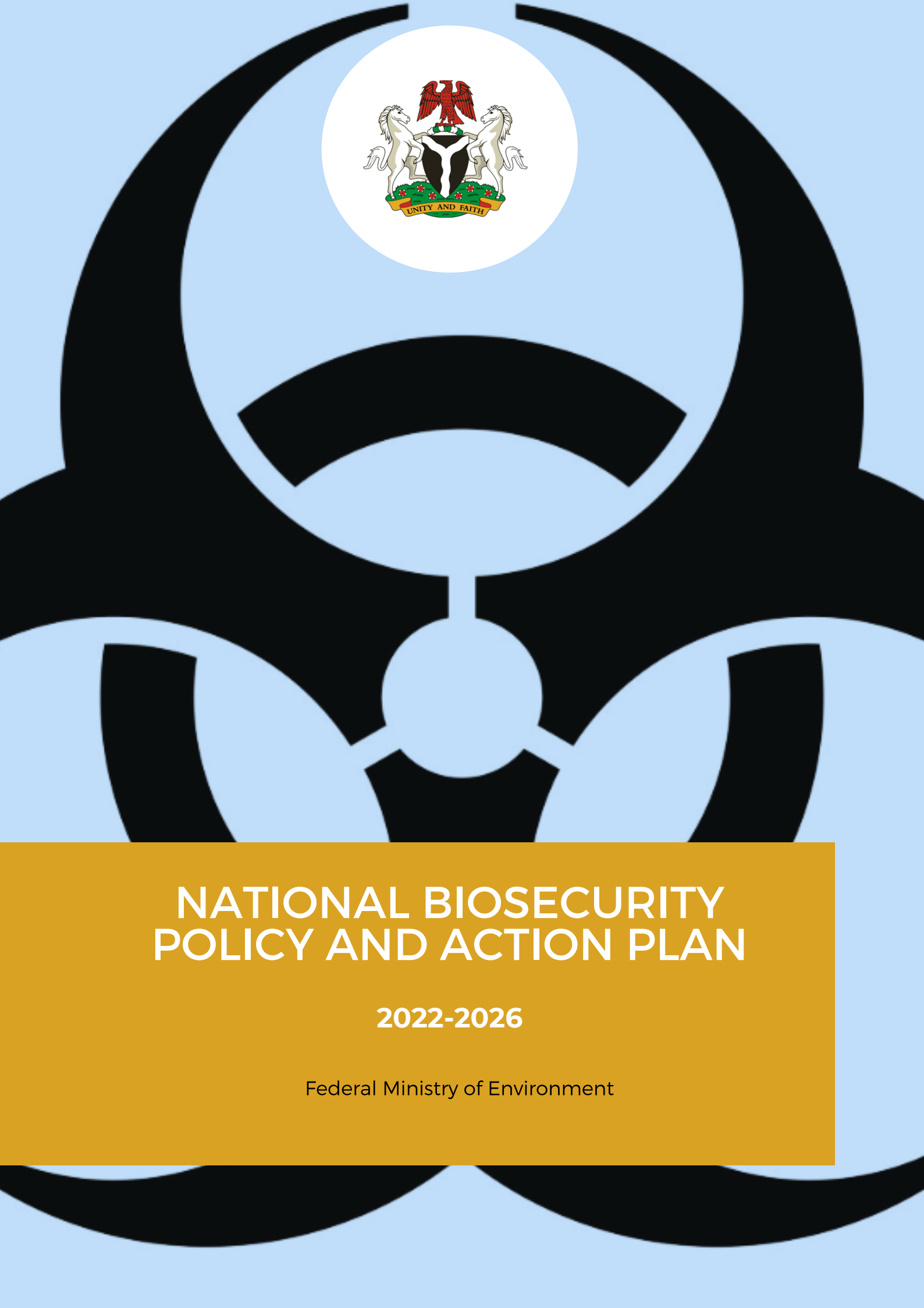

NATIONAL BIOSECURITY POLICY AND ACTION PLAN

2022-2026

Federal Ministry of Environment

FOREWORD

I am delighted to present the National Biosecurity Policy and Action Plan 2022-2026 as put together by the National Biosafety Management Agency (NBMA) under the auspices of the Federal Ministry of Environment in collaboration with relevant stakeholders. The policy outlines the strategic vision and goal that has been identified to help Nigeria realize her full potential and better fulfil her mission to serve her people through ensuring protection and safety against all forms of biological threats.

The process of formulating a National Biosecurity Policy and Action Plan has given the nation the opportunity to take stock of her strengths, weaknesses and potentials in the light of challenges, and to put forward strategies for the development not only in response to changing needs but also as an active and participatory agent to drive scientific, social and economic changes.

The strategic themes using the 'One Health' global approach to biosecurity attest to Nigeria's commitment to achieving excellence in biosecurity through collaborative efforts of stakeholders in the dissemination and exchange of knowledge. In order to implement these strategic themes, there is need for an enabling environment in which our human, economic and physical resources are appropriately allocated and developed to help attain sustainable excellence in prevention, detection and response to biological threats [pest and disease outbreaks] however they may occur.

We have an opportunity to demonstrate our expertise, be at the forefront to tackle biosecurity challenges and ensure a bio-secured Nigeria. I am sure with our collaboration with domestic and international development partners, relevant biosecurity stakeholders, our trained human resources, the goals we aspire to accomplish will in time translate into milestones of which we can be proud of as a Nation.

Sharon Ikeazor
Hon Minister of State for Environment
Federal Ministry of Environment

FEDERAL REPUBLIC OF NIGERIA

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List of Stakeholders

1. African Union - Inter-African Bureau for Animal Resources (AU-IBAR)
2. African Union Development Agency-New Partnership for Africa's Development (AUDA-NEPAD)
3. Agricultural Research Council of Nigeria (ARCN)
4. All Farmers Association of Nigeria (AFAN)
5. Biotechnology Society of Nigeria (BSN)
6. Broadcasting Organization of Nigeria (BON)
7. Bureau of Public Procurement (BPP)
8. Centre for Genomics Research and Innovation (CGRI)
9. Civil Society Organizations (CSOs)
10. Council for Regulation of Engineering in Nigeria (COREN)
11. Department of State Services (DSS)
12. Department of Veterinary and Pest Control Services (DVPCS)
13. Economic Community of West African States (ECOWAS)
14. Environmental Health Officers Registration Council of Nigeria (EHORECON)
15. European Union (EU)
16. Federal Airport Authority of Nigeria (FAAN)
17. Federal Competition and Consumer Protection Council (FCCPC)
18. Federal Ministry of Agriculture and Rural Development (FMARD)
19. Federal Ministry of Education (FME)
20. Federal Ministry of Environment (FMEnv)
21. Federal Ministry of Finance, Budget and National Planning (FMFBNP)
22. Federal Ministry of Health (FMoH)
23. Federal Ministry of Industry, Trade and Investment (FMITI)
24. Federal Ministry of Information and Culture (FMIC)
25. Federal Ministry of Justice (FMoJ)
26. Federal Ministry of Science, Technology and Innovation (FMSTI)

27. Federal Ministry of Transport (FMT)
28. Federal Ministry of Water Resources (FMWR)
29. Federal Ministry of Women Affairs (FMWA)
30. Food and Agriculture Organization (FAO)
31. Global Environment Facility (GEF)
32. High Commission of Canada
33. Institute of Public Analysts of Nigeria (IPAN)
34. International Criminal Police Organization (INTERPOL)
35. International Committee of the Red Cross (ICRC)
36. International Food Policy Research Institute (IFPRI)
37. International Health Regulators (IHR)
38. Lagos State Waste Management Authority (LAWMA)
39. Local Government Areas (LGAs)
40. Medical Laboratory Science Council of Nigeria (MLSCN)
41. Ministry of Defence (MoD)
42. Ministry of Foreign Affairs (MoFA)
43. National Advisory Council (NAC)
44. National Agency for Food and Drug Administration and Control (NAFDAC)
45. National Agency for the Great Green Wall (NAGGW)
46. National Agricultural Research Institutes (NARIs)
47. National Assembly (NASS)
48. National Biosafety Management Agency (NBMA)
49. National Biotechnology Development Agency (NABDA)
50. Nigerian Communications Commission (NCC)
51. National Defence College (NDC)
52. National Emergency Management Agency (NEMA)
53. National Environmental Standards and Regulations Enforcement Agency (NESREA)

54. National Horticultural Research Institute (NIHORT)
55. National Human Rights Commission (NHRC)
56. National Intelligence Agency (NIA)
57. National Orientation Agency (NOA)
58. National Primary Health Care Development Agency (NPHCDA)
59. National Universities Commission (NUC)
60. National Veterinary Research Institute (NVRI)
61. Nigeria Agricultural Quarantine Service (NAQS)
62. Nigeria-American Chambers of Commerce (NACC)
63. Nigeria Biological Safety Association (NiBSA)
64. Nigeria Centre for Disease Control (NCDC)
65. Nigeria Communication Satellite Limited (NIGCOMSAT)
66. Nigeria Customs Service (NCS)
67. Nigeria Defence Academy (NDA)
68. Nigeria Immigration Service (NIS)
69. Nigeria Police Force (NPF)
70. Nigeria Security and Civil Defence Corps (NSCDC)
71. Nigeria Society for Experimental Biology (NiSEB)
72. Nigerian Conservation Foundation (NCF)
73. Nigerian Environmental Society (NES)
74. National Information Technology Development Agency (NITDA)
75. Nigerian Institute of Medical Research (NIMR)
76. Nigerian Institute for Oceanography and Marine Research (NIOMR)
77. Nigerian Institute for Trypanosomiasis Research (NITR)
78. Nigerian Institute of Animal Science (NIAS)
79. Nigerian Maritime Administration and Safety Agency (NIMASA)
80. Nigerian Medical Association (NMA)
81. Nigerian Meteorological Agency (NIMET)

82. Nigerian Ports Authority (NPA)
83. Nigeria Television Authority (NTA)
84. Nigerian Trawler Owners Association (NITOA)
85. Nigerian Veterinary Medical Association (NVMA)
86. Office of the National Security Adviser (ONSA)
87. Office of the Secretary to the Government of the Federation (OSGF)
88. Primary Health Care Centres (PHCCs)
89. Private Media Organizations
90. Programs for Biosafety System (PBS)
91. Sheda Science and Technology Complex (SHESTCO)
92. Small and Medium Enterprises Development Agency of Nigeria (SMEDAN)
93. Standards Organization of Nigeria (SON)
94. State Emergency Management Agency (SEMA)
95. The Nigerian Bioinformatics and Genomics Network (NBGN)
96. United Nations Environment Programme (UNEP)
97. US Embassy
98. Veterinary Council of Nigeria (VCN)
99. Voice of Nigeria (VON)
100. World Health Organization (WHO)
101. World Organization for Animal Health (WOAH) (former name OIE)
102. World Trade Organization (WTO)

List of Acronyms

1. BIMs: Biosecurity Incident Management System
2. BSATs: Biological Select Agents and Toxins

3.	BWC:	Biological Weapons Convention
4.	CBRMP:	Counter Bioterrorism Regulatory Management Plan
5.	DSNO:	Disease Surveillance and Notification Officer
6.	EIDs:	Emerging Infectious Diseases
7.	EPROG:	Emergency Preparedness and Response Operational Guideline
8.	EPRS:	National Emergency Preparedness and Response
9.	GAP:	Good Agricultural Practices
10.	GHSA:	Global Health Security Agency
11.	GMA:	Genetically Modified Animals
12.	GMO:	Genetically Modified Organisms
13.	HHP:	Herd Health Plans
14.	HRP:	Human Reliability Plan
15.	IAS:	Invasive Alien Species
16.	ICT:	Information and Communication Technology
17.	IPPC:	International Plant Protection Convention
18.	MDAS:	Ministries, Departments and Agencies (MDA)
19.	MoU:	Memorandum of Understanding
20.	NAC&BWC:	National Authority on Chemical and Biological Weapons Convention
21.	NBIM:	National Biosecurity Incident Management
22.	NBSAP:	National Biodiversity Strategy and Action Plan
23.	PEP:	Post Exposure Prophylactic
24.	SDGs:	Strategic Development Goals
25.	SOP:	Standard Operational Procedure
26.	SPS:	Sanitary and Phyto Sanitary
27.	TBT:	Technical Barrier to Trade
28.	TETFUND:	Tertiary Education Trust Fund
29.	TWG:	Technical Working Group

30. VBMs: Valuable Biological Materials

31. WASH: Water, Sanitation and Hygiene

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

The National Biosecurity Policy and Action Plan (NBP&AP) is a framework for the design and implementation of programs to facilitate effective communication, collaboration and coordination of activities in a multisectoral biosecurity environment. Biosecurity focuses on preventing theft, diversion or deliberate use of biological science knowledge, materials, technologies, and related equipment to cause harm. It also includes putting measures in place to mitigate naturally occurring and emerging infectious diseases. It effectively guides the identification of these items, their regulation, principles, strategies and implementation plan of intervention activities across all the relevant stakeholders in the biosecurity sector.

The National Biosafety Management Agency Act, 2015 was amended by the National Assembly and assented to by the President, Federal Republic of Nigeria in 2019, mandating the Agency to regulate emerging areas of modern biotechnologies and to ensure biosecurity. The NBMA Act, 2015, (as amended), in section 25(A), states "A person, institution or body shall not carry out gene drive, gene editing and synthetic biology except with the approval of the Agency", and section 3(ja) which stipulates functions and powers of the Agency, says "put in place measures to ensure biosecurity".

In view of the amendment, the NBMA in collaboration with other MDAs developed this NBP&AP to serve as a framework for the design and implementation of programs to facilitate effective communication, collaboration and coordination of activities in a multi-sectoral biosecurity environment.

Biosecurity is a strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) that analyse and manage risks in the sectors of food safety, animal life and health, plant life and health, including associated environmental risk. It is the totality of measures designed to prevent the loss, theft, misuse, diversion, or intentional release of pathogens, toxins, and other related assets against humans, animals, plants, and the environment. It is a multi-sectoral and multi-disciplinary approach whose sustainable fortification is necessitated due to the increasing threats of:

i. climate change altering the range, habitats and spreads of pests and diseases and increasing the potential for severe weather events to assist spread;
ii. globalization and industrialization, increasing the volume and range of products traded internationally, passenger movements, and the subsequent risks of invasive vectors, pests and diseases entering and establishing in Nigeria;
iii. population spread, shifting demographics and changing land uses increasing the interface between urban and rural areas and the natural environment, making pest and disease management more complicated to deal with and increasing the risk of zoonoses impacting on human health; and
iv. rapid advancements in Life Sciences Dual Use Research of Concern, involving biological agents, growing biotechnology industry, available transportation and delivery means (facilitating acquisition, concealment and deployment), transborder criminality, thriving extremism, isolated cases of natural disasters, to mention a few, which portend devastating consequences on human, animal, plant health, the environment, primary industries and food safety.

