BST

(Biotechnology Society of Tanzania)

- Improving Lives Through Science -

Strategic Plan (2023 - 2028)

BST

2028

2023

PREFACE

It is my pleasure to present the first five years Strategic Plan (SP) 2023-2028 of the Biotechnology Society of Tanzania (BST). This Strategic Plan provides a momentous milestone in the history of the BST and lays the foundation to propel the Society to great heights in its endeavour to maintain and further strengthen its status as a leading advocator for safe, evidence-based and responsible application of biotechnology. The ultimate goal is to improve food security and public health while contributing to economic growth, poverty alleviation and sustainable environment protection.

The 2023-2028 SP is anchored in the 2030 National Agenda and guided by the BST's vision of *improvement of livelihoods of people through safe and responsible application of modern advances in biotechnology*; and the mission to *advocate for stakeholders' engagement in creating an enabling environment for sustainable utilization of all aspects of biotechnology in Tanzania.*

The BST was registered on 13 October 2016 and as we move into our seventh year of operation it is vital that we seek to be an institution that makes a difference. The BST's sustainability will continue to be derived from the value of our contribution to community. Evidence from the evaluation of BST performances shows that the Society has realised notable strides in the course of implementing its objectives. The major achievements include promotion of public understanding and awareness of biotechnology by organizing seminars and workshops for various stakeholders including members of parliament, regulators, legal experts and media; developing and disseminating communication and outreach materials with evidence-based information on modern biotechnology to various stakeholders; engaging and advising the government in all matters relating to the safe and sustainable application of biotechnology through roundtable meetings with high-level government leaders and officials. This SP builds on this positive momentum, and clearly sets the direction of the Society for the next five years.

The BST's Strategic Plan was developed through a consultative process led by the Society's Executive Committee and involved members that also constitute the Society's key stakeholders. I would therefore, like to extend my sincere gratitude to all those who have contributed to the preparation of this important document. As we embark on the implementation phase, it is my conviction that we shall all work together towards building a responsible Society for a better Tanzania. I invite and look forward to working with all our members, collaborators and partners to realize national food security and enhance the living standards of the people of Tanzania and beyond.

Prof. Peter Msolla
Chairperson of Biotechnology Society of Tanzania
September 2023

TABLE OF CONTENTS

List of Acronyms

AATF	African Agricultural Technology Foundation
AIRF	Agricultural Innovation Research Foundation
ASDP	Agricultural Sector Development Plan
BioRAPP	Biotechnology Biosafety Rapid Assessment Policy Platform
BST	Biotechnology Society of Tanzania
CFT	Confined Field Trial
COSTECH	Tanzania Commission for Science and Technology
GE	Genetically Engineered
GM	Genetically Modified
GMOs	Genetically Modified Organisms
IHI	Ifakara Health Institute
ISAAA	International Service for the Acquisition of Agri-biotech Applications
MUHAS	Muhimbili University of Health and Allied Sciences
NIMR	National Institute for Medical Research
NM-AIST	Nelson Mandela African Institute of Science and Technology
OFAB	Open Forum for Agricultural Biotechnology in Africa
PBS	Program for Biosafety Systems
SUA	Sokoine University of Agriculture
SWOC	Strength Weakness Opportunities Challenges
TARI	Tanzania Agricultural Research Institute
TASTA	Tanzania Seed Traders Association
TPSF	Tanzania Private Sector Foundation

BIOTECHNOLOGY SOCIETY OF TANZANIA
(Improving Lives Through Science)

BST Strategic Plan 2023-2028

Executive Summary

This Strategic Plan (SP) 2023-2028 provides a roadmap for the Biotechnology Society of Tanzania (BST) in performing its goals of advocating for safe, evidence-based and responsible application of biotechnology to improve food security and public health while contributing to economic growth, poverty alleviation and sustainable environment protection.

