



**T20**  
INDONESIA  
2022 THINK

Policy Brief

# ESTABLISHING A MULTILATERAL BIODEFENSE & BIOSECURITY NETWORK

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*Task Force 6*

Global Health Security and COVID-19

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# Abstract

The recent pandemic has underlined the importance of pre-emptive vigilance and system strengthening against infectious diseases. The potential use of biological warfare also cannot be understated; along with lack of global laboratory readiness, there exists a gap in multilateral agreement of bioweapon non-proliferation and peaceful global data sharing. We propose a number of policy initiatives for G20 to address these challenges, involving the creation of a multilateral agreement, budget, and establishment of a global biodefense agency; and creation of a global biodefense network with peripheral sampling “nodes”, secure data sharing agreement among labs, and improved training of relevant personnel.

# Challenges

The 1975 Biological Weapons Convention has been agreed upon by 183 states parties and 4 signatory states. [1] However; the convention has since been repeatedly violated, and there is a lack of any agency or governing body to oversee the implementation of the treaty; leaving the agreement unreliable in the face of national interests. There are existing biodefense guidelines, regulations, and infrastructure in some countries [2,3]; however, there is also a lack of reinforcement and follow-up and evident discordance between diverse institutes and ministries regarding their roles against biological threats. Meanwhile, biodefense guidelines and infrastructure are still in their early stages in other countries [4], including countries most susceptible for zoonotic outbreaks. This will preclude an agile and coordinated global response. In addition, many biodefense strategies still function on national or regional levels. Despite the existence of global agendas, there is still a lack of a global agency to coordinate international effort, and lack of dedicated budget to build global laboratory and data sharing networks. [5] This renders efforts less effective as there is still a high discrepancy in research resources and expertise between various countries. For example, most BSL-4 laboratories are concentrated in Europe and in urban centres; whereas disease outbreaks often happen in rural and underdeveloped areas. [6] There is still a lack of strict enforcement of lab biosafety on the global scale; only a quarter of countries with BSL-4 labs receive high scores for biodefense and biosecurity. [6] In addition, no country has precluded their advanced labs from performing dual-use research that could potentially increase pathogenicity of selected pathogens and develop novel biological weapons.

Vigilance toward novel outbreaks also rely heavily on rapid point-of-care diagnostics and transmission of data to relevant labs, bridging the gap between medical care and research. There is currently no existing global data sharing network that comprehensively structures peripheral physicians, laboratories, and global research centres to ensure unhampered transmission of data. In addition, there is still a lack of coordination in project allocation, record keeping, and knowledge sharing between labs. We need a reliable and secure data sharing platform among labs to expedite knowledge sharing; and a global blueprint to establish a primary care-to-research network to ensure swift response to any future outbreaks.

# Proposal

## **Recommendation (1) Establishing a multilateral approach to biodefense through:**

### Renewing legally-binding treaties of biological weapon non-proliferation.

This will involve G20 countries and guest countries from the under-represented geographical regions of Sub-Saharan Africa, West Africa, and South America. This treaty will concern 3 main areas: 1) non-proliferation agreement; 2) pandemic surveillance and data sharing; and 3) global cooperation on infectious disease research.

### Establishing a dedicated global biosecurity and biodefense agency.

The G20 can initiate the formation of an agency, following the model of the International Atomic Energy Agency, that will oversee biological weapons non-proliferation while supporting infectious disease research and establishing global research networks and cooperatives. In further detail, the tasks of this agency are as follows:

1. Invite further participation from broad non-governmental stakeholders and scientists
2. Create an international action plan blueprint to guide governments in national implementation of biodefense and biosecurity preparedness.
3. Assist the implementation of One Health principles
4. Collate existing biodefense and biosecurity policies from member countries
5. Assist countries in initiating civilian-military defense collaborations
6. Create an international biological disaster blueprint to ensure swift global response in the event of a global outbreak / emergency
7. Create a database of known infectious diseases with pandemic potential and notify relevant locales for increased awareness
8. Audit member countries' existing biodefense and biosecurity measures, and provide guidance for national implementation
9. Institute 5-yearly biodefense and biosecurity readiness review on the global and national scales
10. Coordinate and consolidate biodefense efforts between international research institutions, whose main tasks include the accreditation of laboratories, nationwide record-keeping of existing high-risk research, and consolidation of such research into well-regulated research facilities (elaborated further in point (3))
  - Allocate more resources towards research in emerging infectious diseases and neglected tropical diseases
  - Establish global research cooperatives among global research institutions
  - Institute initial models and incentivize global data sharing of animal, infection, and research data

11. Assist the development and distribution of vaccine

- Collaborate with existing vaccine equity efforts, such as GAVI and WHO, and establish their liaison with governments
- Establish an antigen bank

**Recommendation (2) Supporting national, regional, and global biosecurity infrastructures development and maintenance to ensure equitable access to biosecurity facilities and protection for all nations, especially for the LMICs, through:**

Establishing a system that allows a regular provincial sampling and genomic sequencing to monitor diseases with epidemic or pandemic potential.