A bio-secured Nigeria cannot be over emphasized. The National Biosecurity Policy is put in place to draw together diverse activities across Government to protect Nigeria from bio-threats whether naturally occurring, accidentally or as a result of deliberate attacks.

Biosecurity is also very important for the management of certain activities in line with international best practices. The mismanagement of some of these activities may affect the well-being of humans, animals, plants and the environment within the ecological entity where such practices take place.

This policy is developed as a result of the increasing need by state actors to acquire and work with pathogenic microorganisms, biological toxins and other biological agents for peaceful purposes, whilst non-state actors may seek to use them to cause harm. For instance, the unsuccessful anthrax attack in Kameido, Tokyo in 1993, the 2001 anthrax attacks in the United States and the Covid-19 pandemic with a controversial origin. The approach on how scientists conduct and share results of research on bio-threats has increased international awareness of the threat of bioterrorism.

1.2 GLOBAL CONTEXT AND NIGERIA'S BIOSECURITY LANDSCAPE

Globally, there is an increasing need to enhance biosecurity by restricting the access to harmful biological agents which pose severe threat to human, animal, plant health, biodiversity, the environment and socio-economic development.

Research has identified some countries in East and West Africa as the nations that bear the greatest burden of neglected zoonoses not only in Africa but globally[(1)]. Parts of Africa are also considered potential hotspots for biosecurity issues as a result of zoonotic emergence because of high wildlife biodiversity, rapid human population growth, change in land use and recurrent outbreaks of emerging infectious diseases of zoonotic origin. Nigeria is considered to have one of the highest burdens of endemic diseases globally and one of the four countries that contribute 44% of the world's poorest livestock keepers[(2)].

Taking cognizance of biosecurity threats from Ebola virus, highly pathogenic avian influenza virus (Bird flu), lassa fever virus, COVID-19 and pest infestation, the government of Nigeria has shown very serious commitment in ensuring a bio-secured nation. There are different existing National and State Ministries, Departments and Agencies (MDAs) carrying out various biosecurity roles. These MDAs which stem from the health, environment, agriculture, humanitarian, disaster management, intelligence services and defence sector etc have been established to limit unauthorized access to VBMs and ensure early detection, prevention, response and control of their intentional and unauthorised release and spread to the environment. However, there is need to enhance synergy amongst these MDAs, address gaps and overlaps as well as strengthen their roles and capacities.

In view of the above, the President of the Federal Republic of Nigeria in August, 2019 assented to a bill to amend the National Biosafety Management Agency Act, 2015, to include "putting measures in place to ensure biosecurity in Nigeria". This amendment therefore authorizes the NBMA to put measures in place to ensure biosecurity which includes the development of this policy, embracing all sector. This policy recognises the roles of all sectors on matters of biosecurity, and accordingly emphasizes the need for synergy to achieve One-health approach being canvassed globally.

1.3 NIGERIA'S BIOTHREAT PROFILE

In accordance with the global trends in the biosecurity environment, the main targets of a bio-terrorist attack in the Nigeria biosecurity space may include laboratory, farms, water

bodies amongst others. The extension of biothreats beyond facilities, ports of entry, is an emerging challenge that countries need to cope with. The emergence of new bio-science technologies is prompting new methods of biological attacks. In the view of this, some major identified biosecurity threats of concern include; Zoonotic biothreats, Laboratory Acquired Infections (LAIs), Exotic biothreats, Stolen biological agents, Stored product pathogens and Pandemic-induced biothreats.

Nigeria has her own fair share of biosecurity challenges. For instance, the nation has been exposed to many disease epidemics and other public health threats. Recent notable Public Health Emergencies (PHEs) of national and international concern to Nigeria include Lassa Fever, Cholera, Meningitis, Yellow Fever and Monkey pox. The arrival of Ebola in Lagos created serious concerns to the global health community and it was thus considered a pivotal event during the 2014 West African Ebola epidemic preventing a global crisis. Nigeria spent approximately $13million USD responding to the 2014 Ebola response and preventing a large outbreak; a 2% reduction in Nigeria's 2014 GDP would have translated to an economic loss of nearly $12billion USD.

LIST OF SOME NOTABLE GLOBAL BIOTHREATS

CATEGORY A These high-priority agents include organisms or toxins that pose the highest risk to the public and national security because they: can be easily disseminated or transmitted from person to person; result in high mortality and have the potential for major public health impact; might cause public panic and social disruption; require special action for public health preparedness.	*Bacillus anthracis* (Anthrax)
	Clostridium botulinum toxin (Botulism)
	Yersinia pestis (Plague)
	variola major (Smallpox)
	Francisella tularensis (Tularemia)
	Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])
	COVID-19 (COV-SARS 2)
CATEGORY B These are second highest priority agents and it includes those that: are moderately easy to disseminate;	Brucella species (Brucellosis)
	Epsilon toxin of *Clostridium perfringens*
	Food safety threats (e.g., Salmonella species, *Escherichia coli* O157:H7, Shigella)

result in moderate morbidity rates and low mortality; require specific enhancements of laboratory diagnostic capacity and enhanced disease surveillance	Others include diseases of crops (e.g. *Ralstonia solanacearum, Tuta absoluta, Xanthomonas comprestris pv Manihot, Xanthomonas cospestris pv vignicola and Spodoptera frugiperda*)
	Burkholderia mallei (Glanders)
	Burkholderia pseudomallei (Melioidosis)
	Chlamydia psittaci (Psittacosis)
	Coxiella burnetii (Q fever)
	Ricin toxin from Ricinus communis (castor beans)
	Staphylococcal enterotoxin B
	Rickettsia prowazekii (Typhus fever)
	Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
	Water safety threats (e.g., *Vibrio cholerae*, *Cryptosporidium parvum*)
CATEGORY C These are third highest priority agents and it includes emerging pathogens that could be engineered for mass spread in the future because of: availability; ease of production and dissemination; potential for high morbidity and mortality and major health impact	Nipah virus
	Hantavirus
	Tick-borne hemorrhagic fever viruses
	Tick-borne hemorrhagic encephalitis viruses
	Yellow fever
	*Mycobacterium tuberculosis (*Multi-drug resistant tuberculosis)

1.4 WEAKNESSES AND VULNERABILITIES

In order to ensure risk management and resilience, it is important to identify the major weaknesses and vulnerabilities in the Nigerian biosecurity system, amongst which are inadequate:

i. biosecurity policies and programmes with dedicated funding
ii. robust biosecurity legislative framework
iii. integrated and periodic review of biosecurity threats
iv. national biosecurity databases
v. awareness among scientific/academic community
vi. integration of security concerns into existing contingency plans for response to biosecurity incidents.
vii. biosecurity monitoring system for dangerous pathogens
viii. Biocontainment facilities and logistic mechanisms for Biosecurity
ix. Others are:
x. Lack of uniform biosecurity procedures
xi. Lack of consolidation of institutions and locations with dangerous pathogens and toxin control with training support to reduce the risk of theft or release of dangerous pathogens.
xii. Sub-optimal institutional biosecurity programmes and national coordination of biosecurity activities

The risk of a catastrophic biological event is also magnified by global travel over international borders, urbanization and terrorist interest in weapons of mass destruction. All these factors taken together create an urgent need to strengthen Biosecurity, reduce biological risks, create new approaches to improve infectious disease surveillance and identify and fill gaps to strengthen Biosecurity capabilities of all relevant stakeholders.

There is need to ensure the prevention of biothreats from falling into the hands of malevolent or unauthorised actors, including safeguarding against malicious or unauthorised and intentional acquisition, use, stockpiling, weaponizing potentially dangerous biological agents. Furthermore, it is important to put in place national verification mechanisms of state, non-state actors and facilities handling biothreats.

The National Biosecurity policy will address future biological threats caused by a naturally occurring infectious disease outbreak, a deliberate bioterrorism attack or an accidental laboratory release. This Policy will leverage on Prevention, early detection and rapid response measures with the support of trained personnel, rigorous policy and legislative frameworks, coordination and partnerships among relevant stakeholders, and public support.

1.5 STRENGTHS

Despite the rising biosecurity threats, Nigeria is strongly determined to protect her citizens, the environment and other sectors of the economy, and safeguard operations of critical sectors from biological threats. The Federal Government of Nigeria is also conscious of the benefits of emerging biotechnologies and their potentials for enhancing the country's economic prosperity. This is taking into cognisance the need to ensure that they are not applied with intent to cause harm to human health, animal health, plant health and the environment. Hence, there is intensive utilization of national multi-sectoral efforts to ensure that opportunities are exploited, and challenges are effectively mitigated in line with relevant international best practices and peculiar national challenges.

CHAPTER 2

POLICY THRUST

The Policy restates the articulation of the vision of the Federal Government of Nigeria on Biosecurity, sets goals, strategies for minimising pest and disease impacts, maintain food safety, and support responsible industrial productivity. It is intended to remove the capacity gaps and barriers in meeting national obligations under international agreements on biosecurity to which Nigeria is a Party.

The policy will be further reviewed and updated within five (5) years or as the need arises, to ensure consistency in Government policy objectives.

2.1 POLICY STATEMENT

This Policy document aims to foster the integration and harmonization of Biosecurity strategies that will be implemented through One-health approach for the prevention, early detection, rapid response to biothreats and recovery from a biosecurity incident. This Policy has been established to ensure synergy among stakeholders involved in biosecurity sectors for effective and efficient operations of the national biosecurity systems. This is to guarantee best practices in ensuring biosecurity for socio-economic development.

This Policy ensures that all aspects of National and International Agreement, Conventions, Guidelines and other instruments on biosecurity are duly taken into consideration.

2.2 POLICY VISION

The vision of the National Biosecurity Policy and Action Plan is to have in place a coordinated, efficient and regulated biosecurity system in Nigeria.

2.3 POLICY MISSION

The mission of the NBP&AP is to institutionalise a harmonised and functional biosecurity system as a fundamental approach to minimizing the risks of biological threats to, humans, animals, plants and the environment.

2.4. POLICY GOAL

The goal of the National Biosecurity Policy and Action plan is to provide a structure for effective coordination of biosecurity activities and services in Nigeria

2.5 POLICY OBJECTIVES

The objectives of the National Biosecurity Policy and Action Plan are to:

a. provide an adequate structure (legal, institutional framework, as well as relevant mechanisms and tools) for effective coordination of biosecurity activities, including prevention, mitigation and response to biosecurity events/incidents.
b. integrate and institutionalize standard operating systems in all aspects and facilities of biosecurity;
c. develop and implement relevant guidelines, plans, regulations and strategies for best-practices in all components of biosecurity;
d. ensure best practices in the safety and biosecurity of human, biodiversity, environment for socio-economic development;
e. ensure effective surveillance and monitoring systems, preparedness and response mechanisms to biological threats and related disasters;
f. produce a viable pool of technically skilled and qualified human resources across Nigeria for the management and response to biosecurity issues;
g. establish a robust and sustainable local and international collaborative network and strong information and expertise sharing system in the management of biosecurity;
h. ensure the availability of relevant technical and financial resources including facilities and equipment for management of the national biosecurity system; and
i. ensure public enlightenment and awareness of the populace on biosecurity

2.6 SCOPE OF THE POLICY

This policy shall address biosecurity and its related issues in Nigeria including the prevention, detection, mitigation and response to biosecurity issues. These shall include but not be limited to research and other activities, that use one or more of the agents or toxins listed in Appendix I with the aim or potential to:

a) enhance the harmful consequences of the agent or toxin
b) disrupt immunity or the effectiveness of an immunization against the agent or toxin without clinical and/or agricultural justification
c) confer to the agent or toxin resistance to clinically and/or agriculturally useful prophylactic or therapeutic interventions against that agent or toxin or facilitates their ability to evade detection methodologies
d) increase the stability, transmissibility, or the ability to disseminate the agent or toxin
e) alter the host range or tropism of the agent or toxin
f) enhance the susceptibility of a host population to the agent or toxin
g) generate or reconstitutes an eradicated or extinct agent or toxin.

2.7 REGULATORY FRAMEWORK

This Policy is guided by the Constitution of the Federal Republic of Nigeria, 1999 (as amended), NBMA Act 2015, (as amended), existing national legislations and international treaties that are relevant to biosecurity to which Nigeria is a signatory to and has ratified. These include among others: the Nigeria Centre for Disease Control and Prevention (Establishment) Act, 2018, the Nigeria Security and Civil Defence Corp Act (as amended) 2007, the Terrorism Prevention Act 2011, the Animal Disease Control Act and the National Chemical and Biological Emergencies Preparedness and Response Plan (NCBEPRP).

2.8 GUIDING PRINCIPLES

The National Biosecurity Policy and Action Plan is guided by the following principles:

a. Full recognition of biosecurity as a multi-sectoral discipline, with all efforts geared towards a one-health approach;
b. Collaborative approach and an understanding of the responsibilities of various sectors – governments, non-governmental organizations, communities and individuals;
c. Transparent and science-based development, implementation, monitoring and review of biosecurity programmes;
d. Effective risk assessment and management that underpins decision-making;
e. Rapid and accurate detection and identification of new pests, diseases or contamination sources;
f. An understanding that preparedness, prevention and early intervention form the central focus of all biosecurity activities;
g. Evolving biosecurity systems based on new knowledge and technologies that match the ever-changing pest and disease threats;
h. Equitable sharing of cost of biosecurity programmes between beneficiaries and risk creators, where feasible; and
i. The principle of liability and redress shall apply in line with relevant extant laws.

2.9 IMPLEMENTATION STRATEGIES

The National Biosecurity Policy and Action Plan will be delivered through a one-health approach – Agriculture, Environment and Human health, with the full knowledge that disease and pest control requires effective collaboration between multi-sectoral

stakeholders. The Strategy will be based on the principle of shared responsibility, recognizing that many government MDAs, non-governmental organisations and the private sector have varying levels of biosecurity responsibilities in their mandate. The NBMA shall in collaboration with the ONSA coordinate activities of stakeholders in the management of biosecurity threats in accordance with risk management principles.