Moreover, the Strategic Plan will enable BST to address challenges facing the country, such as low agricultural productivity, human and animal health challenges, effects of climate change; scanty industrialization and misinformation about Genetically Modified Organisms (GMOs).

Implementing this Strategic Plan efficiently and effectively will increase the chances of achieving the strategic objectives and fulfilling the BST mandate. The Strategic Plan (SP) directs the Society towards promoting competitive technologies for socio-economic and sustainable development. Implementation of the plan depends on the timeliness and availability of both human and financial resources. The SP has been developed transparently so that each stakeholder can identify area/s of interest and contribute or support as appropriate.

1. An Introduction to BST

The Biotechnology Society of Tanzania (BST) is a non-profit, non-governmental organization registered in Tanzania under the Non-Governmental Organizations Act of 2002 with registration number ooNGO/00008784 on 13 October 2016. The Society is dedicated to fostering awareness creation for promoting research and training for the sustainable application of biotechnology for socio-economic development in Tanzania.

The Society is the only non-government, non-profit, non-political and non-religious organization in Tanzania that is pro-science and dedicated to promoting the broader application of biotechnology in the country. As an independent organization, BST has the competitive advantage of having the freedom to operate and make decisions in the conduct of the Society.

The BST membership is open to scientists, academicians, extension agents, farmers, consumers, traders and manufacturers, policy and decision-makers, media, non-governmental organizations (NGOs) and community-based organizations (CBOs) interested or involved in fostering, developing and supporting the application of biotechnology tools and information in various sectors of the economy to enhance the living standards of the people of Tanzania.

1.1 BST Initiatives and Programs

The BST initiatives and programs include the following:

i. Developing and implementing a program for enhancing communication and exchange of biotechnological information among members, stakeholders and the general public.

ii. Organizing biotechnology capacity-building programs in collaboration with pertinent national and international bodies.

iii. Facilitating stakeholders' engagement in searching for an enabling policy and legal environment on biotechnology and biosafety in the country.

iv. Providing support for the commercialization and trade of products arising from biotechnology in collaboration with the national authorities.

v. Carrying out studies, research or any fact-finding mission to promote the application of biotechnology in the country.

vi. Promoting networking and open discussions and facilitating the exchange of ideas on biotechnology applications in the country.

1.2 Key Stakeholders and Target Beneficiaries of BST

Key stakeholders of BST include scientists, academicians, farmers, consumers, manufacturers, policy and decision makers, industry, media, non-governmental organizations (NGOs) and community-based organizations (CBOs) interested or involved in fostering, developing and supporting application of biotechnology tools and information in various sectors of the economy to enhance the living standards of the people of Tanzania. The stakeholders – including government entities -- are anticipated to be the beneficiaries of the Society and its programmes. Besides, membership to BST is open to these stakeholder categories.

2. Situation Analysis1

A situation analysis for the BST involved analysing the current state of biotechnology in the country, including areas of strength and weakness, as well as opportunities and challenges (Appendix 1). The analysis gave a clear picture of the status quo, which helped identify priority areas for developing this strategic plan. This analysis includes information on the following:

a. The current state of biotechnology research and development in Tanzania, including ongoing projects, major research areas, and notable achievements.
b. The state of biotechnology education and training in the country, including the availability of degree programs and training opportunities.
c. The state of the biotechnology industry in Tanzania, including the number and types of companies, the size of the market, and any significant challenges or opportunities facing the industry.

1 This is an assessment of the organization's internal and external environment, including a SWOC (Strengths, Weaknesses, Opportunities and Challenges) analysis and a description of the organization's current situation and challenges, including stakeholder mapping

d. The state of government policies and legislation related to biotechnology, including laws, regulations, and policies that support or hinder the development of the biotechnology sector in the country.
e. The state of international collaboration and partnerships in the field of biotechnology in Tanzania.
f. The state of public perception and awareness of biotechnology in Tanzania.
g. Additional information of relevance to the development of biotechnology in Tanzania.

