

Africa Centres for Disease Control and Prevention (Africa CDC)

Africa CDC Biosafety and Biosecurity Initiative Report on the Consultative Process to Identify Priorities for Strengthening Biosafety and Biosecurity

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Contents

ACKNOWLEDGMENTS	2
1.0 INTRODUCTION	2
2.0 Workshop Objectives and Gap Identification	3
2.1 Regional Technical Workshop.....	3
2.2 Virtual Technical Workshops	4
2.3 Online Survey	6
3.0 Workshop Outcomes and Steps Forward.....	7
3.1 Regional Technical Workshops Southern Africa	7
3.2 Regional Consultative Meeting - Central Africa.....	7
3.3 Virtual Technical Workshops.....	8
3.3.1 Eastern Africa Regional Virtual Technical Workshop	8
3.3.2 Western Africa Regional Virtual Technical Workshop	8
3.3.3 Northern Africa Regional Virtual Technical Workshop	9
3.4 Online Survey	9
3.5 Regional Priorities.....	10
4.0 CONCLUSIONS AND NEXT STEPS	12



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- The Nuclear Threat Initiative (NTI)
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1.0 Introduction



The WHO Joint External Evaluations (JEE) conducted by African Union member states between 2016 and 2019 and Global Health Security Index (GHSI) published in 2019 demonstrated weak biosafety and biosecurity capacities among the African Union (AU) Member States. In response, in May 2019, the Africa CDC, supported by its regional and international partners launched the Biosafety and Biosecurity Initiative (BBI) aimed at strengthening the biosafety and biosecurity systems of AU Member States to comply with the international requirements and regulations such as the International Health Regulations (IHR) (2005), the Biological Weapons Convention (BWC), and United Nations Security Council Resolution (UNSCR) 1540. This work is in alignment with global initiatives like the Global Health Security Agenda and the Global Partnership Against the Spread of Weapons and Materials of Mass Destruction.

In its Biosafety and Biosecurity 5-Year Strategic Plan (2021-2025), the Africa CDC planned to collaborate with Member States to address identified priorities. The process of identifying regional priorities was initiated in 2019 with technical workshop hosted by the Africa CDC Regional Collaborating Centres (RCCs) and coordinated by Nuclear Threat Initiative (NTI), the U.S. Centers for Disease Control and Prevention and the U.S. Defense Threat Reduction Agency, supported with resources including an online survey by Africa CDC. This report summaries the process, findings and proposed next steps.



2.0 Workshop Objectives and Gap Identification



2.1 Regional Technical Workshop

Due to restrictions imposed to control the pandemic, only two in-person technical workshops were held in two of the five Africa CDC Regional Collaborating Centres to develop strategies for addressing biosecurity and biosafety capacity gaps at both the national and regional levels. The regional technical workshops also aimed to advance steps to fill identified gaps, including through the development of the regional Biosafety and Biosecurity Legal Framework (BSBS), the regional high-consequence agents and toxin (HCAT) list and other guidance documents.

Technical Workshop Objectives

1. Develop priority actions required to fill biosecurity and biosafety gaps, leveraging national and regional resources and informed by existing health security-related implementations plans to promote measurable progress toward achievement of World Health Organization (WHO) Joint External Evaluation (JEE) biosafety and biosecurity targets and to meet obligations under the Biological Weapons Convention and United Nations Security Council Resolution 1540.
2. Conduct Technical Working Group meeting to provide overview of risk assessment and risk-based decisions making to guide the development of a standardized process to support the establishment of a Regional BSBS Legal Framework and the drafting of a consensus list of High Consequence Agents and Toxins (HCAT) of concern for Africa Union Member States.

Southern Africa Regional Collaborating Centre Technical Workshop

The first technical workshop hosted by Africa CDC under the Biosafety and Biosecurity Initiative was in partnership with the Africa CDC Southern Africa Regional Collaborating Centre (RCC). From 24-26 June 2019 in Johannesburg, Southern Africa more than 50 experts from the Southern African region convened. Formal invitations were sent to respective member states to nominate representatives reflecting a One-Health Approach. From the Southern Africa RCC, 8 of the 10 countries (Angola, Lesotho, Malawi, Mozambique, Namibia, South Africa, Zambia, and Zimbabwe) attended the meetings in addition to regional and international partners.



Workshop participants, who included key staff from human health, animal health, academia and defense/security communities, developed concrete actions to address biosecurity and biosafety challenges common across all participating Southern African countries. The actions identified will be implemented in coordination with the existing efforts such as national action planning in response to Joint External Evaluation (JEE) scores and global health security action packages.

The key gaps identified during the 3-day consultative meeting were;

1. Lack of or inadequate (and fragmented) legislation, regulations, and guidelines relevant to biosecurity and biosafety.
2. Lack of or limited training programmes on laboratory biosafety and biosecurity.
3. Low level or awareness about laboratory biosafety and biosecurity, especially among researchers/scientists.
4. Limited financial resources to support implementation of biosafety and biosecurity requirements.
5. Limited expertise in biosafety and biosecurity to lead implementation and training and development of biosafety and biosecurity experts; and
6. Inadequate and inappropriate infrastructure.