2.9.1. Agriculture and Food Safety

To maintain domestic and international market access, Nigeria will work to minimise and manage high-priority biosecurity threats to the integrity and reputation of its primary produce and food by:

a. designing biosecurity programs in partnership with relevant stakeholders to manage priority food safety and contaminant risks;
b. undertaking traceability and surveillance activities to support market access and providing proof of freedom certification for agricultural produce from harmful biological agents;
c. partnering with relevant stakeholders to develop market-driven systems for on-farm biosecurity such as 'One Biosecurity' for livestock and crop production;
d. promoting awareness across all primary industries for improved biosecurity including clarity of roles and responsibilities for all relevant sectors;
e. undertaking prevention, surveillance and response to exotic pests and diseases;
f. enforcing strict quarantine and other import and export requirements; zero tolerance at different entry and exit points;
g. establishing a holistic, integrated and preventive approach to reduce risk of contamination along the food chain;
h. protecting consumers from insanitary, contaminated, unwholesome, mislabelled or adulterated food;
i. maintaining and building consumer confidence in the food system which will give rise to economic development as a result of increased domestic and international trade in safe food;
j. carrying out inspection on production and manufacturing along the food chain; and
k. registering all food products to promote quality and unwholesomeness.

2.9.2. Environment

The Nigerian Government will minimise and manage the entry, spread and impact of pests, diseases and other bio-threats within the country by:

a. the conservation and preservation of the Nigerian Biodiversity;

b. partnering with all relevant stakeholders, to develop and implement pre-border and border quarantine controls and other biosecurity activities;
c. supporting research in new and improved pre-border and border quarantine controls and other biosecurity activities;
d. developing and implementing management plans and programmes aimed at detecting, containing and reducing the impacts of established priority diseases, pests and other bio-threats, and enhanced flora and fauna surveillance and other environmental health concerns;
e. applying containment protocols for the display or commercial use of potentially invasive organisms;
f. partnering with air, land, marine and other natural resource managers in managing established priority diseases and disease-carrying vectors;
g. developing, implementing and exercising disease, pest and other bio-threats response plans;
h. applying adequate Environmental assessment procedures in Biotechnology projects; and
i. establishing surveillance programmes for the early detection of new bio-threats to the environment.

2.9.3. Human Health

Biosecurity protects public health. As part of this, relevant Ministries, Departments and Agencies (MDAs) will work with all stakeholders to enhance biosecurity by:

a. establishing and maintaining stakeholder and inter-ministerial advisory groups, for biosecurity issues;
b. establishing institutional arrangements that engage relevant MDAs, industries, community groups and advisory boards in biosecurity issues of concern;
c. raising awareness of people's responsibilities in preventing the arrival, establishment and spread of new diseases;
d. engaging relevant MDAs in surveillance, detection, responses and recovery plans;
e. building and maintaining an emergency response system to deliver responses to biothreats as required;
f. conducting emergency response and recovery to biosecurity incidents in a professional manner;
g. engagement of farmers both for supervision and communication in the event of perceived change in taste of a crop, or health of an animal; and
h. training, re-training and continuous education on biosecurity.

The Nigerian biosecurity system will be based on shared responsibilities, which will rely on active participation of people from all sectors. Various biosecurity issues will be addressed by MDAs that are legally mandated to detect and respond to bio-threats.

CHAPTER 3
NATIONAL BIOSECURITY POLICY DIRECTION

3.1 NATIONAL PRIORITIES

Nigeria's approach to biosecurity utilizes the One-health approach which is centred on ensuring national values, interests, and objectives that defines us as a people concerning our collective efforts to the advancement of nation-building and international best practices. These factors also guide the formulation of our National Biosecurity Policy and Action Plan while strengthening our collective commitment to the delivery of peace, democracy, equity, biodiversity, justice, preservation of human rights, and respect for the rule of law.

Furthermore, our national biosecurity objectives, policy initiatives, and strategic actions are formulated to renew Nigeria's commitment to the protection of our national sovereignty, human security, and wellbeing of the citizenry. This approach to biosecurity is also closely aligned with our commitment to upholding regional and international peace and security cooperation while embracing the norms and conventions of international laws and treaties.

National priorities include but not limited to:

i. Safeguarding primary industries and food safety;
ii. Preparedness, Detection, Response to new pests and diseases;
iii. Minimizing environmental and socioeconomic impacts of pests and diseases;
iv. Institutionalizing an integrated approach to biosecurity enhancement, involving mutually exclusive supports of the Government, industry and the community;
v. Building Biosecurity technical expertise;
vi. Investing in human resource base and infrastructural development;
vii. Mainstreaming biosecurity into national drive for biotechnology development;
viii. Auditing of laboratories dealing with dangerous pathogens;
ix. Developing effective Legal/Regulatory Instruments and Guidelines on Biosecurity system.

3.2 RISK-BASED APPROACH TO BIOSECURITY

The National Biosecurity Policy and Action Plan will be delivered through a one-health approach – Agriculture, Environment and Human health, with the full knowledge that disease and pest control requires effective collaboration between multi-sectoral

stakeholders. The Strategy will be based on the principle of shared responsibility, recognizing that many government agencies, non-governmental organisations and the private sector have varying levels of biosecurity responsibilities in their mandate. Thus, this National Policy will:

a) Ensure that rigorous, risk-based screening systems for evaluating the intentional and unintentional introduction of bio-threats are developed
b) Identify the pathways by which harmful organism are moved and develop a mechanism to minimize the movement of harmful and potentially harmful organisms.
c) Strengthen basic border control, risk and impact assessment and quarantine capacity by enhancing the numbers and capabilities of personnel, employing more effective technologies and improving scientific methods.
d) Develop a rapid response programme with the collaboration of State and local stakeholders to respond immediately to incidences caused by bio-organisms as soon as they are detected.
e) Establish an easily accessible funding mechanism for emergency action.

3.3 STRATEGIC AREAS OF FOCUS

3.3.1 Strengthening Biosecurity Governance and Coordination

Nigeria recognizes that effective governance models and coordination mechanisms are the basis for strengthening national biosecurity. To this end, a national structure is needed to coordinate and promote the necessary national cohesion at the strategic, operational and tactical levels.

3.3.2 Institutional Governance

In Nigeria, there are different existing national and state Ministries, Departments and Agencies (MDAs) carrying out various biosecurity roles. These MDAs which include health, environment, agriculture, humanitarian, disaster management and defence sector etc have been established to limit unauthorized access to biothreats and ensure early detection, prevention, response and control their release and spread to the environment. However, there is need to enhance synergy amongst these MDAs, address gaps and strengthen their roles. Hence, the NBMA Act, 2015 (as amended), empowered the NBMA to put in place, measures to ensure biosecurity, through effective communication and collaboration (synergy) with existing MDA's with biosecurity activities in MDA's with its

focus to strengthen her national biosecurity. The NBMA, through its Mandate shall be the focal point for Biosecurity in Nigeria.

3.3.3 Responsibilities of Biosecurity Stakeholders

All stakeholders in the National biosecurity system shall play their specific roles and work in synergy to ensure an effective biosecurity system. Therefore, stakeholders in line with their mandates shall work together to produce a clear aggregation and unified effort to strengthen biosecurity in the country. To this end, a national biosecurity dialogue platform shall be established by the National Biosafety Management Agency.

Objective of Strengthening Biosecurity Governance and Coordination To establish a working partnership and collaborative system for managing biosecurity in Nigeria.				
Strategy:	**Actions**	**Resources**	**Expected Outputs and Outcome**	**Responsible MDAs and other organisations**
Ensuring a functional and robust national biosecurity structure	1. Establishment of a National Advisory Council (NAC) for annual evaluation; 2. Establishment of a Technical Working Group (TWG) on biosecurity that supports the NAC	Funding, biosecurity operational systems, legislation, human resources.	a. A National Advisory Council on Biosecurity (NAC) established; b. A Technical working group is established c. Effective management and coordination of biosecurity in Nigeria strengthened.	ONSA, other relevant biosecurity agencies and NBMA as the Secretariat.

3.4 BIOSECURITY INCIDENT MANAGEMENT

In the event of a biosecurity incident, the Incident Management Plan outlined in the National Chemical and Biological Emergency Preparedness and Response Plan 2020 shall be activated. NBMA and NEMA shall be alerted by any witness or responder and they would in turn notify ONSA to determine the appropriate strategy and approach to be utilized. NCDC, FFS, NSCDC, NAQS, NPF and any other relevant Agency would also be contacted, depending on their mandate and the nature of the incident (as outlined in Appendix II). Notwithstanding the above, any witness or responder could alert any of the stakeholders listed in Appendix II.

3.5 BIOSECURITY DEFENCE CAPABILITY

The development and strengthening of our biosecurity defence approach and capability is critical to ensuring national biosecurity especially in the face of increasing trends in the use of bioweapons by domestic, foreign, transnational state and non-state actors to wreck terror and havoc. The strategy shall therefore develop and strengthen the capability of our military and defence institutions to identify, detect and effectively prevent or manage any form of bio-attack perpetrated against the nation. To this end, NSCDC shall interphase with the Nigerian Armed Forces for effective coordination of activities of relevant stakeholders, development of an effective biosecurity defence plan and training of our military to protect Nigerians and environment from biothreats.

3.6 INTERNATIONAL COOPERATION

Nigeria recognizes the evolving and unpredictable nature of biological threats and therefore, is committed to international collaborations to address these biological threats, taking into account support voluntarily provided to countries by international organizations.

In an effort to control the use, misuse and activities involving these dangerous biological pathogens and toxins, related technology and equipment by entities, and the unintended negative effect of bio-threats; Nigeria encourages the one health approach through a coordinated action by mutually reinforcing, complementary and multisectoral cooperation to mitigate a broad spectrum of biological threats.

3.6.1 Coordination Framework for International Engagement

The responsibilities of all stakeholders in government and the private sector including academia will be aligned towards enhancing biosecurity collaboration on the international stage. To this end, organizational structure and protocols for international engagement shall be established by NBMA in collaboration with ONSA.

This includes working closely with relevant partners and international organizations and aligning with international norms in combatting biological threats.

3.6.2 Regional Biosecurity Development

Nigeria shall intensify her involvement and impact on biosecurity concerns in West-Africa sub-region and Africa. On this basis, NBMA and ONSA will spearhead the formation of new initiatives, forums, and mechanisms to augment existing regional collaboration in biosecurity, taking into account the necessity to streamline all efforts, i.e. avoid duplication and create synergies between various projects aimed at strengthening national and regional capacities.

Also, Nigeria will enhance regional capabilities through the identification and implementation of shared approaches for deploying and strengthening regional bio-surveillance, information systems and networks to detect, identify, confirm, and respond to biological threats.

3.6.3 International Cooperation

Nigeria is committed to strong international cooperation in biosecurity as part of her shared responsibility to promote global biosecurity.

To this end, our priority is to work closely with other countries and multinational organizations such as the Biological Weapons Convention International Support Unit (BWC ISU), European Union CBRN Centre for Excellence, Food and Agriculture Organization (FAO), World Health Organization (WHO) and World Organization for Animal Health (OIE), United Nations Office of Counterterrorism (UNOCT), amongst others.

3.7 FINANCING AND RESOURCES MOBILIZATION

The effectiveness of the biosecurity sector is hinged on the availability of adequate funding. The national biosecurity sector, which comprises of multiple stakeholders, needs a proper mechanism for resource mobilization and efficient management to ensure appropriate sharing of funds and resources in the sector.

The objectives are to:

a. ensure availability of adequate funding to implement biosecurity policies and planned activities; and
b. establish transparent financial management system and mechanism for resource mobilization.

Strategy:	**Actions**	**Resources**	**Expected Outputs**	**Expected Outcome**	**Responsible MDAs and other organisations**
Resource Mobilization: The Federal Government shall make budgetary provisions for Biosecurity stakeholders and shall adopt a multi-channel funding approach in sustaining and improving biosecurity programs in Nigeria	a. advocate for adequate budgetary allocation; b. promote partnership and donor support between national and international organisations; c. foster synergy amongst national and international organizations and the private sector for efficient funding and delivery of strategic biosecurity policies;	Stakeholder engagement, financial regulations, budgetary appropriation.	Adequate budgetary allocation for biosecurity sector	Improved budgetary allocation in Nigeria	NBMA, and other relevant stakeholders.
Management and accountability	a. develop a realistic budget and		Mechanisms for regular audit of	Efficient utilization	

framework for resource mobilization	ensure that the rules of financial regulations and management are followed by biosecurity stakeholders; b. conduct regular audit on biosecurity finances		biosecurity finances developed	of resources	

CHAPTER 4
STRATEGIES AND ACTION PLAN

Thematic area: HUMAN HEALTH

Preamble:

While humans are believed to be the most important creation globally, they are at the receiving end of a variety of biological threats. These threats have the potential to affect public health, agricultural practices, food production, international trade and other economic activities, which have resultant effects on human health. Unintentional or intentional release of dangerous pathogens are also avenues for biological threats that affect human health.