3. Strategic Framework: Core Values, Vision, Mission, Goal and Objectives

The core values, vision, mission, goal and objectives of the Society are as follows:

Core values

The BST will operate based on the following core values:

- Integrity
- Innovation
- Excellence
- Partnership
- Creativity

Vision

Improvement of livelihoods of people through safe and responsible application of modern advances in biotechnology.

Mission

To advocate for stakeholders' engagement in creating an enabling environment for sustainable utilization of all aspects of biotechnology in Tanzania.

Goal

Advocate for safe, evidence-based and responsible application of biotechnology to improve food security, public health, economic growth, poverty alleviation and environment protection.

Objectives

The objectives of the Society are as follows:

i. To promote public awareness and facilitate capacity building programs on biotechnology and its prospects for socio-economic development.
ii. To engage and advise the Government in all matters relating to the safe and sustainable application of biotechnology in the country.
iii. To advocate for safe and responsible application of biotechnology to improve food security, public health, poverty alleviation and environment protection.
iv. To carry out studies, research or any fact-finding mission to promote the application of biotechnology in the country.

4. BST Themes: What major strategic themes will the Society pursue to achieve its goals?

4.1 Conducive policy environment

The BST will advocate for conducive policy environment that includes the following:

- Intensifying public education and advocacy to policymakers and government officials through:
  - virtual and physical round table discussions on achievements and progress to address challenges (nationally and beyond),
  - credible media outlets.
- By being more proactive in providing science- and evidence-based data and information on benefits and disadvantages of GMOs via
  - organizing monthly awareness-raising workshops through media,
  - seeing is believing visits within and outside the country,
  - conducting research activities that address local problems/challenges
- Mentoring young and mid-career researchers who will be able to hold government positions in the near future,
- Actively supporting businesses that use biotechnology across the sectors including and beyond the agricultural sector.

4.2 Members' satisfaction and delight

The BST will undertake members' satisfaction and delight strategies through the following:

- Promote networking and interactions among members.
- Be an agent for changing the welfare of biotechnologists in Tanzania.
- Be a leading educator, policy advisor and inspire biotechnological innovations and development in different sectors of the economy.
- Assume leadership in stimulating the development of biotech economy through:
  - provision of advice on areas for investments and the kind of investments required;
  - organizing public awareness workshops, conferences and seminars for different stakeholders;
- Establish a BST journal
- Advise the Government to establish a separate biotechnology department within the ministry responsible for science and technology.
- Advocate for the creation of job opportunities for biotechnologists
- Provide training opportunities to young graduates.

4.3 Service Quality Improvement

The BST will strive to improve the quality of its services by doing the following:

- Continuous improvement and transformational innovative changes in all BST undertakings.
- Branding and promotion of BST.
- Deploying existing trained and emerging biotechnologists in its efforts to educate different stakeholders on biotech potential applications in the health, agriculture and other sectors.

- Conducting regular monitoring and annual reviews and seeking members' views to identify what services should be improved and how.
- Conducting consultancies, training and research in collaboration with other reputable institutions worldwide.
- Providing training to its members so as to equip them with necessary skills.
- Serving as a centre of excellence and a resource centre for biotech information for its members and the public at large.
- Creating incubation hubs to stir innovation in biotechnology.

5. Governance and Operation of BST

5.1 Management & Governance Structure

This SP will be managed and governed by the instruments provided for in the Society Constitution, which are:

- The General Assembly (GA) – as the highest organ, the GA will receive and endorse the SP and its implementation as approved by the Board of Trustees.
- Board of Trustees – are responsible for the vision and mission guiding the SP and its implementation plan as presented by the Executive Committee.
- The Executive Committee – is responsible for the development of the SP and implementation plan.
- The Secretariat – implements the SP and develops annual implementation plans and budgets that ensure cost-effective delivery of the plan. The Executive Committee approves these plans and budgets.
- Technical Committees – responsible for supporting the Executive Committee and Secretariat on specific specialized matters.