Central Africa Regional Collaborating Centre Technical Workshop

The second technical workshop hosted by Africa CDC under the Biosafety and Biosecurity Initiative was conducted from 1-3 October 2019 in partnership with the Africa CDC Central Africa Regional Collaborating Centre (RCC). From Central Africa, all nine countries of the RCC (Burundi, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Equatorial Guinea, Gabon, Republic of Congo, and São Tomé and Príncipe) had representatives attend the workshop in addition to regional and international partners. While biosafety and biosecurity vulnerabilities across the region were discussed with the goal of raising overall capacity levels in alignment with the objectives of Africa CDC's Biosafety and Biosecurity Initiative, the key gaps identified during the discussions were:

1. Lack of or inadequate (and fragmented) legislation, regulations, and policy frameworks relevant to biosecurity and biosafety.
2. Lack of sustainable training programs on laboratory biosafety and biosecurity.
3. Lack of knowledge about where pathogens are held within countries, preventing each country from effectively putting into place risk-based safety and security measures that are in alignment with international standards.



Reports from these Technical Workshops have been compiled and shared with the Africa CDC secretariat.

2.2 Virtual Technical Workshops

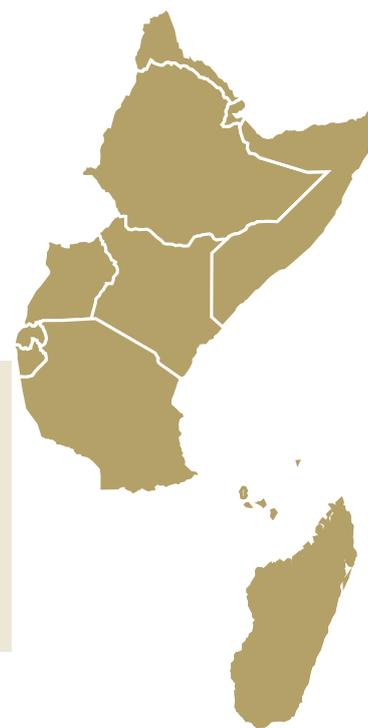
Amid the COVID-19 pandemic in-person workshops were not held due to travel and gathering restrictions. The Biosafety and Biosecurity Initiative leveraged its diverse community of cross-sectoral biosecurity and biosafety experts to provide much needed biosecurity and biosafety training and awareness raising on programs specific to COVID-19 via a virtual platform. These regional technical webinars focused on both the enduring themes of the Biosafety and Biosecurity Initiative intended to fill biosecurity and biosafety gaps and identify interventions to promote measurable progress toward achievement of WHO Joint External Evaluation (JEE) biosafety and biosecurity targets and to meet obligations under the Biological Weapons Convention and United Nations Security Council Resolution 1540 as well as discussions on safe and secure sample transportation, inventory, and storage of SARS-CoV-2 infected material to prevent accidental or deliberate release of this dangerous agent.

These virtual technical workshops were a collaboration among the African Union, the African Centres for Disease Control and Prevention, the U.S. Centers for Disease Control and Prevention, the U.S. Department of Defense, Defense Threat Reduction Agency, and Nuclear Threat Initiative (NTI). Support for NTI's role in this series is generously provided by Global Affairs Canada's Weapon Threat Reduction Program and the Open Philanthropy Project. The virtual workshops were abbreviated versions of the in-person technical workshops, but the outcomes – prioritized actions to fill regional biosecurity and biosafety gaps as well as the contribution to the development of the Biosafety and Biosecurity Legal Framework – were the same.



Eastern Africa Regional Collaborating Centre Virtual Technical Workshop

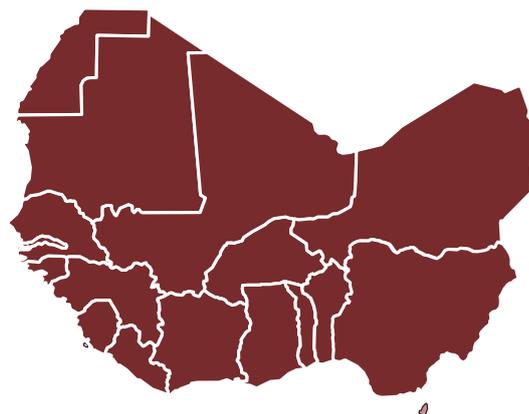
The Eastern Africa Regional Collaborating Centre Virtual Technical Workshop was hosted by Africa CDC on June 17, 24, and July 1, 2020 for nearly 100 experts from 14 countries in the Eastern African region (Comoros, Eritrea, Ethiopia, Kenya, Madagascar, Mauritius, Rwanda, Seychelles, Somalia, Sudan, Tanzania, and Uganda) with the goal of reducing accidental and deliberate biological risks, including those associated with the COVID-19 pandemic. While biosafety and biosecurity vulnerabilities across the region were discussed with the goal of raising overall capacity levels in alignment with the objectives of Africa CDC's Biosafety and Biosecurity Initiative, the key gaps identified during the discussions were:



- Inconsistently implemented biosecurity and biosafety standard operating procedures (SOPs) and guidance that adheres to international standards across tiers of national laboratory systems and across sectors within Eastern African Member States.
- Lack of application of knowledge gained from biosecurity and biosafety trainings at Eastern African Member State institutions and lack of uniform certification for biosecurity and biosafety competencies across the region.