Objective(s):

a. ensure that the health of humans is protected from biological agents and toxins that can come through air, food, water and other means; and

b. safeguard human health from infections transmitted through animal to human contact and human to human contact.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
1.Ensuring food and water is safe for consumption	a. update food safety policies and food safety regulations and guidelines to include biosecurity	Food safety personnel expertise, existing food safety documents,	i.amended food policies, regulations and guidelines	i. improved health and well-being of the nation	FMOH, NAFDAC, FCCPC, FMARD, NITOA, NIOMR, FMWR,
	b. encourage Good Agricultural Practices (GAP) and ensuring		ii.implementation of Good Agricultural	ii.reviewed National	

	appropriate co-ordination of food safety activities along the value chain; ensure food handlers have sufficient knowledge on good food handling processes	standard operating procedures and manuals, other technical and operational resources.	Practices and Food handling practices; iii. introduction and implementation of standard operating procedures;	Biosecurity Policy iii. enhanced protection from biothreats	NVRI, SON, NAQS, NCDC, FMST&I NBMA, Local Food Businesses/ Restaurants, Abattoirs, Media and others
	c. ensure adequate and appropriate storage facilities (cold stores/ conditioned warehouses, hot silos, air tight compartments or room temperature facilities)				
	d. ensure that all food businesses in urban and rural areas follow the food safety standard				
	e. introduce and enforce standard operating procedure in rural and urban butcheries and farms;				
	f. coordinate and monitor fishing activities as well as activities in the fish markets;				
	g. improve water supply and sanitation;				

	h. tracking and proper disposal of contaminated food items; and				
	i. employ the strategies outlined in border management to manage trade in food and agricultural products				
2. Protection of humans from animal, insect bites and diseases (zoonotic infections)	a. develop/update database of animal disease vectors, animal and insect diseases as well as zoonotic diseases;	Technical expertise, ICT, Trained personnel and training materials, Technical and operational resources	i. Developed/updated database of zoonotic diseases, animal vectors and insects; ii. Database with an updated animal and insect disease list;	An overall reduction in zoonotic diseases.	FMOH, NCDC, NCS, FMARD, NVRI, NIAS, NAQS, NITR, NBMA and other biosecurity stakeholders
	b. conduct regular surveillance of animal and insect diseases at Nigeria's borders;				
	c. manage exportation and importation of animals and animal products;				
	d. monitor farm houses and education of livestock and poultry farmers to increase their suspicion index of zoonotic diseases as well as				

	reporting findings to relevant authorities;				
	e. educate people on general pet care/hygiene as well as diseases transferrable from pets;				
	f. ensure the implementation of the legislation against the establishment of Animal farm estate in the vicinity of residential areas to prevent transmission of Animal to human diseases;				
	g. strengthen One Health Approach to Public Health Emergency;				
	h. strengthen International Health Regulation (IHR) across all international borders; and				
	i. Strengthen the implementation of Pandemic Influenza Preparedness (PIP) and other respiratory diseases				
3. Reduction of communicable diseases	a. update database of human diseases in Nigeria;	Technical expertise, ICT,	i. Updated database of human diseases;	Improved public health of the nation	FMOH, NCDC, NIS, FAAN,

	b. ensure all ill travellers are identified and quarantined; c. establish more quarantine centres; d. educate and create awareness of serious communicable diseases of concern; e. strengthen surveillance at the point of entry; f. establish adequate public health laboratories; g. hotspot mapping of biothreats to prioritize seasonal intervention h. train and re-train medical specialists, caregivers, contact tracers, port health personnel etc.; i. ensure all foreign entrants possess health insurance; and j. adopt all actions in the preparedness and response strategy of this policy.	Relevant documents (illness fact sheets, checklist of wellbeing etc.), Technical and operational facilities.	ii. More quarantine centres established; iii. Medical specialists and health personnel skills improved; iv. Increased number of proficient medical specialists and health personnel; v. Adequate public health laboratories established;		NCAA, FME, NOA, Port Health, Media, Security Agencies, MLSCN, NVRI, NMA, NAFDAC, NBMA, State Governments and others.

Thematic area: PLANT HEALTH

Preamble:

Plant pests and diseases are a significant social, economic and environmental burden. They can affect primary productivity; access to export markets; public health and infrastructure; conservation of biodiversity; and the natural and built environments—to our individual and collective detriment. These effects can result in increased costs of production, loss of or restrictions to export trade, reduced tourism, loss of biodiversity, greater public health costs and reduced public infrastructure. All strategies for achieving an excellent plant health management system is directed at prevention, eradication and containment.

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Objective:

To have in place an effective and efficient plant health management system which ensure human, plants and the environment are safe from pests and diseases

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome (s)	Responsible MDAs and Organization
1. Strengthening of border vigilance, regular surveillance and monitoring in all States of the Federation as well as plant material import and export.	a. strengthen phyto-sanitary measures;	Finance, exotic plants information brochures, booklets and pamphlets, surveillance equipment, plant health experts and other relevant experts, vehicles, survey plans,	i. Enhanced capability to anticipate, detect ii. and respond to emerging plant pests and disease threats	i.Proper containment measures of diseases and potential biothreats ii.Strong surveillance	NAQS, FMARD, ARCN, NIHORT, NCS, NIS, NIOMR, NARIs, NABDA,NBMA and others

	b. create awareness on the implication of the export/import of unauthorized plant materials; c. provision of requisite screening and detection equipment at the boarders; d. establish effective screening and detection procedures of all plant materials at all entry borders of the country; e. conduct field surveillance and monitoring activities; f. ensure training and re-training of personnel and other relevant stakeholders	containment facilities, etc.	iii. Proper implementation of legislation, continuous iv. adoption of appropriate technology and business v. systems in the plant health sector. vi. Adequately equipped for screening of import/export materials. vii. Ensure systems for plant material screening is in place. viii. Monitoring and equipment systems in place. ix. Efficient and continuous training systems in place. x. Thorough plant pest and disease inventory	systems are in place iii. Plant material screening processes established. iv. Strengthened research labs and systems; overall wellbeing of plant and the general public	

	in the plant health sector on biosecurity issues; g. promote collaboration among stakeholders in the development and management of plant pest and diseases inventory; h. develop strategy goals for containment and eradication of plant pests and diseases; i. support plant health research and development; and		collated through extensive collaboration in place xi. A functional biosecurity system is implemented xii. Ensure adequate funding and priority is given to research and laboratories		

Thematic area: ANIMAL HEALTH

Preamble:

Pandemics and epidemics that have ravaged the world are often zoonotic in nature. Adopting best biosecurity management practices in ensuring animal health and delivering veterinary services is thus critical to the protection of public health, biodiversity and the environment as well as ensuring increased international trade. These practices must be geared towards preventing the entry of animal diseases, controlling their spread within animal populations or facilities and containing/eradicating such infectious agents/diseases in animals.

Objective(s):

To protect and improve overall animal health, public health and the economy.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
1. To prevent the entry, control the spread and ensure the eradication of highly infectious diseases in livestock	a. ensure all Genetically Modified Animals (GMAs) and their products are subject to biosafety regulatory procedures; b. develop and implement a specific contingency plan for surveillance, prevention and control of biological select agents and toxins	Funding, operational vehicles, equipment and reagents for the laboratories, biosafety guidelines, critical mass of experts in relevant fields, technical support from government, international and	i. Only Biosafety regulated Genetically Modified Animals (GMAs) and their products in circulation; ii. Contingency plan for surveillance, prevention and	i. Improved overall animal health, public health and economy; ii. Effective Biosecurity measures in place	VCN, VTH, NAQS, NVMA, AFAN, FMST&I DVPCS, FMARD, OIE, NVRI, FMT, FMITI, FMENV, FMOH,

	(BSATs)/ biothreat organisms; c. strengthen relevant Laboratories for safe handling of biothreats; d. ensure early detection of an outbreak of a potential bio-threat to enable a rapid and timely response; e. training and re-training of relevant professionals on surveillance, prevention and control of biothreats; f. strengthen import protocols to prevent entry of biothreats into the country; g. strengthen quarantine protocols and provide quarantine facilities to prevent entry of biothreats into the country;	regional organizations, emergency response strategy and appropriate vaccines and treatment regimens.	control of biothreats developed; iii. Laboratories handling biothreats developed; iv. Trained personnel on surveillance, prevention and control of biothreats in place;		EHORECON, NBMA and relevant State Ministries and other relevant stakeholders.

Thematic area: FOOD SAFETY

Preamble:

Strengthening food safety strategies, which refer to the prevention of all sources of biological agents/substances causing food poisoning that could endanger the health of consumers is key because unsafe food creates a vicious cycle of diseases and malnutrition to humans. Foodborne diseases can become a biosecurity threat, which can impede socioeconomic development by straining health care systems, and harming national economies, tourism and trade.

Objective(s):

To protect consumers from food borne diseases.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Strengthening the food safety system to prevent biothreats that could endanger the health of consumers	a. Develop the food defence structure using threat and vulnerability assessment of the food supply chain b. improve risk assessments, management, advocacy and communication c. improve international and national cooperation on food safety	Funding, stakeholders' investments and provisions, development partners, private sector	i. Integration of threat and vulnerability assessment into food defence structure. ii. SOPs on food handling developed	Improved safe, quality and wholesome food	NAFDAC, NAQS, FMARD, SON, NiBSA, FCCPC, MLSCN, NCDC, NVRI, FMoH, FMFBNP,

	d. strengthen national and international compliance on food safety regulation		iii. Technical capacity of surveillance officers and food scientists built		FMST&I EHORECON, NBMA and other relevant stakeholders
	e. strengthen technical capacity of surveillance officers and food scientists		iv. Baseline information and data of food handlers collected		
	f. ensure comprehensive baseline data of food handlers		v. Food handlers educated and enlightened		
	g. ensure continuous education for food handlers		vi. Significant reduction in food-borne disease incidence		
	h. ensure food safety during production, handling, storage and transportation				
	i. strengthen public health laboratories and water sanitation and hygiene (WASH)				

Thematic area: AGRICULTURE

Preamble:

The prevention and control of exotic pests and diseases are agricultural challenges. Some biosecurity management practices that can guarantee the building of a secure future for agriculture include; integration of plant, animal and aquatic biosecurity around a common proactive risk-based approach, international cooperation to deal with threats at source and a commitment to focus on using modern innovations to build resilient agro-systems.

Objective(s):

a. ensure the agricultural sector is protected from pests and diseases;
b. ensure pest and disease-free agricultural products that enhance trade and contribute to national economic development;
c. encourage Good Agricultural Practices (GAP) that prevent excessive use of harmful agrochemicals;
d. support development of resilient food systems; and
e. strengthen collaboration with regional, national and international bodies or corporations to deal with threats at source.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Building a system for a robust bio-risk management approach in all	a. improve agricultural extension and research liaison services; b. enhance robust agricultural	Funding, relevant legislations, agric extension/liaison officers and other technical resources.	i. Improved agricultural extension and research liaison services commence ii. Regular Agricultural	National economic assets (livestock and crops) protected	FMARD, NAQS, FMENV, FMST&I NEMA, ARCN, NBMA,

agricultural practices	facilities inspection; c. carry out surveillance and intelligence gathering; develop early warning systems for emerging pests and diseases; d. establish a national emergency response plan for plant and environmental pests and diseases; e. encourage integrated pest and weed management practices; f. deploy and use of safe technologies; g. ensure strict monitoring of aquatic ecosystem for effective biosecurity		facilities inspections executed iii. National environmental assets (ecosystems, flora & fauna landscapes) protected iv. pest and weed management practices in place v. Safe technologies in operation vi. Effectively monitored aquatic ecosystem vii. Capacity of veterinarians, entomologists and plant pathologists strengthened		research institutes and other relevant stakeholders.

	h. strengthen the capacity of veterinarians, entomologists, fisheries extension officers and plant pathologists.				

Thematic area: ENVIRONMENTAL PROTECTION AND BIODIVERSITY CONSERVATION					
Preamble: Nigeria's rich biodiversity is one of the hubs of global genetic resources. Various internal mechanisms to protect the environment and ensure biodiversity conservation are in place. However, increased trade and travel, impact of climate change, emergence and spread of transboundary diseases, influx of invasive species and emerging new technologies require that the country gives greater attention to biosecurity.					
Objective(s): To ensure that Nigeria's environment and biodiversity are protected against biosecurity threats.					
Strategy	**Action(s)**	**Resources**	**Expected Output(s)**	**Expected Outcome(s)**	**Responsible MDAs and Organization**

Mainstreaming Biosecurity into national environmental programmes, plans, policies and legislations	a. review the National Policy on Environment and National Biodiversity Strategy and Action Plan (NBSAP) to feature biosecurity; b. present memorandum at the National Council on Environment annually on biosecurity matters; c. ensure enforcement of the Control of Alien and invasive Species Regulations; d. include biosecurity programmes/plans in all relevant environmental activities; e. promote advocacy and awareness creation on the need for protection of biodiversity; f. set-out annual National Biosecurity Day for public awareness; and	Special intervention fund, technical expertise, all existing extant Laws	i. Biosecurity mainstreamed into national environmental programmes; ii. National Biosecurity consciousness created iii. A national Biosecurity Day created iv. A reviewed NBSAP with biosecurity component	Biosecurity threat-free environment	FMEnv, FMARD GEF, UNEP, EHORECON, NAGGW, NESREA, NiBSA, NCF, NGOs, NBMA State/Local Government environmental organization and other relevant environment stakeholders

	g. develop regulations and guidelines for effective implementation of the policy.				

Thematic area: BIOTECHNOLOGY AND BIOSAFETY					
Preamble: Advancement in biotechnology has the potential to transform mankind and the environment and if not properly regulated, could be harmful or misused. Therefore, there is the need to have measures in place to curtail its potential threat to human health, biodiversity and the environment.					
Objective(s): To ensure that advances in biotechnology do not constitute bio-threat to human health, biodiversity and the environment.					
Strategy	**Action(s)**	**Resources**	**Expected Output(s)**	**Expected Outcome(s)**	**Responsible MDAs and Organization**
Mainstreaming biosecurity into biotechnology and biosafety programmes,	a. ensure the implementation of the updated National Biotechnology Policy that captures Biosecurity;	Funding, technical expertise, operational vehicles, training equipment, relevant legislations/guidelines	i. National Biotechnology Policy updated and implemented ii. Biosecurity mainstreamed into biosafety and	A bio-threat-free practice of biotechnology	NABDA, MLSCN, FMST&I, FMOH, FMARD, ARCN, BSN, NBMA and

plans, policies and legislations	b. mainstream biosecurity into biosafety and biotechnology guidelines and regulations;		biotechnology guideline/regulations iii. Updated biosafety units to address biosecurity in biotechnology iv. Technical capacity built and strengthened;		other relevant biosecurity and biotechnology stakeholders
	c. ensure effectiveness of, or strengthen biosafety units to address biosecurity in Biotechnology and related institutions, and ensure compliance to Biosecurity measures;				
	d. enhance capacities on risk assessment, surveillance and enforcement				
	e. strengthen risk analysis guidelines to address biosecurity				

Thematic area: FACILITY ESTABLISHMENT, MANAGEMENT AND SECURITY (BIOSAFETY LABORATORY, CONTAINMENT FACILITIES, BIOBANKS, ISOLATION CENTRES, etc.)

Preamble:

Facilities provide defined areas where VBMs are handled or stored. Thus, these facilities expectedly should be designed to comply with global standards with regards to requirements of physical containment, operational practice and verification testing to ensure biosecurity. As such, failure to adhere to these standards in the establishment, management or security could render VBMs vulnerable to loss, theft and/or misuse with resultant catastrophic effects.