In addition to the instruments outlined in the Constitution, the SP will be supported by:

- Regional/zonal representatives who will be part of the Executive Committee as ex-officio or voting representatives dependent on their election.
- A BST Students Chapter (BSTSC) in all learning institutions with a biotechnology program. These will be responsible for member recruitment and promotion of the SP interventions.

5.2 Resources for the SP implementation

Resources for implementing the SP will come from the following sources:

- Membership contributions
- Resource mobilisation through soliciting grants (competitive and non-competitive) and donations from commercial biotech companies, IT companies, government, development partners, etc.
- Contracted advisory services (e.g., in proposal writing, training workshops and seminars, providing advisory services to the general public, the youth or aspiring agribusinesses).

6. Implementation Plan

The implementation plan of the Strategic Plan involves strategies and activities the Society will implement to achieve its goals and objectives, including a detailed plan of action and budget. The

Biotechnology Society of Tanzania (BST) has a crucial role to play in promoting the development and application of biotechnology in Tanzania. By working to increase understanding and awareness of biotechnology, facilitating collaboration and networking, supporting human resources and infrastructure development, promoting the use of biotechnology for sustainable development, and advocating for the responsible and ethical use of biotechnology, the BST can make a significant contribution to addressing some of the most pressing challenges facing Tanzania today through the following undertakings:

i. Promote public understanding and awareness on biotechnology and its prospects for socio-economic development.
ii. Engage and advise the Government in all matters relating to the safe and sustainable application of biotechnology in the country.
iii. Advocate for safe and responsible application of biotechnology to improve food security, public health, poverty alleviation and environment protection.
iv. Facilitate collaboration and networking among scientists, researchers, and students working in the field of biotechnology.
v. Support the development of human resources and infrastructure for biotechnology research and development in Tanzania.

The BST Strategic Plan 2023–2028 will be implemented through undertaking specific activities as listed under relevant strategic objectives to meet stakeholders' expectations and achieve Society's goals. The following are the key challenges that will be addressed through this Strategic Plan (Table 1):

Table 1: Challenges facing the country and approaches or strategies for implementation

S/N	Challenges	Approaches	Outputs	BST Role
1.	Low agricultural and livestock productivity due to pests and diseases affecting crops and livestock	• Develop and adopt appropriate integrated pest and disease management strategies • Develop modern and innovative breeding techniques to enhance productivity of both crop and livestock	a. Pest-tolerant and disease-resistant varieties and breeds developed and disseminated. b. Appropriate pest and disease control packages developed and disseminated.	• Support research development and dissemination
2.	Climate change effects	• Develop and adopt climate-smart agriculture; i.e., agriculture that sustainably increases productivity, enhances resilience (adaptation), reduces/removes greenhouse gases (mitigation) where possible, and enhances achievement of national food security and development goals.	a. Improved research tools that fill the technical and knowledge gaps developed. b. Appropriate climate-smart technologies and products developed and disseminated.	• Information dissemination
3.	Limited availability of raw materials for industrialization	• Develop and deploy productivity enhancing strategies • Increase production area • Train farmers on improved agricultural practices.	a. Agricultural production increased b. Farmers trained on improved agricultural practices	• Facilitate training and awareness creation
4.	Health threats due to increase in communicable and non-communicable diseases such as malaria,	• Develop innovative and robust approaches to increase treatment and access to essential health products such as diagnostic tools,	a. Modern tools for diagnosis and treatment of chronic diseases developed	• Develop and disseminate appropriate health and nutritional