Western Africa Regional Collaborating Centre Virtual Technical Workshop

The Western Africa Regional Collaborating Centre Virtual Technical Workshop was hosted by Africa CDC in partnership with the West African Health Organization (WAHO) on November 17 and 24, 2020 for nearly 60 experts from 15 countries in the Western African region (Benin, Burkina Faso, Cabo Verde, Côte d'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo) with the goal of reducing accidental and deliberate biological risks, including those associated with COVID-19.



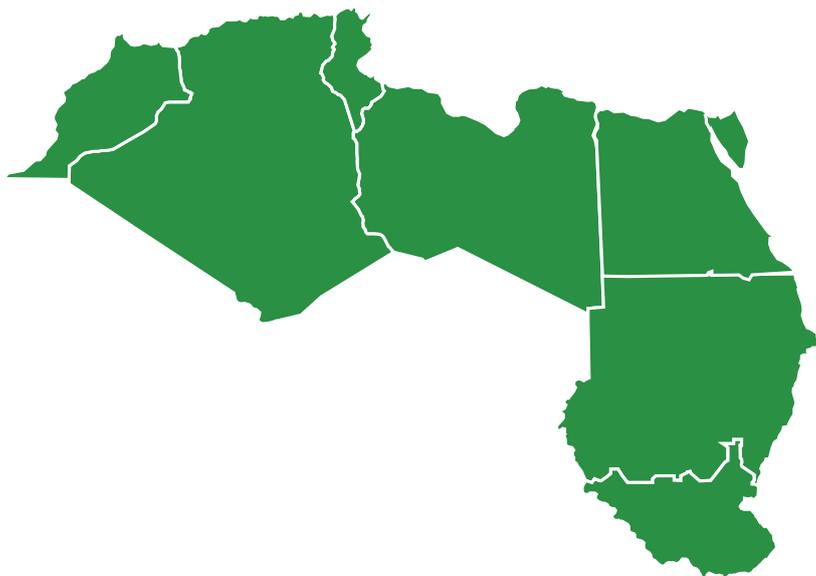
Workshop participants included key staff from across the human health, animal health, and defense and security sectors. While biosafety and biosecurity vulnerabilities across the region were discussed with the goal of raising overall capacity levels in alignment with the objectives of

Africa CDC's Biosafety and Biosecurity Initiative, the key gaps identified during the discussions were:

- Lack of standardized system for collection, transport and storage of samples containing dangerous pathogens in West Africa.
- Lack of comprehensive waste management strategy for effective treatment as well as safe and secure disposal of (bio)hazard waste containing dangerous pathogens in West Africa.
- Lack of harmonized biosecurity and biosafety intervention strategies and tools across the West Africa region.
- Lack of uniform biosecurity and biosafety training available to Western African Member State institutions.
- Lack of application of knowledge gained from biosecurity and biosafety trainings at Western African Member State institutions.
- Lack of uniform certification for biosecurity and biosafety competencies across the region.

Northern Africa Regional Virtual Technical Workshop

The Northern Africa Virtual Technical Workshop was hosted by Africa CDC on February 1 and 5, 2021 for nearly 50 experts from six countries in the Northern African region (Algeria, Egypt, Libya, Morocco, Sahrawi Arab Democratic Republic, and Tunisia) with the goal of reducing accidental and deliberate biological risks, including those associated with COVID-19. Workshop participants included key staff from across the human health, animal health, and defense and security sectors. While biosafety and biosecurity vulnerabilities across the region were discussed with the goal of raising overall capacity levels in alignment with the objectives of Africa CDC's Biosafety and Biosecurity Initiative, the key gaps identified during the discussions were:

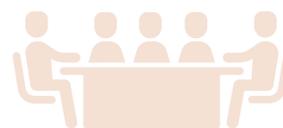


- Lack of application of knowledge gained from biosafety and biosecurity trainings within Africa CDC Northern African member state institutions.
- Lack of uniform and sustainable training and certification programs for biosafety and biosecurity competencies across the region and among the different levels within each member state; and
- Lack of comprehensive mapping of the locations of human and animal health facilities that store/maintain high-consequence agents and toxins and the parties responsible for them.

Reports from these Technical Workshops are being compiled and will be shared with the Africa CDC secretariat.

