be created and maintained at an extra cost;
- Use inputs from partners and target audiences to determine:
 - (a) Demand for existing publications;
 - (b) Opportunities for new joint publications;
 - (c) Opportunities to insert materials into existing publications (e.g. newsletters);
 - (d) Mechanisms for optimal cost-effective distribution of publications (print or electronic);
 - (e) Make ‘hot links’ between relevant WWW pages.
- Pre-test publications or outlines and sample text of publications with relevant target groups;

- Produce communication materials on biotechnology and related issues using existing and new, innovative means of communication. This should include the agreed messages targeting the key (priority) audiences to produce the specified outcomes and objectives. This should include:
 - The development of basic “lay” print material on biotechnology, explaining the basic science and related issues, including the regulatory role of the government to ensure the approval procedures are understood. This can be used for most key audiences and although initially developed in print form, can be made available electronically and also used as a basis for other communication products e.g. convert into a script for dramas, used a basis for discussion on radio talk shows, used to develop pictorial materials for the illiterate. This should include relevant material for all the 11 official languages.
- Provide identified spokespeople with media skills training;
- Support various partner spokespeople to attend presentation skills training;
- Assess effectiveness of training through evaluation of workshops (through end of workshop feedback sheets), and subsequent evaluation of communication performance (through timed surveys of participants).
- Improve communication between journalists and scientists by round table discussions and other avenues, such as pilot project based on “EICOS” project – where the journalists work alongside the scientists for a week and vice versa;
- Hold regular short briefings for key media representatives on issues;
- Put out regular and relevant media releases that target relevant media making the most of “role model” scientists;
- Produce media releases of national significance targeting urban audiences;
- Piggy back other media launches and events to promote biotechnology e.g. DNA Anniversary, 23 April 2003 and SETs week May 2003;
- Use community TV/radio announcements/adverts to promote specific outcomes/activities; Hold interaction days between ministers and journalists on issues relating to biotechnology (similar to initiatives undertaken by SABC).

<i>Education - Target the education system’s curricula and resources</i>

Example of Tactics:

- Liaise with relevant teacher/subject associations and curriculum developers;
- Identify relevant community and undergraduate tertiary courses (Universities, Technikons etc), and liaise with course developers to ensure incorporation of biotechnology research knowledge, understanding and principles;
- Evaluate input into educational programmes at all levels by assessing the level of awareness and use of materials through questionnaires and focus groups;
- Target relevant resource materials to schools (learners and educators) in different languages and formats – explaining the science and the relevant issues (in addition to the lay persons guide – this could be specially adapted for use in schools). One output could be collaboration with the Delta Environment Education Centre and their publication “Enviro Teach”;
- Tap into teacher conferences and relevant independent bodies and networks (e.g. IEB biology groups etc) and distribute resources and raise awareness at annual meetings;

- Promote collaborations between science centres specifically in the area of biotechnology and develop hands on exhibits or identify existing (international) exhibits to be shared. Other events such as SETs week, Agricultural shows, roadshows (Hip2b²); and
- Use schools in rural areas as locations for training workshops – for learners of all ages – targeting a level of standard 6 education (grade 8) focusing on the basic science and related issues.

<p>Capacity Building:</p>

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| <ul style="list-style-type: none"> ▪ Identify young graduates in biotechnology/communication to participate in the PUB programme and increase their capacity in all areas; ▪ Launch/reinstate a media prize with high level backing to foster balanced and accurate reporting, with PUB category; ▪ Build capacity of science and consumer journalists through media fellowship schemes incorporating modules on biotechnology, targeting and recruiting from journalism schools. This should include all areas of media, with an emphasis on radio, especially for training initiatives (based on example of small-scale farming training programmes in Kenya); ▪ Have open days in research labs at Universities etc and encourage the students to talk about the issues – to improve communication skills; and ▪ Increase level of expertise at FEST at an institutional level on communicating biotechnology issues to the public. |
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