Objective(s):

a. provide at each Physical Containment Level (BSL1, BSL2, BSL3, BSL4), facilities that are designed in compliance with best practices and international standards; and
b. ensure compliance with requirements as regards physical containment, operational practice, performance and verification testing for facilities where VBMs are handled and stored.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Establishment of well-equipped/located and secured facilities across the nation	a. establish facilities in geographical areas that are not prone to natural disasters. In areas prone to natural disasters, buildings and support systems for containment zones may need to meet more stringent building codes; b. ensure the establishment of biosafety laboratory in each state of the federation for ease	Funding, technical expertise, SOPs, Protocols.	i. Enhanced protection from bio threats ii. Standard Operating Procedures developed; iii. Procedure for certification of facilities established;	Appropriately secured and well-equipped facilities established	MLSCN, NCDC, FMOH, SON, NiNAS, IPAN, NAQS, VCPC, FMARD, FMWH, COREN, NPF, NBMA and other

	of analysis or upgrade the scope of existing quality control in laboratories to accommodate biosafety analysis.		iv. Technical expertise identified and engaged in the establishment of the facility.		relevant stakeholders
	c. design and locate structure of containment zone to withstand internal and external environmental factors;				
	d. ensure that technical expertise is engaged in the establishment and management of facilities;				
	e. ensure that facilities are designed in accordance with international standards and specifications; and				
	f. ensure that appropriate standard operating procedures (SOPs) are in line with global best practices.				

Thematic area: BIOSECURITY INFORMATION AND DATABASE

Preamble:

National Biosecurity Information has variable levels of classification and access. The information is comprised of validated, harmonised and processed data gathered from a variety of MDAs into a national database. Such a database will include an inventory of VBMs, human personnel involved in biosecurity activities, infrastructure and facilities including non-state actors with threat potential and dual-purpose biotechnology activities particularly in academic institutions and security agencies. Therefore, the establishment of a national biosecurity information/ database is greatly needed to provide an efficient, transparent and accountable method of handling and maintaining data securely. In addition, a harmonized national biosecurity information/database will facilitate the sharing of data through the entire system and keep facilities abreast of new developments.

Objective(s):

To develop a harmonised national bio-threat inventory/database.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Establishment and management of national biosecurity database	a. design and harmonize a national database to link to the sectoral facilities bio-threat inventories and databases; b. ensure all facilities operate and manage VBMs via a coordinated system c. ensure that facilities are designed in accordance with current international standards and specifications to ensure adequate	Funding, technical expertise, existing facility databases, biosecurity facilities, Cyber security.	**i.** Strengthened sectoral bio-threat inventory and database; ii. Established harmonized National biosecurity inventory and database;	i. Information of bio-threat agents, location of facilities and skilled personnel with access and authority; ii. Enhanced protection from biothreats	ONSA, NABDA, NBMA, DSS, NAQS, NPF (National Data Centre) and all biosecurity facilities

	d. perform inventory/database audits at predefined intervals e. provide specialized trainings and refresher courses for biosecurity personnel at all levels f. establish Human Reliability Program (HRP)		iii. Capacity of personnel built; iv. Strengthened facilities that manage and operate VBMs		

Thematic area: BIOTERRORISM AND BIOWARFARE					
Preamble: Bioterrorism is a malicious act of using valuable biological materials to cause harm to human health, biodiversity and the environment. The grave consequences from the impact of bioterrorism to cause harm to large populations and affect the socioeconomic development of a nation, necessitates the establishment of biosecurity measures against bioterrorism.					
Objective(s): To ensure that Nigeria is protected from all acts of bioterrorism and is defended against bio-warfare					
Strategy	**Action(s)**	**Resources**	**Expected Output(s)**	**Expected Outcome(s)**	**Responsible MDAs and Organization**

1. Establishment of adequate Prevention and Detection systems	a. set up an alert and information exchange mechanism to enable seamless communication among all responders b. c. update the database for all known pathogens that can be used as a biological weapons d. develop broad spectrum vaccines, antimicrobials, and antidotes for protection against bioterrorism e. harness scientific knowledge and tools by conducting research and development to enhance biodefence capability f. ensure training and retraining of technical personnel involved in all aspects of countering bioterrorism activities and provide them with adequate	Personnel and technical expertise, funding, sensors and detection equipment, computers, SOPs for detection, learning and training modules and operational resources	i. Comprehensive Coordinated Communication Network systems within all emergency response departments, Investigative agencies, Cybercrime agencies and international collaborators established; ii. Database containing list of all pathogens that can be used as a bioweapon including location and details of organization and focal persons updated; iii. Skills of biological disaster quick response team and emergency health	i. Contribute to international biosecurity capability and raise Nigeria's profile of biosecurity within the Global Health Security Agenda (GHSA) ii. build community resilience	ONSA, MOD, MLSCN, NPF, NSCDC, Interpol, NCAA, NCDC, FMARD, FMoH, NVRI, NAQS, DSS, FAAN, NOA, OSGF(NAC&BWC), NITDA, NSM, (NISEB), NBMA and other relevant stakeholders

	personal protection equipment/kits		care providers enhanced; iv. Broad spectrum vaccines, antimicrobials, and antidotes for protection against bioterrorism developed; v. Laboratory for counter bioterrorism research and development well-equipped; vi. Case management guidelines implemented		
	g. create public awareness and sensitization programs				
	h. enhance coordination in bio-surveillance and bio-monitoring system				
	i. update case management guidelines				
	j. ensure detection of bio-warfare agents				
	k. carry out risk analysis of biological weapons				
	l. establish Laboratory for counter bioterrorism research and development				
	m. build appropriate infrastructure for countermeasures and research and development to minimize public health consequences and				

	improve disease diagnosis and recovery				
2. Ensuring appropriate Response	a. strengthen International and domestic cooperation amongst all biosecurity-related Agencies	Funding, personnel expertise, learning/training modules as well as other stationary and operational resources	i. Adequately equipped isolation and treatment centres established; ii. Trained frontline workers; and ii. National incident management plan implemented		
	b. harmonize states' response plans into a single all-discipline incident management plan				
	c. enhance the national incident management system				
	d. strengthen the capacity of frontline workers				
	e. operationalize standard disinfection methods for infectious biological agents				
	f. create awareness on bio-terrorism				
3. Enablement of Post-	a. enhance the support system of affected parties	Funding, personnel expertise,	i. Well trained surveillance officers;		NBMA, ONSA, MOD,

Exposure Management	b. carry out post-outbreak surveillance	monitoring and surveillance officers, vaccines and drugs, PPE, Decontamination facilities	ii. Upgraded care centres in place; ii. PEP in place		MLSCN, NPF, NSCDC, Interpol, NCAA, NCDC, FMARD, FMoH, NVRI, NAQS, DSS, FAAN, NOA, OSGF(NAC& BWC), NITDA, NSM, (NISEB) and other relevant stakeholders.
	c. track end users of biological weapons				
	d. put Post-Exposure Prophylaxis (PEP) in place				
	e. upgrade care centres				
	f. train Surveillance officers				
	g. ensure post-exposure decontamination process in place				
	h. ensure proper management of waste generated from decontamination processes				

Thematic area: BIOTHREAT RISK ASSESMENT
Preamble:

The Assessment of risks associated with the handling and storage of Valuable Biological Materials (VBMs) within facilities is critical to preventing bio-threats. Facilities shall comply with regulatory requirements by adhering to a combination of physical measures and operational procedures designed to prevent the loss, theft, misuse, diversion, or intentional release of VBMs.					
Objective(s): To adequately prepare against, and mitigate bio-threat events					
Main Strategy: Development of a bio-risk early warning system					
Strategy	**Action(s)**	**Resources**	**Expected Output(s)**	**Expected Outcome(s)**	**Responsible MDAs and Organization**
1. Establishment and management of National Risk Assessment procedure	a. Identify, update and profile biosecurity assets (VBMs, equipment, patented data/protocol, experts); b. maintain an inventory of VBMs, and other regulated infectious material in facilities c. identify, define and compile a list of potential threats (internal and external adversaries);	Funding, bio-risk assessment experts, facilities etc.	i. Biosecurity asset priority list developed; ii. Inventory of pathogens/toxins in place; iii. Register of threats and risks in place; and iv. Trained staff on risk assessment v. Regular sensitization Programmes organized		NCDC, NAFDAC, NAQS, FMIC, FMOH, FME, NOA, FCCPC, ONSA, DSS, NPF, NCC Media, NBMA and other relevant

	d. identify risks, threats and vulnerabilities		vi. Timely dissemination of bio-threat events		biosecurity stakeholders
	e. determine Biosecurity Risk Levels				
	f. develop envisaged threats and risk registers				
	g. collaborate with other facilities to harmonize risk assessment processes and share resources/expertise				
	h. train technical staff on risk assessment				
	i. conduct periodic review of bio-risk assessment or as the need arises				
2. Establishment of a Biorisk Management System	a. establish and strengthen Physical Security measures in biosecurity facilities	Funding, risk management experts, security barriers, surveillance mechanisms, access control systems, Cyber Security	i. Physical security measures in place; ii. Institutionalized personnel suitability and reliability criteria; iii. Information management and security policy in place;		NCDC, NAFDAC, NAQS, FMIC, FMOH, FME, NOA, FCCPC, ONSA,
	b. develop and strengthen Personnel Suitability and Reliability criteria				
	c. maintain an inventory and accountability of pathogens and toxins				

	d. create information management and security policies and procedures to protect sensitive information e. develop a biosecurity emergency response strategy f. train staff on bio-risk management g. Characterize and categorize VBMs h. develop a register of in-country personnel with biosciences competence of interest i. develop a biobank to collect and secure pathogens of higher consequence/keep an inventory of such in relevant facilities; and j. ensure sustainable funding mechanism		iv. trained staff on bio-risk management; v. Maintained database of Graded substances ; vi. Maintained database of in-country scientists ; and vii. Maintained database for storage facilities		DSS, NPF, NCC, FMST&I Media, NBMA and other relevant biosecurity stakeholders
3. Enhancement of Biosecurity Risk	a. identify and engage with relevant stakeholders	Funding, communication experts, media	i. Timely dissemination of bio-threat events;		NBMA, NCDC,

Communication procedure	b. identify risk communication gaps	resources, emergency response plan, other relevant stakeholders.	ii. Stakeholders identified and engaged; iii. Regular sensitization Programmes organized		NAFDAC, NAQS, FMIC, FMOH, FME, NOA, FCCPC, ONSA, DSS, NPF, NCC Media and other relevant biosecurity stakeholders
	c. strengthen the bio-risk communication measure				
	d. sensitize stakeholders on risk management associated with Biothreats;				
	e. provide general information and advice on biosecurity-related hazards and their management;				
	f. monitor and evaluate the effectiveness of communication strategies implemented and improve as deemed necessary				
	g. develop continuous training programs for bio-risk communication team.				
	h. Maintain database of vendors.				

Thematic area: BORDER CONTROL/MANAGEMENT

Preamble:

Globalisation has led to an increase in trade and travel and exotic species are now being moved across borders, either accidentally or deliberately, at unprecedented rates. Thus, the natural barriers that once separated the world's floras and faunas are no longer effective and invasive alien species pose potent and burgeoning threats to both natural and agricultural ecosystems

Objective(s):

To ensure that the Borders of Nigeria are secured and protected from the incursion of Invasive Alien Species (IAS), Pests and Diseases that would pose a threat to human health, biodiversity and the environment.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Airport (International)	a. review and update passengers' clearance procedures where necessary;	Funding, technical personnel, detector Dogs and Trainers,	i. Standard operating procedures for	Functional Biosecurity system in	NIS, NCS, NAQS, FAAN,

	b. review and update import procedures for airfreight goods where necessary; c. install/upgrade scanning technologies at ports of entry to meet global standards; d. ensure the training and engagement of sniffer dogs at ports of entry; e. review and update inspection procedures for biological materials goods; f. allocate appropriate and sufficient space at the airports as biosecurity control area for processing passengers and their baggage; g. Emplace a craft and cargo tracking system to notify relevant stakeholders on their movement in Nigeria; h. allocate appropriate areas at all ports of entry for biosecurity waste management; i. interception and containment/encapsulation of biosecurity waste at ports and	technical equipment (Communication gadgets, Security systems, Scanning machines, Pest traps etc), designated inspection and waste management areas.	screening passengers and cargos frequently reviewed and updated; ii. Scanning machines installed and detector dogs deployed at the international airports; iii. Biosecurity staff responsible for incoming flights trained on biosecurity processes and procedures; iv. Isolation and quarantine facilities provided at all ports of entry; and v. Incinerators and sterilizing machines	place at Airports	NCAA, FMOH, DSS, NPF, NBMA

	shipment back to source countries; j. secure transportation for off-site sound disposal, using accredited facilities/technologies; k. train and strengthen the capacity of Biosecurity Officers (quarantine, port health and others); l. review and harmonize a standardized national protocol for the detection of new pests and diseases; and m. set up and manage pest traps within and around port environment.		installed at all ports of entry		
2. Seaport (International)	a. revise and update international vessels operation manual to include biosecurity management systems in accordance with seaport management systems; b. revise and update the inspection procedures for imported goods to include the detection of bio-threats;	Funding, Sniffer Dogs, technical personnel/experts, international vessel biosecurity management systems, transitional facilities such as: container wash,	i. Frequently reviewed and updated international clearance procedures in place; ii. Biosecurity risks (if any) associated with	Functional Biosecurity system in place at Seaports	NBMA, NIMASA, NCS, NAQS, NPA, FMT, NSC, NESREA, FMOH,

	c. allocate adequate space for waste management; d. establish biosecurity clearance terminals; e. install transitional facilities (for isolation and quarantine) at ports of entry; f. train Biosecurity Officers; g. develop a nationally harmonised approach to dealing with high-risk containers/vessels; h. develop and review a standardized national protocol for the detection of new pests and diseases; i. set up and manage pest traps within and around port environment; and j. deploy detector dogs at ports of entry.	vehicle and machinery decontamination area, treatment facility, land allocated, pests' traps, relevant guidelines and manuals (seaport import operations manual).	arriving vessels, travelers and cargos efficiently managed; iii. Biosecurity waste appropriately managed; iv. Vessels and cargos appropriately analysed to ascertain risk level; v. High-risk sea containers cleared in accordance with the Sea Container Import Health Standard; vi. Trained Biosecurity Officers deployed to ports of entry; vii. Clear and comprehensive inspection guidance		NIOMR and other relevant stakeholders.

			material and PPE's available to inspectors at all ports of entry; and iii. Detector dogs deployed at ports of entry.		
3. Land Borders	a. develop/review and standardise an inspection procedure for carriers, goods and passengers at border checkpoints; b. develop/review and standardise protocols for the handling of passengers and goods of biosecurity risk; c. install appropriate surveillance devices at points of entry; d. strengthen the capacity of biosecurity officers at ports of entry; e. provide containment facilities at ports of entry for isolation and quarantine; and f. deploy sniffer dogs at ports of entry.	Funding, technical expertise, inspection procedures and manuals, surveillance devices, detector dogs and trainers, existing containment facilities.	i. Surveillance at land borders improved ii. Inspection procedures for land borders strengthened; iii. Security at land borders improved; iv. Capacity of Biosecurity personnel (Biosafety enforcement officers, quarantine officers, health officers); v. detector dogs deployed at ports of entry	Functional Biosecurity system in place at land Borders	NBMA, relevant Border Agencies (NCS, NAQS, NIS), DSS, FMOH, NAFDAC and other relevant stakeholders.