S/N	Challenges	Approaches	Outputs	BST Role
	cancer, TB, diabetes, malnutrition, cholera, HIV, etc	medicine and vaccines	b. Approaches and products to address malnutrition developed	information materials
5.	Polarizing debates and misinformation about Genetically Modified Organisms (GMOs)	• Enhance dissemination of science- and evidence-based information on modern biotechnology	a. Communication materials with sound evidence on the safety and benefits of modern biotechnology developed and disseminated.	• Work with partners to develop and disseminate communication materials
6.	Concerns and risks on human being and animal health, the environment and plant biodiversity	• Enhance a robust national biosafety framework (policy, regulatory oversight & infrastructure)	a. A facilitative policy developed and implemented. b. A facilitative regulatory system developed and enforced. c. Adequate regulatory infrastructure in place d. Biotechnology experts trained on biosafety aspects	• Collect and collate information. • Support efforts to conduct risk assessment • Create awareness • Facilitate training • Promote policy review/ establishment
7.	Royalty, high cost and dependency, and ethical concerns	• Put in place a national capacity to negotiate technology transfer on a win-win basis without undermining national interests. • Promote home-grown biotechnologies	a. Royalty-free mechanism(s) for accessing technologies developed. b. Products of modern biotechnology become more acceptable	• Collect and collate information to facilitate informed decisions for partners.
8.	Inadequate country-based controlling framework	• Enhance an efficient biosafety regulatory capacity (human, financial and infrastructure)	a. Biosafety applications are approved in a timely manner b. Capacity to oversee biosafety regulatory issues from research to commercialization increased	• Create awareness. • Facilitate training • Promote policy review/ establishment
9.	Litigation and court cases likely to slow down adoption of modern biotech products	• Put in place a fair and transparent legislation • Increase awareness and understanding of the judiciary system on modern biotech aspects	a. Court decisions on biotech issues are made in a fair, timely and transparent manner	• Create awareness • Facilitate training
10.	Low political will and commitment of Government officials in promoting application of modern biotechnology in agriculture	• Advise national leaders on the role of STI, particularly of modern biotech in national development • Organize round table meetings with national leaders • Organize seeing is believing visits for national leaders within and outside the country	a. The government is more committed in supporting modern biotech projects and activities in line with relevant policies	• Create awareness • Facilitate training

6.1 Partnerships and Collaborations

In collaboration with the Government of the United Republic of Tanzania and various interested organizations, the Biotechnology Society of Tanzania seeks to raise knowledge and understanding of different stakeholders on biotechnology opportunities in addressing food security and climate change challenges; and advocate for development of more enabling biosafety regulatory environment to facilitate commercialization of GM products in Tanzania for socio-economic development.

Furthermore, the BST endeavours to foster national, regional and international collaboration through various activities and programs of mutual benefits. Partners include Sokoine University of Agriculture (SUA), the Tanzania Agricultural Research Institute (TARI), the Tanzania Commission for Science and Technology (COSTECH), the University of Dar es Salaam (UDSM), Muhimbili University of Health and Allied Sciences (MUHAS), the Biotechnology Society of Tanzania (BST), Ifakara Health Institute (IHI), the National Institute for Medical Research (NIMR), the Tanzania Private Sector Foundation (TPSF), the Tanzania Seed Traders Association (TASTA), Nelson Mandela African Institute of Science and Technology (NM-AIST), the African Agricultural Technology Foundation (AATF), the Program for Biosafety Systems (PBS), the Open Forum for Agricultural Biotechnology in Africa (OFAB) and the International Service for the Acquisition of Agribiotech Applications (ISAAA).

6.2 Communications and Advocacy

- **Description of the NGO's communication and advocacy strategies**

Recent study's findings[2] have revealed that there is inadequate understanding on modern biotechnology and its products among stakeholders in Tanzania. Thus, the BST is developing a communications strategy[3] to enhance awareness and understanding on modern biotechnology and its products, as well as to facilitate the flow of information among different stakeholders in the country. The strategy is expected to facilitate public participation through open dialogue on biotechnology and other related emerging technologies.