2.3 Online Survey

In October 2019, Africa CDC developed an online survey questionnaire entitled, "Biosafety and Biosecurity Training and Capacity Needs Assessment for National Public Health Institutes and National Reference Laboratories. (2005) (IHR) office, Directors of National Public Health Institutes (NPHI), National Laboratory Directorate and Biosafety and Biosecurity focal persons were identified to complete the questionnaire and provide feedback. The survey questionnaire collected information on the status of development and implementation of biosafety and biosecurity legal frameworks, biosafety and biosecurity training and capacity building, and on the status of compliance to biosafety and biosecurity requirements of infrastructure, existence, and status of implementation of National Action Plans for Health Security (NAPHS), and requested respondents to list priority gaps they would require assistance in strengthening. Where there was more than one response from a country, the responses were merged.



**3.0**

Workshop Outcomes and Steps Forward

3.1 Regional Technical Workshops Southern Africa

Eight (8) of the 10 Southern African countries were represented. In addition to Africa CDC and Africa Union, national and international partners including Academy of Science of South Africa (ASSAf), Brenthurst Foundation, Chatham House, Development Bank of Southern Africa, International Experts Group of Biosafety and Biosecurity Regulators (IEGBBR), International Federation of Biosafety Associations (IFBA), Southern African Development Community (SADC) Zimbabwe National Quality Assurance Programme (ZINQAP), United States Centres for Disease Control and Prevention (US-CDC), World Health Organization (WHO), Nuclear Threat Initiative (NTI) participated.

In this meeting, the SA-RCC, through the Biosafety and Biosecurity Technical Working Group, agreed to:

- Facilitate sharing of lessons learned among Member States regarding national legislation mapping exercises and to provide tools for improving national legislation related to biosafety and biosecurity.
- Track Member State progress in developing legislation.
- Ensure all Member States have common understanding of terminology and model processes.
- Launch an exemplary laboratory project, defining parameters and tracking progress toward “developed” capacity (JEE level 3) in biosafety and biosecurity within Member States.
- Facilitate inclusion of biosafety and biosecurity considerations into regional laboratory mapping process and decisions on capacity building; and
- Provide input to draft inclusion/exclusion criteria for HCATs and pathogen data sheets.
- Convene a dialogue with parliamentarians, health ministers, and other critical stakeholders across sectors to raise awareness and gain buy-in for improved biosecurity and biosafety capacity among political leaders and will include biosecurity and biosafety on the agenda for SADC, AU Summits, and other appropriate international events.

SA-RCC Member States agreed to:

- Map current and advance future biosafety and biosecurity-related legislation in accordance with National Action Plans.
- Provide input and resources (technical/financial) toward the regional training hub development process; and
- Participate in and implement the exemplary laboratory project toward measurable improvement in biosecurity and biosafety targets

Advocacy

- SA-RCC will convene a dialogue with parliamentarians, health ministers, and other critical stakeholders across sectors to raise awareness and gain buy-in for improved biosecurity and biosafety capacity among political leaders and will include biosecurity and biosafety on the agenda for SADC, AU Summits, and other appropriate international events.

3.2 Regional Consultative Meeting - Central Africa

All 10 Central African Member States of Burundi, Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Equatorial Guinea, Gabon, Republic of Congo, and São Tomé and Príncipe attended this consultation. In addition to Africa CDC and Africa Union, WHO, US-CDC, United States Defense Threat Reduction Agency (US-DTRA), NTI, Association of Public Health Laboratories (APHL) and FAO attended.

In this meeting, the CA-RCC, through the Biosafety and Biosecurity Technical Working Group, agreed to:

- Set realistic biosecurity and biosafety capacity building goals for the region and track progress, including member states nominating a multi-sectoral body for reporting on successes and challenges in achieving these goals and apply regional solutions to common challenges and facilitate sharing of lessons learned;

- Pledging to fill recognized biosecurity training gaps by coordinating a regional effort, through partnerships with Africa CDC's Institute for Workforce Development, Columbia University, and the Association of Public Health Laboratories, to adapt existing biosecurity and biosafety training curricula to the Central African member states; and
- Nominate representative(s) of the region to participate in the African Union Biorisk Management Legislative Framework development process and sensitize national and regional leadership and technical experts to the Framework to enable timely buy-in once it is endorsed by the African Union.