Thematic area: TRANSPORT SECURITY					
Objective The objective is to safely and securely transport VBMs from one place to another.					
Strategy	**Action(s)**	**Resources**	**Expected Output**	**Expected Outcome**	**Responsible MDAs and Organizations**
Establishment (where necessary) and strengthening of guidelines for the safe and secure transportation of biological materials	a. ensure the proper utilization of a national standardised tracking system for VBMs in transit	Funding, SOPs, international guidelines on transport of VBMs, technical expertise, biosecurity facilities.	Regulatory and institutional procedures for documentation and transport of VBMs established	Safe and secure VBMs transport system established	NBMA, all Biosecurity Facilities
	b. harmonise, review and update regulatory and institutional procedures for documentation and transport of VBMs;				
	c. train and retrain personnel on procedures for documentation, packaging and transport of VBMs				

	d. develop institutional contingency plans for transport of VBMs.				

Thematic area: CLIMATE CHANGE

Preamble

Change in climatic conditions is an important factor in the distortion of the environment and ecosystem services. Impacts of pest damage to crops and the environment due to climate change pose significant threat to biosecurity.

Objective:

To mitigate the effects of increased pest incidences, invasive alien species (IAS) and emerging infectious diseases (EIDs) due to climate change.

Strategy	Actions	Resources	Expected Output	Expected Outcome	Responsible MDAs and Organization
1. Assessment and management of pest, IAS and EIDs impact, and engagement with stakeholders.	a. collate relevant data for the control of pest incidences, IAS and EIDs b. carry out pest risk assessment c. carry out surveillance of pest and noxious weeds, EIDs and IAS list; d. communicate best pest management practices to relevant stakeholders	Funding, pest management plans, stakeholders, weather information, extension workers.	Management strategies on pests, EIDs and IAS in place	Best pest management plan and practices in place;	NBMA, NIMET, FMARD, FMENV, NIGCOMSAT, FMST&I, FMOH and other relevant biosecurity and environment related stakeholders.

	e. develop relevant framework for an integrated pest management system.				

Thematic area: BIOETHICS					
Preamble Professional standards and conducts that guides research and development in Bio-sciences is of utmost importance in biosecurity. All aspects of bioethics such as agricultural, medical, research, environmental, public health, etc. are vital and should be taken into consideration.					
Objective: a. build strong cooperation and synergy between regulatory agencies and professional bodies; and b. uphold the moral and ethical principles of scientific practices that involves the use of VBMs in medical, agricultural and environmental research as it concerns the biosecurity of the Nation					
Strategy	**Actions**	**Resources**	**Expected Output**	**Expected Outcome**	**Responsible MDAs and Organization**
Ensure proper implementation of the code of bioethics.	a. develop/review/update the code of bioethics for research facilities to incorporate biosecurity concerns; b. coordinate the implementation of this	Funds, trained personnel on bioethics, bio-ethic codes and operational resources	i. Capacity of bio-science researchers built on bioethics; ii. Safe research which takes into account ethical		FMST&I, FMOH, NABDA, NCDC, NIPRD, FMoJ, SON, NVRI, NIMR, ARCN NAFDAC, NBMA and other relevant academic institutions and stakeholders.

	code of bioethics across all research facilities;		consideration established iii. Governance mechanism for the management of samples and associated data in place		
	c. regular training of regulatory officers and research staff on importance of adhering to the codes of bioethics;				
	d. ensure that ethical considerations are taken into account during risk analysis and counter measures to biothreats;				
	e. Initiate a governance mechanism for samples and associated data;				
	f. enforce access benefit sharing and compliance mechanism; and				
	g. identify expertise in bioethics in Nigeria.				

Thematic area: SURVEILLANCE, PREPAREDNESS AND RESPONSE

Preamble:

Surveillance, preparedness and response are critical elements of any efficient biosecurity system. Surveillance consists of information gathering with special attention to technical and biological aspects as well as the monitoring of bio-threat incidents. Its efforts are usually aimed at targeting the most relevant biological security threats in order to prioritize preparedness and response measures. Preparedness and Response on its part, is the ability to quickly mitigate, eliminate or contain the effect of a dangerous incident that involves VBMs and Toxins.

Objective(s):

a. strengthen surveillance across all facilities containing biothreats, including at points of entry, for effective monitoring and timely detection of biosecurity threats and incidents;
b. establish a National Response Plan against bio-threat incidents;
c. Integrate the National Response Plan for biosecurity incidents into the existing National Chemical and Biological Emergency Preparedness and Response Plan (NCBEPRP);
d. have a functional National Emergency Preparedness and Response strategy to key into the existing National Response Plan; and
e. ensure the availability of rapid measures required to counter any danger caused by bio-threat incidents.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
1. National Biosecurity Incident Management	a. update and implement a coordinated Biosecurity Incident Management System (BIMS) for	Funding, sector specific response strategy, operational	i. A coordinated Biosecurity Incident Management System (BIMS) for	Improved surveillance, preparedness and	NBMA, NCDC, NAQs, FMARD, FMEnv,

System (NBIMS)	preparedness and response and develop one for surveillance; b. establish and institutionalize a structure for an incident management team; c. conduct joint training and simulation exercises for all relevant stakeholders	standards and procedures.	surveillance, preparedness and response to bio-threats in place; and ii. An Incident Management Team structure developed and institutionalized	response to biothreats	FMOH, Media, Security Agencies, FMST, NEMA, NPF,ONSA, DSS, OSGF (NAC&BWC), State governments and other relevant stakeholders.
2. Strengthening of Surveillance system within International, Regional and National jurisdiction	a. develop a harmonized guideline for biosecurity surveillance; b.review and update the biosecurity surveillance guideline regularly; c.initiate a coordinated cooperative surveillance effort between Nigeria and	Funds, technical expertise, frontline workers, bio-threat inventory, existing surveillance systems.	i. A harmonized guideline for biosecurity surveillance developed and regularly reviewed; ii. Coordinated cooperative surveillance efforts between sub-regional governments initiated; and		FMEnv, NCDC, MoFA, MOD, FMOH, NAQS, FMARD, NBMA, Regional bodies and other relevant stakeholders.

	other regional bodies (ECOWAS etc.); and d.conduct regular training for surveillance officers and relevant personnel.		iii. Surveillance officers and relevant personnel regularly trained		
3. National Emergency Preparedness and Response Strategy (EPRS)	a. regularly review the National EPRS; b. develop Emergency Preparedness and Response Operational Guidelines (EPROG) for biosecurity facilities; c. establish an Advisory Committee at NBMA level; d. establish emergency response hotlines at National, State and Local levels; e. establish containment and confinement facilities for controlled organisms that may pose threat to human	Funds, technical expertise, animal and plant emergency response plans, existing legislations	i. Harmonized National EPRS developed and regularly reviewed; ii. Established EPROG in all biosecurity facilities nationwide; iii. National Advisory Committee for EPRS established; iv. Emergency response hotlines established at all levels of government; v. Containment and confinement facilities for controlled organisms established; vi. An emergency response action plan for incursion of		NBMA, NCDC, NAQS, VPCS, NEMA, SEMA, Federal and State Ministries of Health, Federal and State Ministries of Agriculture, Federal and State Ministries of Environment, Biosecurity Facility operators and

	health, biodiversity and the environment; f. initiate/activate and periodically simulate an emergency response action plan for incursion of a bio-threat; and g. conduct regular training on emergency preparedness and response for biosecurity personnel		reoccurring bio-threat(s) initiated; and vii. Regular training of officers on emergency preparedness and response conducted.		other relevant stakeholders.
4. Enhancing Biosecurity intelligence sharing between biosecurity officers and security operatives at International, Regional and National levels	a. establish coordinated linkage between biosecurity officers and security officers at International, Regional and National levels; and	Funds, National EPRS, technical expertise	i. A coordinated linkage structure between biosecurity officers and security operatives established; and ii. Quarterly technical meetings between security operatives and biosecurity officers institutionalised		NBMA, ONSA, Biosecurity stakeholders and security operatives

	b. conduct technical meetings between security operatives and Biosecurity officers where the need arises				
5. Counter Measures Response Plan	a. facilitate procedures for the immediate availability of counter measures for bio-threats; b. facilitate rapid Research and Development for measures to contain biothreats; and c. establish and maintain partnerships with all relevant stakeholders at all levels.	Funding, National EPRS, technical expertise, operational standards and procedures.	i. A system for rapid availability of counter measures for bio-threats established; ii. Rapid research and development procedures to contain bio-threats facilitated; and iii. Partnerships with all relevant stakeholders at all levels established and maintained		NBMA, MOD, NPF, BPP, NOA, relevant research institutes and other biosecurity stakeholders

Thematic area: WASTE MANAGEMENT
Preamble: A good waste management system includes sustainable activities and actions required to manage waste from generation to disposal. The development of a sustainable waste management system for hazardous biological waste is crucial for the prevention of possible threats to human health, biodiversity and the environment which may arise from mishandling.

Objective(s):

To minimise risk to human health, biodiversity and the environment due to improper waste management.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Enhancement of a sustainable waste management system	a. adopt harmonised protocols for sorting, labelling and treatment of wastes before disposal; b. organize and implement safe and environmentally friendly methods for waste management; c. develop relevant public/private partnership for proper management of hazardous biological waste; d. ensure training of all relevant stakeholders on safe and secure	Funding, waste management guidelines and legislation, waste management facilities.	i. Innovative and sustainable waste management culture established ii. Awareness on appropriate waste management created; iii. Relevant legislation, standard procedures, best practices, ethical and social aspects of waste management in Nigeria harmonised; iv. Contribution to national economy through sustainable	Enhanced sustainable waste management system	NBMA, FMEnv, NAFDAC, FMST&I, FMOH, NESREA, State and Local Government Environmental Protection Boards, SMEDAN, FME, LAWMA, FMIC, NOA, NUC, CSOs and other

	hazardous biological waste management		waste management achieved; v. Public/private enterprises collaboration in waste collection, recycling and disposal strengthened.		relevant stakeholders.
	e. carry out national orientation on waste management and awareness on existing accredited hazardous biological waste disposal facilities in the country;				
	f. incorporate and streamline biosecurity into waste management practices, policies, projects and planning;				
	g. harmonise and enforce sustainable waste management guidelines and legislation on management of biological hazardous waste; and				
	h. develop mechanisms for the conversion of biological wastes to energy.				

Thematic area: HUMAN RESOURCE MANAGEMENT

Preamble:

The national biosecurity system requires a competent workforce to handle biosecurity issues. This can be achieved through recruitment of qualified personnel, training and retraining of officers as well as provision of a conducive work environment.

Objective(s):

To provide a workforce and environment which fosters optimal productivity

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
1. Recruitment of competent workforce	a. embark on capacity needs assessment; b. recruit relevant personnel as may be required	Funds, training materials, biosecurity curriculum	i. Proficient biosecurity workforce in place **ii.** Critical mass of biosecurity experts in place	Conducive work environment and competent biosecurity workforce established.	NBMA, all biosecurity stakeholders
2. Training and retraining of biosecurity officers	a. embark on training needs assessment; b. formulate capacity strengthening and development plan;				

	c.engage stakeholders on capacity development;				
	d. develop biosecurity curriculum for relevant tertiary institutions;				
	e. engage with national and international institutions to provide specialized training for Biosecurity officers.				
3. Providing a conducive work environment	a. provide an appropriate motivation and reward system for the workforce				

Thematic: RESEARCH AND DEVELOPMENT
Preamble: Research is central to acquiring innovative ideas and methods to promote development. Stakeholders in biosecurity need to constantly conduct research in order to identify best practices in the management of VBMs in the country. They also need to be abreast with global biosecurity issues to ensure that Nigeria is a step ahead of emerging threats and trends in the biosecurity sector.
Objective(s): a. To enable biosecurity stakeholders' access to biosecurity related data; b. To generate, access and utilize scientific data to assist in the prevention, detection or management of VBMs that impact biosecurity; c. To strengthen the capacity of biosecurity research ethical committee.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Generation, accessibility and utilization of research data and information on biosecurity.	a. harmonize existing information on VBMs and diseases nationally; b. collaborate with relevant national and international organisations to provide information on VBMs and disease incidents;	Funding, research data**,** existing VBMs data and information**,** existing policies and legislations, peer-reviewed journals, national and global research institutions, international biosecurity organisations. .	**i.** Certified biosecurity research facilities in place and regulation enforced; ii. Research data compiled and utilized; **iii.** VBMs information and data available and accessed by	Improved research, development and its implication on biosecurity	NCDC, NVRI, NAQS, NPHCDA, NIMR, ARCN, FMENV, MoFA FMARD, FMST, NABDA, MLSCN, TETFund, NBMA and other relevant stakeholders

			biosecurity stakeholders.		
	c. ensure availability of facilities to conduct biosecurity research				
	d. document and publish research results where necessary;				
	e. ensure biosecurity researches are carried out in certified facilities;				
	f. increase funding of research on biosecurity;				
	g. enforce regulation of biosecurity researches;				

Thematic: INTERNATIONAL TRADE

Preamble:

Global trade and the movement of people increase the spread of valuable biological materials, either intentionally or unintentionally. Biosecurity measures which seek to allow trade and movements of people while preventing incursions that could lead to the establishment of unwanted pests, pathogens, and weeds will therefore need to be strengthened.