- **Target audiences and key messages**

The communications strategy provides messages most likely to resonate with target audiences (stakeholders), identify which stakeholders are most important to engage, who would be the most effective messenger for engagement, and other recommendations as appropriate. As such, messages are tailored to target specific audience/stakeholder groups that constitute the primary and secondary target audiences. The primary target audience comprises key persons/groups/organizations for communicating or interacting with directly and they include policy implementers (i.e. the Government of Tanzania officials from its key ministries/agencies); members of Parliament; regulatory bodies; R&D institutions; farmers and farmer representative bodies; supporting clusters such as the seed industry, processors and farm implement dealers; and civil society and NGOs.

The secondary target audience constitutes individuals or groups the Strategy will communicate messages for their knowledge as well as for influencing the primary target audience. These include the media (print and electronic); various partners for developing and sharing knowledge on modern biotechnology; consumers and trade associations.

2 AIRF (2022). Current Status of Biotechnology Awareness in Tanzania and Proposed Communication Strategy Addressing Benefits and Actual/Perceived Risks of Modern Biotechnology (commissioned by USDA). 57pp

3 A separate detailed communications and advocacy strategy for BST is under preparation

It is important that all communication messages are in consistent with the communication objectives in order to help the audiences or stakeholders understand what constitutes the modern biotechnology and its potential benefits for the country and ultimately bring about the desired change.

- **Channels and tools for effective communication and public outreach**

The Strategy outlines key potential communication channels for each stakeholder/audience or stakeholder groups as the best way to communicate with them. The channels could be traditional or digital forms of communication; also the choice of the channel might depend on what is available or what has performed well in the past – that is, in line with the situation. For instance, if we would like to convince farmers that drought-tolerant modern biotech varieties perform well under drought conditions (message) the most appropriate communication channel/methods will be field days, demo plots, various media outlets, exhibitions, etc.

6.3 Monitoring and Evaluation

Monitoring and evaluation form an important component in ensuring that strategic plans are implemented as planned. Constant monitoring and periodical evaluation of a strategic plan during its implementation are necessary so as to determine whether the implementation plan is working or not and also to verify whether the strategy's objectives have been met.

The monitoring and evaluation of the Biotechnology Society of Tanzania's strategic plan would involve regularly assessing the progress of the Society towards achieving its goals and objectives. This will include setting specific targets and key performance indicators, as well as tracking progress on an annual basis. Monitoring shall help the Society to track the utilization of inputs and realization of strategic plan's outputs and targets. It also assists the BST's Executive Committee to make informed decisions with regards to deployment of resources and take corrective measures when necessary. On the other hand, evaluation helps the stakeholders to assess the realization of the Society's targets and objectives in relation to resources utilized.

Accordingly, this Strategic Plan has been formulated in a manner that ensures results/outputs of its implementation are tracked as per timeline and milestones. Thus, monitoring and evaluation will be used to guarantee that the BST's major themes and strategies are pursued to achieve its goals. An analytical framework of monitoring through annual evaluation will be instituted in this Strategic Plan to ensure close follow up of the implementation of planned activities. The monitoring and evaluation framework and its process will involve a variety of activities -- mainly captured (plus scores) in tables – including the following:

- **Tracking progress**: Measuring progress towards achieving the goals and objectives of the strategic plan, and comparing actual results to planned results.
- **Identifying successes and challenges**: Identifying what has worked well and what has not, and analyzing the reasons for any variances.
- **Reviewing and updating the plan**: Based on the results of monitoring and evaluation, the Society may need to review and update its strategic plan to better align with its goals and objectives.
- **Reporting**: Summarizing the monitoring and evaluation results and sharing the findings with relevant stakeholders, such as members of the Society, funders, government agencies, and so on.
- **Making adjustments**: Based on the monitoring and evaluation results, the Society may need to make adjustments to its strategies and tactics to better achieve its goals and objectives.

Both monitoring and evaluation facilitate learning through performance by examining success cases and failures that have been experienced during implementation of the Strategic Plan. A separate document for monitoring and evaluation will be developed. The document needs to present detailed descriptions on how each indicator will be monitored and evaluated. It also needs to present monitoring plan, monitoring tools, evaluation plan, evaluation tools and reporting framework for monitoring and evaluation products.