This can be achieved by 1) mapping the currently available BSL-3 and BSL-4 laboratories in the G20 countries and create a systematic network to cover sampling in regional areas lacking biosecurity infrastructures; 2) providing technical and monetary help to ensure the availability of adequate and accessible BSL-3 or BSL-4 laboratories within a country that able to perform genomic sequencing; 3) encouraging the G20 countries to take a leverage on the availability of >50 BSL-4 laboratories covering 6 WHO regional areas [7] – to act as regional epicentres in a short-term, and a safety net in a long-term to conduct constant global sentinel surveillance for diseases.

Improving core capacity of researchers and laboratory personnel by creating and delivering globally codified prerequisite training in biosafety and data security.

The G20, in collaboration with the International Experts Group of Biosafety and Biosecurity Regulators (IEGBBR) [8], should conduct an updated, standardized, biosecurity training for BSL-3 and BSL-4 laboratory personnel and incorporating biosecurity oversight system for laboratories without experience working with risk-group 3 pathogens across countries. These are to ascertain a tighter oversight prior to conducting high-risk research and diagnostic, to mitigate possible ethical and safety issues, and importantly to prepare for global personnel exchange in the case of future human resources shortage during emergency response.

Formulating a guidance regulating disease and genomic surveillance data reporting and management that offers a safe, equal, and transparent system to encourage data sharing.

As recommended in the T20 Italy Communique, G20 should initiate a unified Emerging Health Threat Data Platform and encourage reporting all health emergency data in a standardized form to the WHO [9]. A guidance on data reporting and management is required to facilitate the establishment of those recommendations. The G20 should form a working group, involving the WHO, to formulate a guidance that can be implemented by G20 countries with a possible adoption to a global level. The guidance should elaborate regulations on data format, submission, intellectual property, national data management, choices of data platform (e.g., WHO Global Genomic Surveillance, WHO Hub for Pandemic and Epidemic Intelligence and

WHO BioHub) [10], and accessibility by approved users (researchers, practitioners, policymakers) – aiming to offer a transparent procedure that allow seamless information transfer between stakeholders at national, regional, and global levels.

### **Recommendation (3) Sustainability**

#### Initiating a biosecurity alliance to provide global governance to improve equity and sustainability of biosecurity and disease surveillance at global level.

G20 could contribute by leading a collaborative initiative involving government agencies, industries, philanthropists, and the United Nations agencies to create a sustainable system of global biosecurity in the long run. This strategy adapts the organizational model of GAVI [11], the vaccine alliance, that has successfully improved global vaccine equity in the past two decades and has played an enormous role in response to COVID-19 vaccine distribution. The biosecurity alliance, thus, will focus on directing available resources to support biosecurity infrastructures of countries in need and regular sentinel diseases surveillance, as well as to prepare for an emergency response to future epidemic or pandemic.

#### The creation of a collective budget dedicated towards overseeing the implementation of the Global Health Security treaty through the Global Health Security agency.

The limited resources in many developing countries are precluding them from investing in establishing biological research networks and committing to biodefense strategies in a uniform manner. Therefore, we propose the establishment of a collective biodefense and bioweapon budget dedicated towards overseeing bioweapon non-proliferation and establishing research and data sharing networks. In further detail, the tasks are as follows:

1. Create budget analysis and align budget items to member countries
2. Provide multi-year funding estimates for member countries
3. Assess spending history and value

Beyond this, countries and regional bodies should be encouraged to not spend the defence budget only on militarisation but to siphon part of it to fund the above health security agencies and networks.

#### Recommending metrics on reporting and evaluation that are "fit for purpose" through collaborations between the Global North and South.

The COVID-19 pandemic showed countries lower in the Global Health Security ranking prior to the pandemic fared better than higher ranking ones. This may imply that current metrics are not fit for purpose. G20 can play a role by recommending newer metrics that are objective, quantifiable, and incentivizes sustainability in reporting developed through robust decision making approaches involving countries from both the Global North and South equally.

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