Objective(s):

To ensure that trade between Nigeria and its international trading partners is in accordance with global biosecurity standards.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Strengthening Fair trade agreement	a. ensure trading partners comply with technical Barrier Trade (TBT) and sanitary and Phytosanitary measures;	Funding, trading partners, international trade agreements, biosecurity legislation, SPS, Codex Alimentarius, OIE, IPPC.	i. Trading partners in compliance with sanitary and phytosanitary measures;		Relevant MDAs and other Organisations
	b. ensure that traded articles that may pose risk to human health, biodiversity and the environment are subjected to biosecurity regulations;		ii. International trade compliant with international biosecurity		

	c. strengthen trade agreements to ensure biosecurity standards are maintained; d. ensure adoption of fair trade; e. ensure dispute settlement procedures		standards in place;		

Thematic area: COMMUNICATION					
Preamble: Communication in biosecurity refers to the exchange of classified or unclassified information amongst relevant national and international stakeholders on a need-to-know basis. The key component of communication in biosecurity include data sharing and management, information security and technology services.					
Objective(s): a. improve information sharing between relevant national and international biosecurity stakeholders; b. ensure timely dissemination of factual information; and c. equip the national biosecurity sector with security information and ICT delivery resources					
Strategy	**Action(s)**	**Resources**	**Expected Output(s)**	**Expected Outcome(s)**	**Responsible MDAs and Organization**

1. Improving information sharing and information security amongst relevant stakeholders	secure sensitive biosecurity information; limit access to sensitive information to only authorised personnel; publish content of the national pest and disease outbreak status periodically; coordinate communication preparedness activities for biosecurity incidents; ensure that case management plans, research data and relevant materials are shared among stakeholders and the public; train and retrain personnel on biosecurity communication; and designate biosecurity information and communication officers	Funds, communication guidelines and strategies, national emergency preparedness and response strategy, trained communication personnel Funds, media houses, secondary and tertiary institutions, technical expertise	i. Information and data sharing among stakeholders and the public achieved and established; ii. Biosecurity information and communication officers designated; and iii. Central database for biosecurity information sharing established.	Improved information sharing and information security	NBMA, NITDA, NOA, NCC, FMIC, NEMA, ONSA, NIGCOMSAT, INTERPOL, BON, and other relevant stakeholders.
2. National database and ICT services	develop a central information database for the national biosecurity system and ensure access for all relevant biosecurity stakeholders where applicable; and				

	ensure that relevant biosecurity stakeholders are equipped with ICT services for information repository and dissemination				

Thematic area: EDUCATION, ADVOCACY AND OUTREACH					
Preamble: Biosecurity education and advocacy involve steps and actions taken to ensure that the public is well informed on biosecurity and related issues, which will in the long run, lead to a safe and secured nation. It is therefore imperative for government to identify effective ways to create awareness among scientists and the public about their social responsibility regarding biosecurity.					
Objective(s): To increase public awareness on biosecurity					
Strategy	**Action(s)**	**Resources**	**Expected Output(s)**	**Expected Outcome(s)**	**Responsible MDAs and Organization**
1. Integration of biosecurity in the Nigerian educational system	a. develop a curriculum on biosecurity for secondary and tertiary schools; b. introduce and maintain biosecurity as a course in all tertiary institutions;	Funds, media houses, secondary and tertiary institutions,	i. Biosecurity integrated into the Nigerian educational system;	Biosecurity integrated into the Nigerian educational system	FME, NOA, NUC, FMIC, NERDC, NBMA and other relevant stakeholders.

	c. introduce and maintain biosecurity as a topic in one of the science subjects in secondary schools; d. promote research on biosecurity at the postgraduate level; and e. provide open source teaching and research materials relevant to biosecurity online.	technical expertise	ii. Biosecurity introduced and maintained as a course in tertiary institutions iii. Biosecurity research at postgraduate level promoted		
2. Establish an advocacy system for biosecurity	a. Organise annual national biosecurity conference; b. organise quarterly press briefings; c. establish collaboration between the biosecurity sector and media organisations; d. ensure effective collaboration between scientific community and policy makers; e. ensure coordinated public awareness for case management	Funds, media houses, secondary and tertiary institutions, technical expertise	Annual national biosecurity conference held	National biosecurity advocacy system in place.	FME, NOA, NUC, FMIC, NERDC, NBMA and other relevant stakeholders

Thematic area: GENDER PARTICIPATION

Preamble:

The United Nations affirms gender mainstreaming is promoted in all sectors, while giving just, equitable and progressive opportunities to participate in the provision of solutions in various societal issues. In this vein, the Federal Government of Nigeria recognises that these groups, when given the opportunity, will be resourceful in the development of the biosecurity sector.

Objective(s):

To ensure the active involvement of all gender in the biosecurity system.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Enable gender participation through education and inclusion in all aspects of biosecurity	a. Ensure gender balance in all aspects of biosecurity b. empower youths, women and differently abled individuals with resource materials on biosecurity; and c. encourage and support relevant NGOs and the private sector in the biosecurity sensitization	Funds, resource materials on gender inclusion, SDGs resource materials	i. Gender balance ensured in the biosecurity system; and ii. A gender balanced biosecurity workforce achieved	Enablement of gender participation in biosecurity	NBMA and all biosecurity stakeholders.

Thematic area: BIOSECURITY ENFORCEMENT

Preamble:

Biosecurity enforcement ensures compliance with biosecurity rules and regulations in the handling of VBMs and diseases. The enforcement of the biosecurity system in Nigeria requires vigilance at every port of entry, biosecurity facilities and the conduct of researches involving potentially harmful VBMs.

Objective(s):

To ensure compliance with biosecurity legislations.

Strategy	Action(s)	Resources	Expected Output(s)	Expected Outcome(s)	Responsible MDAs and Organization
Ensure adherence to biosecurity regulations	a. create awareness on biosecurity regulations;	Funding, biosecurity legislations, SOPs, import and export certification guidelines of agriculture, technical expertise	i. Awareness of biosecurity regulation created ii. Biosecurity facilities monitored and inspected iii. Collaboration with national and international bodies for biosecurity enforcement achieved	Efficient biosecurity enforcement system established.	NBMA, all biosecurity stakeholders and law enforcement Agencies.
	b. monitor and inspect biosecurity facilities, including national and international borders;				
	c. collaborate with relevant national and international bodies for efficient biosecurity enforcement;				
	d. train and retrain personnel on best biosecurity procedures;				

	e. review, update and harmonise all technical documents for enforcement;		iv. Trained personnel on biosecurity procedures v. Technical documents for enforcement reviewed, updated and harmonised		
	f. develop a robust biosecurity enforcement plan;				
	g. prosecute for non-compliance where necessary; and				
	h. monitor researches involving potentially harmful biological agents				

CHAPTER 5

MONITORING AND EVALUATION

5.0 MONITORING AND EVALUATION

Monitoring and Evaluation (M&E) is a participatory process that is integrated into policy, programme and project planning, design and implementation to encourage dialogue between stakeholders on the progress made on development. Its purpose is to help ensure accountability, and demonstrate the effectiveness and efficiency with which the National Biosecurity Policy and Action Plan will be implemented. In addition, it is intended to ensure that programmes and projects in the National Biosecurity Policy and Action Plan stay on track, while detecting problems to reduce the risk of major cost overruns or time delays.

Monitoring will employ management tools for improving programme and project performance in terms of improving organisational delivery and risk management. Evaluation on the other hand, shall involve the process of analysing or interpreting collected data to establish relationships between results and programmes or projects, as well as their effects and overall impacts, to learn from past successes and challenges and inform decision-making so that current and future initiatives can deliver valuable results, improve people's lives, and expand our options.

Objectives

1. To keep track of how well biosecurity policy and legislation is being complied with in Nigeria;
2. To ensure that the implementation of the policy is on track, according to agreed plans and schedules;
3. To verify that the partnership arrangements for implementing the National Biosecurity Policy are suitable and effective; and
4. To provide lessons and recommendations that will strengthen the National Biosecurity Policy and Action Plan to make it more effective.

Strategies

The National Biosecurity Policy and Action Plan shall focus on the development of appropriate monitoring and evaluation methodologies and systems for tracking biosecurity activities and services. The Monitoring and Evaluation System is built on three

main pillars that ensure that the desired results are delivered in a functional, effective, and efficient manner:

i. **Enabling environment:** People, partnerships and planning required to support data use;
ii. **Data and Information:** Mechanisms for collection, capturing and verification of data for making decisions; and
iii. **Decision Making:** Dissemination and use of data for decision making.

Principles & Criteria

i. M&E planning shall be an explicit part of project-level planning and budgeting for biosecurity activities.
ii. Implementation of the M&E plan, which includes SMART -Specific, Measurable, Achievable and Attributable, Relevant and Realistic, and Time-bound, Trackable and Targeted- indicators shall be part of programme and project monitoring and supervision.
iii. The relevance, effectiveness, efficiency, impacts, and sustainability of programmes and projects will be the focus of evaluations.
iv. After their implementation, all programmes and projects will be evaluated.
v. All MDAs must keep track of how this requirement is being implemented in their Biosecurity programmes and projects.

Actions

a. Establish a functional strategy, monitoring and evaluation system that includes clear organizational structures, M&E functions, and a feedback mechanism.
b. Increase, strengthen and maintain human capacity for M&E.
c. Strengthen partnerships for M&E System Planning, Coordination, and Management.
d. Institutionalize M&E frameworks/Logical Frameworks that outline the objectives, inputs, outputs, and outcomes of programs/projects, as well as the indicators that will be used to measure and verify all results.
e. Maintain costed M&E Work Plans that show how personnel, time, materials, and money will be used to accomplish the M&E functions.
f. Improve M&E communication, advocacy, and culture within the implementing MDAs.

g. Conduct routine Programme Monitoring to ensure that program/project activities are leading to the achievement of set objectives, as well as to collect and analyse data regularly.
h. Conduct national surveys and surveillance regularly, and use data to assess the progress of related programs and projects.
i. Collect data for national and sub-national databases that are relevant, reliable, and valid.
j. Supervise and audit data to identify and suggest ways to improve the M&E system, as well as verify data for accuracy and validity.
k. Evaluate and strengthen the operational standards and procedures used by biosecurity facilities and implementation organizations to improve organizational learning and share success with other stakeholders.
l. Disseminate and use data to inform future activities, either to reinforce or change the implemented strategy and to ensure accountability.
m. Conduct quarterly biosecurity meetings and two annual NAC meetings for decision-making.

Resources

Funding, biosecurity management and operating system, biosecurity operational standards, stakeholders' feedback, and technical expertise.

Outputs

a. A functional monitoring and evaluation system for National Biosecurity Policy and Action Plan developed;
b. Biosecurity operational standards and procedures for implementing organizations frequently evaluated and strengthened;
c. Biosecurity Monitoring and evaluation plans and frameworks developed and institutionalized;
d. Annual evaluation by the National Advisory Council (NAC) conducted;
e. Feedback mechanism for public monitoring of biosecurity services developed.

Outcome(s)

Improved organizational delivery and control for biosecurity risk and hazards.

RESPONSIBLE MDAs/ORGANISATIONS

NBMA, NAC, FMFBNP, FMEnv, FMoH and other relevant stakeholders.

DEFINITION OF TERMS

In this Policy and Action Plan document :

Administrative area	Dedicated room or adjoining rooms that are used for activities that do not involve Valuable Biological Materials.
Animal cubicle/room	A room or space that serves as primary containment, designed to house large-sized animals such as livestock or small sized animal in open cages.
Animal pathogen	Any pathogen that causes disease in animals, including those derived from biotechnology.
Appropriation audit	Inspection conducted to ascertain that funds are expended for the purpose they were intended.
Authorized personnel	Individuals who have been granted access to an area by the appropriate authority
Biohazard	Any biological substance that poses a threat to human health, biodiversity or the environment.
Biosecurity Incident Management System	A mechanism to provide guidance on the management of biosecurity incident responses and initial recovery operations.
Biosecurity Intelligence	The screening of various sources of information for signals of emerging biological threat issues.
Biosecurity Risk Assessment	Involves the identification of risks arising from the possession of Valuable Biological Materials, and determination of appropriate mitigation strategies.
Biosecurity Stakeholders	These are organizations (government and non-government), individuals or groups with mandates, interest or concern in biosecurity.
Biosecurity	Strategic and integrated approach that encompasses the policy and regulatory frameworks (including instruments and activities) that analyse and manage risks in the sectors of food safety, animal life and health, and plant life and health, including associated environmental risk.

	Security measures designed to prevent the loss, theft, misuse, diversion, or intentional and unauthorised release of pathogens, toxins, and other related assets against humans, animals, plants, biodiversity and the environment.
Bioterrorism	Bioterrorism refers to the intentional release of biological agents or toxins for the purpose of harming or killing humans, animals or plants with the intent to intimidate or coerce a government or civilian population to further political or socio-economic objectives.
Bio-threat	The danger posed by a harmful biological agent - valuable biological materials (VBMs) - produced by a variety of organisms with the potential to spread and cause an outbreak.
Bio-threat database	A system that stores and organizes biosecurity information concerning all VBMs
Budgetary allocation	The amount of funding/resources designated to each expenditure line.
Case Management	The collaborative process of assessment, planning, facilitation, caregiving, coordination, evaluation and advocacy for a particular case of bio-threat incident.
Classified Information	Any material or resource that is deemed to be sensitive, requires protection and access restriction.
Compliance	To conform to a rule, such as a Policy.
Confinement	The restriction of biological threat(s) to a place/location to avoid or minimize it's spread.
Containment	The combination of physical design parameters and operational practices that protect personnel, the immediate work environment, and the community from exposure to biological materials. It is also the action of keeping biological threat(s) incident under control or within limits.
Containment level (CL)	Minimum physical containment and operational practice requirements for handling Valuable Biological Materials or toxins safely in laboratory, large scale production, and animal work environments, depending on the severity of the risk.
Controlled access system	A physical or electronic system designed to allow access to only authorized personnel.