7. Conclusions

The BST's Strategic Plan for the 2023-2028 period is a formal commitment statement that clarifies what the Society intends to achieve in the period of five years. It also outlines the direction of the Society and its stakeholders will take over the period of five years towards the attainment of the Society's vision. Furthermore, the BST's Strategic Plan was developed through a consultative process led by the Society's Executive Committee and involved members that also constitute the Society's key stakeholders. For the five years of implementing this Strategic Plan, the Society will focus on exerting efforts and deploying resources to attain the following vision and mission statements:

Vision: *Improvement of livelihoods of people through safe and responsible application of modern advances in biotechnology.*
Mission: *To advocate for stakeholders' engagement in creating an enabling environment for sustainable utilization of all aspects of biotechnology in Tanzania.*

To realize the Society's vision and mission, the Strategic Plan has four strategic objectives under which arrays of strategies and targets have been identified for the realization of the Society's goals. The strategic objectives are as follows:

a) To promote public awareness and facilitate capacity building programs on biotechnology and its prospects for socio-economic development.
b) To engage and advise the Government in all matters relating to the safe and sustainable application of biotechnology in the country.
c) To advocate for safe and responsible application of biotechnology to improve food security, public health, poverty alleviation and environment protection.
d) To carry out studies, research or any fact-finding mission to promote the application of biotechnology in the country.

The Strategic plan also provides an agile roadmap and recommendations for M&E as well as a communications plan to ensure that it is implemented as planned.

Finally, the Biotechnology Society of Tanzania calls to action for all stakeholders to support and contribute to the Strategic Plan's implementation.

8. Appendices

Appendix 1: Factors affecting the adoption and communication of modern biotechnology and its products in Tanzania based on SWOC analysis

Internal	**Strengths** • Supportive Government policies, strategies and programs (e.g. National Environmental Policy, National Biotechnology Policy, National Agricultural Policy, ASDP-2, etc.) • Experience in implementing GE projects in Tanzania (TELA and Cassava) in collaboration with other participating countries and partner organizations. • Well-situated NARS institutions for developing and sustaining modern biotech products. • Availability of GE facilities for contained (GE lab) and confined field trials (CFT) • Appreciable number of trained staff to implement GM research and development • Existence of a functional National Biosafety Framework • Able to identify key stakeholders and potential detractors • Influential scientific community and supporters of GE • Existence of BIORAPP results	**Weaknesses** • Inadequate public understanding in the science of gene technology. • Limited experience of biosafety regulators (hence, lengthy and frustrating approval processes). • Lack of a common understanding of GM technology and its products among stakeholders (including like-minded ones like researchers). • High-level political figure against the technology (despite existing pro technology policies and related frameworks) • Strict liability in biosafety regulations delayed commencement of confined filed trials of GM maize and also commercialization of GM products in Tanzania. • Public perceive GE technology as being unsafe due to too stringent/restrictive risk management measures • Limited number of pro-GM technology NGOs in the country as compared a large number of anti-technology activists
External	**Opportunities** • Existing biotech communication initiatives and supportive partners (e.g. PBS, BST, OFAB) as agents for promotion, capacity building and advocacy of modern biotechnology. • Experienced partners (including neighbouring countries) that have commercialized GM products – share their expertise and farmers' excitement. • Recent successes in developing COVID-19 vaccines through modern biotech techniques.	**Challenges** • GM technology is controversial in nature: related to concerns of health, protection of organic agriculture, crop genetic diversity and environmental issues. • Misinformation from anti-technology activists, etc. • Curiosity and attention in relation to funding sources for GM research (good fodder for anti-GM activists). • Sometimes seeing as externally imposed and supply/market-driven. • Possibility of technological failures e.g. insect resistance breakdown • Increasing resistance of GE technology in the US and EU • Loss of market/trade opportunities for export crops due cultivation of GE crops • Europe are going anti GMOs and influences African countries to be anti GMOs