3.3 Virtual Technical Workshops

3.3.1 Eastern Africa Regional Virtual Technical Workshop

Following the Eastern Africa Regional Virtual Technical Workshop in June and July of 2020 a series of discussions were held with regional experts to analyze existing capacity assessments and national health security action plans to identify priority biosecurity and biosafety gaps, develop solutions to address these gaps, and design pilot programs with the goal of raising overall capacity levels in the Eastern Africa region. Workshop participants included key staff from across the human health, animal health, and defense and security sectors. They developed concrete actions to address biosecurity and biosafety challenges common among Eastern African countries. These include steps to:

- Develop a regional approach for biosafety and biosecurity certification, using examples of existing certification programs, and leverage it as a model to encourage Member States to adopt national certification requirements and programs as an integral component of biosecurity and biosafety training programs.
- Establish regional centre(s) of excellence at institutions of higher education to enable a continuing education approach, allowing lab professionals to practice biosafety and biosecurity skills within a local context.
- Monitor progress on a regional dashboard over time using relevant IHR benchmarks as measurements of success.
- Develop a regional technical working group composed of certified biosecurity and biosafety professionals across the Eastern African region to accomplish the following:
 - Ensure existing biosecurity and biosafety SOPs and guidance across Eastern African Member States are in alignment with the ISO 35001 Biorisk Management Standard and the most up-to-date biosecurity and biosafety guidance documents issued by international organizations. A risk-based approach should be followed using local solutions and leveraging existing regional resources to promote sustainment over the long-term.
 - Develop recommendations for distributing SOPs and best practices from national levels to local levels, including as part of quality assurance and quality control networks.
 - Establish a regional mentorship network to support labs in starting and completing biosafety and biosecurity quality improvement projects – ensuring that SOPs and guidance are being thoroughly implemented.
 - Monitor progress on a regional dashboard over time using relevant IHR benchmarks as measurements of success.

3.3.2 Western Africa Regional Virtual Technical Workshop

Following the Western Africa Regional Virtual Technical Workshop in November 2020 a series of discussions were held with regional experts to analyze existing capacity assessments and national health security action plans to identify priority biosecurity and biosafety gaps, develop solutions to address these gaps, and design pilot programs with the goal of raising overall capacity levels in the Northern Africa region. They developed concrete actions to address biosecurity and biosafety challenges common among Western African countries. These include steps to:

- Establish regional centre(s) of excellence at institutions, including institutions of higher education, to enable a continuing education approach, allowing lab professionals to practice biosafety and biosecurity skills within a local context.

- Develop a regional approach for biosafety and biosecurity certification, using examples of existing certification programs, and leverage it as a model to encourage Member States to adopt national certification requirements and programs as an integral component of biosecurity and biosafety training programs.
- Develop a technical working group composed of certified biosecurity and biosafety professionals across the Western African region including WAHO and WABNet representatives with a strong focus on implementation.
- Monitor progress on a regional dashboard over time using relevant IHR benchmarks as measurements of success.
- Establish secure and standardized system for collection, transport and storage of samples containing dangerous pathogens.
- Develop and implement a national waste management strategy for effective treatment as well as safe and secure disposal of (bio)hazard waste containing dangerous pathogens in accord to national and international standards and best practices.
- Establish harmonized biosecurity and biosafety intervention strategies and tools across the West Africa region.

3.3.3 Northern Africa Regional Virtual Technical Workshop

Following the Northern Africa Regional Virtual Technical Workshop in February 2020 a series of discussions were held with regional experts to analyze existing capacity assessments and national health security action plans to identify priority biosecurity and biosafety gaps, develop solutions to address these gaps, and design pilot programs with the goal of raising overall capacity levels in the Northern Africa region. They developed concrete actions to address biosecurity and biosafety challenges common among North African countries. These include steps to:

- As part of Africa CDC's efforts to develop regional training and certification programs, establish a regional centre(s) of excellence for biosafety and biosecurity in the North African Region to enable a continuing education approach, allowing laboratory professionals to practice biosafety and biosecurity skills (within a local context);
- Monitor progress through the Africa CDC Biosafety and Biosecurity Initiative Monitoring and Evaluation Framework, which is under development, over time using relevant IHR and other benchmarks as measurements of success in the Northern African region; and
- Through the Biosafety and Biosecurity Technical Working Group (BB-TWG) North Africa:
 - Analyze existing mapping efforts at the sub-national, national, and/or regional levels and identify biosecurity and biosafety gaps.
 - Define the scope of and conduct mapping of facilities (i.e., types of facilities, sectors to include, and criteria to use).
 - Identify rules for protecting sensitive data.
 - Ensure mapping effort results in useable data for advancing national capabilities toward the attainment of Joint External Evaluation (JEE) biosafety and biosecurity targets, using the IHR Benchmarks as indicators of progress.
 - Engage relevant stakeholders at national, regional, and international levels to secure buy-in and support for mapping effort. Mapping should be completed at national levels, but regional cooperation will help inform the process and drive progress.

3.4 Online Survey

A total of 18 countries responded to the survey: Angola, Botswana, Cameroun, Comoros, Egypt, Eswatini (formerly Swaziland), Ethiopia, Lesotho, Liberia, Libya, Malawi, Mozambique, Nigeria, Somalia, South Africa, Uganda, Zambia and Zimbabwe.