Countermeasure(s)	The measure, action or procedure taken to offset a biological threat(s) incident.
Disease	A disorder of structure or function in humans, animals, and plants or one of its parts, resulting from infection or intoxication.
Enforcement	The act of compelling compliance or execution of a law or rule.
Facility	Structures or buildings, or defined areas within structures or buildings, where VBMs are handled or stored.
Food safety	processes and procedures which ensure that all foods made available to consumers are safe.
Hazardous Wastes	By-products that have substantial or potential threats to public health or the environment.
Implementing Organizations	These are organizations within the biosecurity sector that implement biosecurity policy and legislation in accordance with their enabling and other related laws.
Incident	An event or occurrence with the potential of causing injury, harm, infection, intoxication, disease, or damage.
Information Security	the practice of protecting information or data from unauthorized access, use, misuse, disclosure, destruction, modification, or disruption.
Inspection	An organized examination or formal evaluation of an established standard.
Inventory	A record of assets (biological and non-biological) associated with a containment zone identifying Valuable Biological Materials in storage both inside and outside of the containment zone.
Monitoring	To systematically collect, analyse and use information to trail a program's growth towards achieving an objective.
Operational practice requirements	Administrative controls and procedures followed in a containment zone to protect personnel, the environment, and ultimately the community, from Valuable Biological Materials.
Operational Standards	Policies, procedures, and protocols employed in providing the dispatch of biosecurity services and related activities, and the performance objectives which define the minimum acceptable level of service provided by the organization.

Pathogen	A microorganism capable of causing disease or infection in humans, animals or plants.
Physical Containment	barriers in the form of engineering controls and facility design used to protect personnel, the environment, and ultimately the community, from Valuable Biological Materials
Personnel Suitability and Reliability	The term used to describe the criteria that individuals meet before they are employed.
Risk	The probability of an undesirable event occurring
Risk management	the identification, evaluation and prioritization of risks followed by coordinated and economical application of resources to minimize, control or mitigate the effects.
Risk management plan	A series of activities that provide the foundation and organizational arrangements for designing, implementing, monitoring, reviewing, and continually improving risk management throughout the organization.
SOPs (Standard Operating Procedures)	Documented processes to ensure consistent service and products' deliveries. A document that standardizes safe work practices and procedures for activities with Valuable Biological Materials in a biocontainment facility.
Unclassified Information	a material or resource that is assigned as official information which is not considered to be Confidential, Secret, or Top Secret but is not publicly accessible without authorization.
Valuable Biological Materials (VBMs)	may include pathogens and toxins, as well as non-pathogenic organisms, vaccine strains, genetically modified organisms (GMOs), cell components, genetic elements, and extra-terrestrial samples.
Zoonoses	Diseases that are transmissible between animals and humans.
Zoonotic Pathogen	A pathogen that causes disease in humans and animals, and that can be transmitted from animals to humans and vice versa

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Appendix I

Agents and Toxins

The following agents and toxins have the potential to pose a severe threat to human, animal, or plant health, or to animal or plant products. Avian influenza virus (highly pathogenic)

CATEGORY A These high-priority agents include organisms or toxins that pose the highest risk to the public and national security because they: Can be easily disseminated or transmitted from person to person; Result in high mortality and have the potential for major public health impact; Might cause public panic and social disruption; Require special action for public health preparedness.	
	Bacillus anthracis (Anthrax)
	Clostridium botulinum toxin (Botulism)
	Yersinia pestis (Plague)
	variola major Smallpox
	Francisella tularensis (Tularemia)
	Viral hemorrhagic fevers (filoviruses [e.g., Ebola, Marburg] and arenaviruses [e.g., Lassa, Machupo])
	COVID-19 (COV-SARS 2)
CATEGORY B These are second highest priority agents include those that: Are moderately easy to disseminate; Result in moderate morbidity rates and low mortality; Require specific enhancements of laboratory diagnostic capacity and enhanced disease surveillance	Brucella species Brucellosis
	Epsilon toxin of *Clostridium perfringens*
	Food safety threats (e.g., Salmonella species, *Escherichia coli* O157:H7, Shigella)
	Others include diseases of crops (e.g. *Ralstonia solanacearum, Tuta absoluta, Xanthomonas comprestris pv Manihot, Xanthomonas cospestris pv vignicola and Spodoptera frugiperda*)
	Burkholderia mallei (Glanders)
	Burkholderia pseudomallei (Melioidosis)

	Chlamydia psittaci (Psittacosis)
	Coxiella burnetii (Q fever)
	Ricin toxin from Ricinus communis (castor beans)
	Staphylococcal enterotoxin B
	Rickettsia prowazekii (Typhus fever)
	Viral encephalitis (alphaviruses [e.g., Venezuelan equine encephalitis, eastern equine encephalitis, western equine encephalitis])
	Water safety threats (e.g., *Vibrio cholerae*, *Cryptosporidium parvum*)
CATEGORY C These are third highest priority agents include emerging pathogens that could be engineered for mass spread in the future because of: Availability; Ease of production and dissemination; Potential for high morbidity and mortality and major health impact	Nipah virus
	Hantavirus
	Tick-borne hemorrhagic fever viruses
	Tick-borne hemorrhagic encephalitis viruses
	Yellow fever
	*Mycobacterium tuberculosis (*Multi-drug resistant tuberculosis)

Appendix II
STAKEHOLDERS AND THEIR MANDATE

Name of Organisation	List Enabling Act, other legal instruments, and relevant Documents	Mandate, Functions, Biosecurity Activities and areas of expertise	Other useful information
National Biosafety Management Agency	National Biosafety Management Act 2015 (as amended)	Putting in place measures to ensure biosecurity.	
Federal Ministry of Agriculture & Rural Development	Animal Diseases (Control) Act CAP. A 17 L.F.N. 2004. OIE Terrestrial Animal Health Code. NB: OIE is the World Organization for Animal Health *C/REG. 21/11/10* on the Harmonization of the structural framework and operational rules pertaining to health safety of plants,	Prevention, Control and Eradication of trans-boundary animal diseases and pests; Control of vector and vector-borne diseases; Provision of veterinary public health and food safety services; Control of zoonotic diseases; Ensuring early detection of outbreaks for rapid response; Certification of animals and products of animal origin for international trade.	i. The Department of Veterinary and Pest Control Services certifies all animals and animal products for international trade. ii. The Department is in collaboration with the Federal Ministries of Health and Environment for the implementation of the One-Health strategy.

	animals and food in the ECOWAS Region.		
National Intelligence Agency (NIA)	National Security Agencies Act (1986), NIA Instrument No.1 (1999)	**Mandate** i. The general maintenance of the security of Nigeria outside Nigeria concerning matters that are not related to military issues ii. Such other responsibilities affecting national intelligence outside Nigeria as the National Defense and Security Council or the President Commander-in-Chief (C-in-C) of the Armed Forces, as the case may be, may deem necessary. **Functions** (Instrument No. 1) i. Monitoring the activities of any person or organization outside Nigeria whose conduct is aimed at or capable of bringing disrepute to Nigeria or undermining the security or economy of the country. ii. Monitoring the intentions and policies of foreign countries towards Nigeria iii. Monitoring any external plans or acts of subversion or sabotage against Nigeria or its economy iv. Conducting espionage, covert operations and counter-intelligence activities outside Nigeria v. Collecting, collating and analyzing eternal intelligence on political, socio-economic and security matters vi. Establishing a database on foreign nations, nationals and organizations of intelligence or security interest **Biosecurity activities** Participated in trainings on bioterrorism preparedness and response.	

Office of the Secretary to the Government of the Federation (OSGF).	Ratification of the Bacteriological (Biological) and Toxin Weapons Convention (BTWC) by Nigeria (9th July, 1973). Establishment of the NAC&BWC by the Federal Government to implement the objectives of the BTWC in Nigeria. The objective of the BTWC is to prohibit the development, production and stockpiling of bacteriological (biological) and toxin weapons and on their destruction. Development of a national document titled National Chemical and Biological Emergency Preparedness and Response Plan (NCBEPRP).	i. The NAC&BWC is the National Focal Point for the Biological Weapons Convention – Implementation Support Unit (BWC-ISU) in relating with relevant national stakeholders from Government Ministries, Departments and Agencies (MDAs) as well as the organised Private Sectors. ii. Coordinating and overseeing national implementation of the BTWC. The NAC&BWC organizes and chairs the Inter-Ministerial Committee (IMC) on Chemical and Biological Weapons Conventions. The IMC meetings are held on quarterly basis or as the need arises with a view to ensuring effective national implementation of the Conventions in Nigeria. The IMC comprises of over forty (40) relevant Ministries, Departments and Agencies (MDAs) including the private sectors and national associations. iii. Ensuring that Nigeria keeps abreast of all the developments in the BWC-ISU which is the global implementing body of the BTWC. iv. Guaranteeing Nigeria's security or any other related matter whatsoever are not compromised in the process of implementing the Convention. v. Organising national workshops/seminars to raise awareness of relevant stakeholders and the populace on biological agents and toxins that can be weaponized.	

	The document was developed by the NAC&BWC in collaboration with relevant national stakeholders and it outlined policy actions to be undertaken by the stakeholders in preparing and responding to chemical and biological emergency incidents. The Plan was approved by the Federal Executive Council (FEC) on Wednesday, 25th November, 2020.	vi. Fostering the peaceful use/application of Biology for national development.	
Federal Competition and Consumer Protection Commission (FCCPC)	Federal Competition and Consumer Protection Act, (FCCPA) 2018 Sections: 1 (d), 17 (a) (b) (c) (d) (e) (f) (g) (i) (l) (m) (s) (t) (v) (w) (x) (y) (z), 114, 116, 123, 124, 125, 126, 130, 131, 133, 134, 135, 136, and 140.	FCCPC's mandate among others include: Protect and promote the interests and welfare of consumers by providing consumers with a wider variety of quality products; Promote economic efficiency; Contribute to the sustainable development of the Nigerian economy, among others; Prohibit restrictive or unfair business practices which prevent, restrict or distort competition or constitute an abuse of a dominant position of market power in Nigeria; Organize and undertake campaigns and other forms of activities capable of promoting increased private and public consumer	

		awareness; Act generally to reduce the risk and injury which may occur from consumption of certain consumer items and other services rendered to consumers which action may include restriction or prohibition In carrying out its mandate, the Commission has powers to: i. prevent the circulation of goods and services which constitutes a public hazard or an imminent public hazard ii. give public notice of any health hazards associated with their goods or services iii. regulate and seek ways and means of removing or eliminating from the market, hazardous goods and services, including emission, untested, controversial, emerging or new technologies, products or devices whatsoever; and cause offenders to replace such goods or services with safer and more appropriate alternatives iv. compel manufacturers, suppliers, dealers, importers, wholesalers, retailers, or other undertaking where appropriate to certify that all standards are met in their goods and services; and give public notice of any health hazards associated with their goods or services. v. compel a manufacturer, importer or distributor of goods shall label or describe the goods in a manner that will be easily traceable to the manufacturer, importer or distributor, and also inform consumers of the content of the goods.	

National Biotechnology Development Agency	The Powers afforded to NABDA (National Biotechnology Policy, 2001); Biotechnology Bill, 2015; 2021); NC&BEPRP, 2020.	NABDA is the Designate Authority for R&D in Biotechnology in Priority areas of food, agriculture, health, industry and environment; Promotion, Coordination and Deployment of Cutting-edge Biotechnology R&D Processes, Products and Services in Nigeria. Biosecurity Activities include Diagnosis and Characterization of Biological Toxins and Agents; Development of NABDA Biorisk Laboratory Policy & Quality Manuals and Decontamination SOPs; Database and Tracking System for Biological Toxins and Agents. Biosecurity Expertise in NABDA is essentially on Laboratory Biosecurity (Material Control & Accountability)	National Biotechnology Development Agency
National Orientation Agency (NOA)	Decree No 100 of 23rd August, 1993. Now an Act of Parliament (The National Assembly) Cap. No 64 of 2004	Strategic Communication	NOA is located in 774 Local Government Area
Federal Ministry of Science, Technology and Innovation	Act 1 of 1980	i. Assisting in human capital development in Biosecurity issues. ii. Collaboration/involvement in the production of guidelines on biosecurity. iii. Application of Science, Technology and Innovation apparatus to secure human lives and biodiversity from bio-threats iv. Collaboration with local and international Agencies/bodies on biosecurity management.	Focal point /Desk office bioterrorism in the Ministry.

Federal Ministry of Environment (FMEnv)		i. Collaborate with relevant Agencies in the forensic investigation and intelligence analyses of Biological incidents involving contaminated water, wastewater systems, air emissions and underground injections, human exposures pursuant to existing global and national regulations. ii. Safe disposal of biological waste by providing advice as to suitable short, medium and long-term disposal/storage options.	
Federal Ministry of Health (FMoH)		i. Provide assistance on the preventive measures of toxic biological materials. ii. Monitor the long-term Health impacts of toxic biological materials involved. iii. Assists in post-supportive care of affected people	
Office of the National Security Adviser (ONSA)		i. Coordination of all national security matters ii. Establishment of the Nigeria-European Union CBRNE Risk Mitigation Centre initiative iii. Carry out National Threat and Risk Assessment on CBRNE	
Defence Headquarters (DHQ)		Maintain territorial integrity in case of trans-boundary movement of Chemical and Biological agents	
Department of State Service (DSS)		i. Gather, analyse and disseminate intelligence as it relates to Biological material threats; ii. Provide intelligence led support in investigation, identification and apprehension of perpetrators; iii. Provide intelligence led support in collaboration with other security elements in incident management and response to Biological material events; iv. Support periodic conduct of risk and vulnerability assessment.	

Nigeria Police Force (NPF)		i. Support and secure holding areas both off site and on site for supporting agencies and resources; ii. Support crowd and traffic control, as well as provide security support for casualty collection, treatment and transport loading areas.	
Nigeria Centre for Disease Control (NCDC)		i. Maintain a good state of alertness to detect and respond to public health disaster due to pathogenic biological agents; ii. Prevent, detect and control diseases of national and international public health importance, including merging and re-emerging diseases; iii. Develop and maintain a network of reference and specialized laboratories for pathogen, biological detection disease surveillance and outbreak response. iv. Provide support and coordinate the control of national and trans-border responses to mass public health emergencies such as mass causalities, flood, biological terrorism as well as disease outbreaks	

GOD BLESS THE FEDERAL REPUBLIC OF NIGERIA