Half of the responded countries had some form of legal instruments covering biosafety and biosecurity, although these were fragmented across different sectors of governments with no central coordination to ensure compliance. Twelve (12) (67%) of the responding countries did not have a High Consequence Agent and Toxin (HCAT) list. Where these were available, it was not established if this was up to date. Most countries (67%) had a national focal perform for biosafety and biosecurity, (72%) had at least one high containment facility and (72%) had a costed National Action Plans for Health Security (NAPHS). Ten countries (56%) did not have a comprehensive national training program that covers pre and Inservice training. See figure 1;

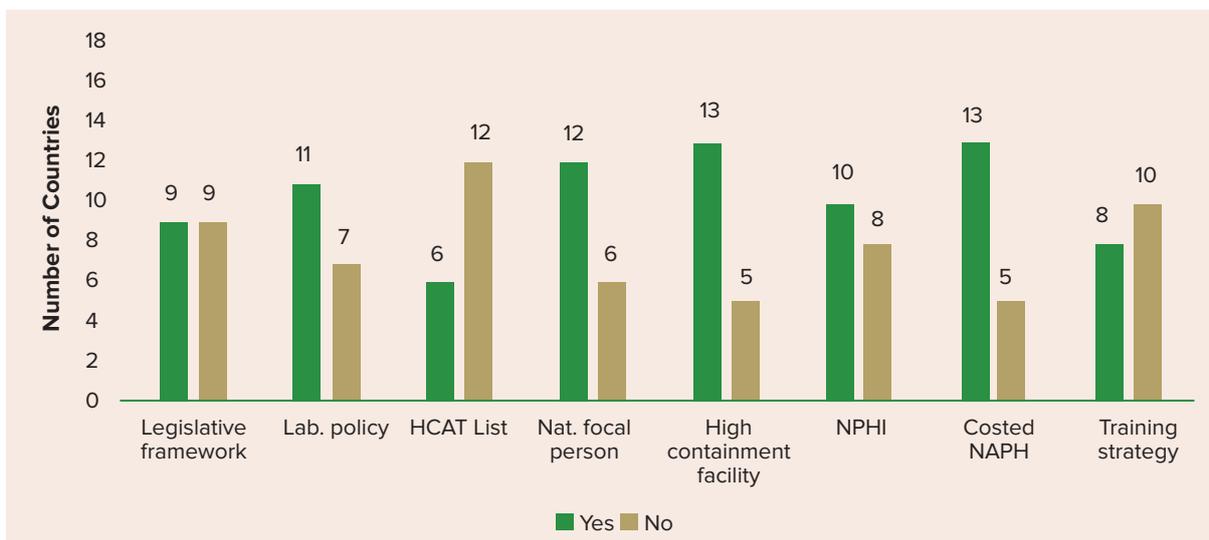


Figure 1: Summary of survey responses

Further questions were asked on the types of trainings that have been implemented. Most of the responding countries had conducted trainings in biosafety and biosecurity (72%), transportation of infectious materials (94%) and waste management (72%). Fewer countries had training in servicing and maintenance of Biological Safety Cabinets (BSCs) (33%), servicing and maintenance of high containment facilities (17%) and had a certification program for biosafety and biosecurity experts (39%). See figure 2.

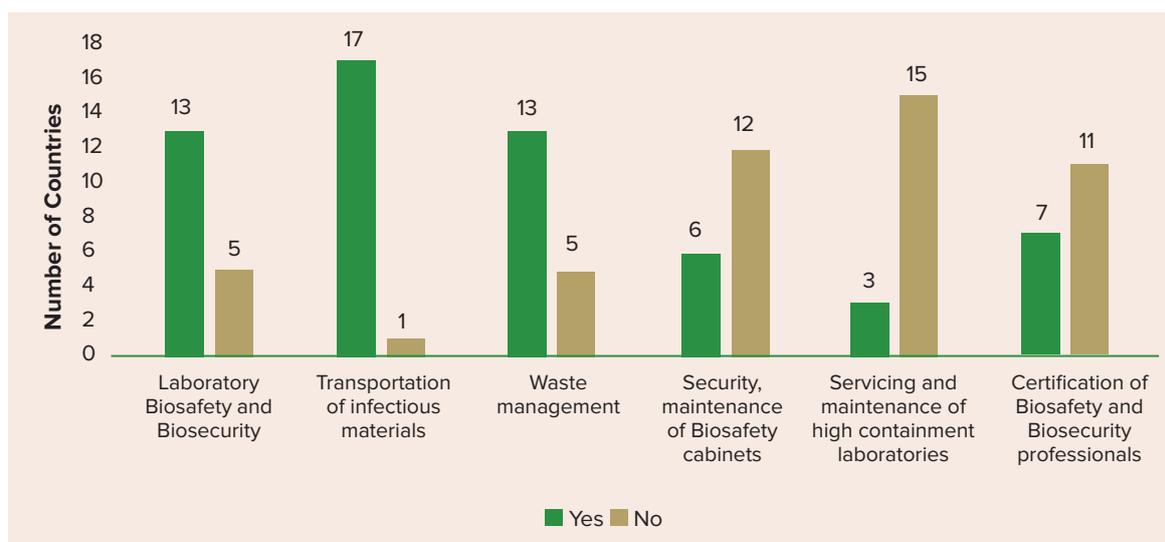


Figure 2: Biosafety and Biosecurity related trainings by Member States

3.5 Regional Priorities

Findings from the regional consultative meetings, virtual technical workshops and online survey were summarized into a list of biosafety and biosecurity priorities for the region. The priority areas were grouped into four thematic areas of (i) capacity building, (ii) training, (iii) High Consequence Agent and Toxin (HCAT) list, and (iv) Technical Working Group (TWG)/Biosafety Associations. Under capacity building, the priorities were further categorized into those related with Biosafety and Biosecurity Legal Framework and policies, human resource, infrastructure requirements, equipment needs and international standards (Table 1).

The identified regional priorities formed the basis for the Africa CDC Biosafety and Biosecurity Five Year Strategic Plan. Table 2 outlines the areas prioritized in the first five year strategic plan (2021-2022). Africa CDC and Member States partners are encouraged to consider, where possible, the areas not prioritized in the 2021-2022 strategic plan in their plans.

Table 1: Regional Priority Areas for strengthening biosafety and biosecurity.

Capacity Building	Training	HCAT List	TWG/Biosafety Association/Body
<p><u>Policies/Legal Framework</u></p> <ul style="list-style-type: none"> ● Development/harmonization of biosafety and biosecurity legal framework, legislations and guidelines ● Development of a regulations for biomedical waste management. ● Establishment of a licensing/certification programme for High Containment facilities for both human and animal sector <p><u>Human Resource</u></p> <ul style="list-style-type: none"> ● Development of a long term training and capacity building plan that covers pre and in-service training curriculum ● Establish a Training and Certification Program for Biosafety and Biosecurity experts <p><u>Infrastructure</u></p> <ul style="list-style-type: none"> ● Construct/upgrade Laboratories facilities to meet international standards for biosafety and biosecurity. <p><u>Equipment</u></p> <ul style="list-style-type: none"> ● Servicing and maintenance of BSCs ● Servicing and maintenance of high containment facilities for both human, animal and agriculture <p><u>International standards</u></p> <ul style="list-style-type: none"> ● Evaluation/Assessment of High containment facilities for compliance to standards. ● Research ● Identification of priority research areas in Biosafety and Biosecurity ● Advocacy ● Develop and implement advocacy and communication strategy for biosafety and biosecurity 	<ul style="list-style-type: none"> ● Biosafety and Biosecurity for Lab Professionals ● Biosafety and Biosecurity Auditors ● Waste Management ● Occupational Health and Safety ● IPC ● Certification and maintenance of BSCs ● Certification and Maintenance of High Containment Facilities and biorepositories ● Genomics & Bioinformatics ● Bioethics and dual use research of concern ● ISO 35001:2019 standards ● Risk assessment and Risk management ● Lab Based Surveillance ● Threats Hazards Identification and Risk Assessment ● The role of law in biosafety and biosecurity ● Laboratory Information Management System (LIMS) ● Sample collection, transportation and handling/recording 	<ul style="list-style-type: none"> ● Development of the High Consequence Agents and Toxins (HCAT) List ● Conduct inventory of high consequence agents and toxins in the country. ● Development of pathogen data sheets and share at national and regional level ● Surveillance of HCAT listed pathogens. 	<ul style="list-style-type: none"> ● Establishment/ strengthening of national Biosafety and Biosecurity Associations ● Establishment/ strengthening of national biosafety and biosecurity TWGs. ● Monitor the implementation of BSBS

4.0 Conclusions and Next Steps

The Regional priorities identified are to further inform the Regional Biosafety and Biosafety Initiative. More importantly, the regional priorities are to inform the Biosafety and Biosecurity 5 Year Strategic Plan (2021-2025). Table 2 summarizes how the 5-Year Strategic Plan addresses the regional priorities.

The majority of the identified priorities for the region were included in the current 5-Year strategic plan. The following areas were prioritized for the 2021-2025 strategic plan:

1. Development of regulations for waste management.
2. Identification of priority research areas in Biosafety and Biosecurity.
3. Training in the areas of
 - Occupational Health and safety,
 - Infection Prevention and Control,
 - Genomics & Bioinformatics,
 - Bioethics and dual use research of concern,
 - Risk assessment and Risk management,
 - Lab Based Surveillance; and
 - Threats Hazards Identification and Risk Assessment.
4. Establishment/strengthening of national biosafety and biosecurity TWGs.

Where opportunities for additional financial resources are made available, or regional or international partners have special interest in these areas, Africa CDC could create opportunities for their implementation.



Table 2: Coverage of the regional priorities in the 5-Year Strategic Plan (2021-2025)

5 Year Strategic Plan	
Priority Area	Sub-Activity
Capacity Building	Strategic Plan Priority Area
Policies/Legal Framework	
Development/harmonization of biosafety and biosecurity legal framework	Output 1: A Biosafety and Biosecurity Legal Framework for the Africa Region
Development of a regulations for biomedical waste management	Not covered by the 5 Year Strategic Plan
Establishment of a licensing/certification programme for High Containment facilities for both human and animal facilities	Output 4: A Regulatory and Certification framework for institutions handling high consequence pathogens and toxins
Human Resource	
Development of a long term training and capacity building plan that covers pre and in-service training curriculum	Output 6: Trained and capacitated staff from National Public Health Institutes in areas of prevention, detection and responding to events of public health concern and threats
Establish a Training and Certification Program for Biosafety and Biosecurity experts	Output 5: Regional Training and Certification program for Biosafety and Biosecurity Experts
Infrastructure	
Construct/upgrade Laboratories facilities to meet international standards for biosafety and biosecurity.	Output 6: Trained and capacitated staff from National Public Health Institutes in areas of prevention, detection and responding to events of public health concern and threats
Equipment and facility	
Servicing and maintenance of BSCs	
Servicing and maintenance of high containment facilities for both human, animal and agriculture	
Internal standards	
Evaluation/Assessment of High containment facilities for compliance to standards.	Output 4: A Regulatory and Certification framework for institutions handling high consequence pathogens and toxins
Research	
Identification of priority research areas in Biosafety and Biosecurity	Not covered by the 5 Year Strategic Plan
	Not covered by the 5 Year Strategic Plan
	Set Up team of Experts and develop Draft 0 and coordinate development and review process of the framework
	Not covered by the 5 Year Strategic Plan
	Develop a Regulatory and Certification framework for institutions handling High consequence pathogens
	6.1 Develop a 5 Year regional training and capacity building program
	5.2 Development and implement training and certification program for Biosafety and Biosecurity experts (Biorisk Management, maintenance and certification of high containment facilities, waste management)
	6.2.1 Infrastructural improvements for facilities handling high risk pathogens
	6.2.2 Installation, certification and maintenance of biosafety and biosecurity equipment
	4.2.3 Conducting assessment and certification of institutions
	Not covered by the 5 Year Strategic Plan

5 Year Strategic Plan		
Priority Area		
Advocacy		
Develop and implement advocacy and communication strategy for biosafety and biosecurity	Output 1: A Biosafety and Biosecurity Legal Framework for the Africa Region	1.3 Advocacy Meetings for the Legal Framework
Training		
Biosafety and Biosecurity for Lab Professionals	Output 6: Trained and capacitated staff from National Public Health Institutes in areas of prevention, detection and responding to events of public health concern and threats of high consequence pathogens	6.1 Develop a 5 Year regional training and capacity building program
Biosafety and Biosecurity Auditors	Output 4: A Regulatory and Certification framework for institutions handling high consequence pathogens and toxins	4.2.2 Regional Training and certification of assessors
Waste Management	Output 5: Regional Training and Certification program for Biosafety and Biosecurity Experts	5.2 Development and implement training and certification program for Biosafety and Biosecurity experts (Biorisk Management, maintenance and certification of high containment facilities, waste management)
Occupational Health and Safety	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
IPC	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
Certification and maintenance of BSCs	Output 5: Regional Training and Certification program for Biosafety and Biosecurity Experts	5.1 Develop and implement training and Certification for maintenance of BSCs
Certification and Maintenance of High Containment Facilities and biorepositories	Output 5: Regional Training and Certification program for Biosafety and Biosecurity Experts	5.2 Development and implement training and certification program for Biosafety and Biosecurity experts (Biorisk Management, maintenance and certification of high containment facilities, waste management)
Genomics & Bioinformatics	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
Bioethics and dual use research of concern.	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
ISO 35001:2019 standards	Output 4: A Regulatory and Certification framework for institutions handling HCAT	4.2.1 Regional Training of Trainers on the Minimum standards
Risk assessment and Risk management	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
Lab Based Surveillance	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
Threats Hazards Identification and Risk Assessment	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan
HCAT List	Strategic Plan Priority Area	Sub-Activity

5 Year Strategic Plan		
Priority Area Development of the High Consequence Agents and Toxin List (HCAT) Conduct inventory of high consequence agents and toxins in the country. Development of pathogen data sheets	Output 1: A Biosafety and Biosecurity Legal Framework for the Africa Region Output 6: Trained & capacitated staff from in areas of prevention, detection and responding to events of public health concern and threats	1.5 Development of High Consequence Agents and Toxin (HCAT) List
		1.5.3 Provide Technical Assistance to Member States to develop HCAT List and pathogen data sheets 6.3.1 Establish a bio-surveillance system for identified high risk agents and toxin
TWG/Biosafety Association/Body Establishment/strengthening of national Biosafety and Biosecurity Associations	Output 2: 5 Regional Biosafety and Biosecurity Technical Working Groups (RBB-TWG)	2.1 Establishment and operationalization of RBB-TWG
Establishment/strengthening of national biosafety and biosecurity TWGs.	Not covered by the 5 Year Strategic Plan	Not covered by the 5 Year Strategic Plan





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