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Challenges to developing international cooperation and assistance on biosafety and biosecurity: matching resources to reality

Submitted by the United Kingdom of Great Britain and Northern Ireland

I. Introduction

1. Previous BTWC intersessional meetings have recognised that cooperation and assistance on capacity building needs to take into account national requirements and circumstances and tailor activities accordingly. In particular, the report of the 2008 Meeting of States Parties encouraged States Parties to seek and provide assistance on biosafety and biosecurity to: enact and improve national legislation; strengthen laboratory infrastructure, technology, security and management; provide training; and help incorporate biosafety and biosecurity in existing efforts to address emerging or re-emerging diseases. It emphasised the value of ensuring that measures adopted were practical, sustainable, enforceable, readily understood and adaptable for local needs. The role of international cooperation on biosafety and biosecurity at the bilateral, regional and international levels was recognised, in particular to overcome difficulties encountered by some States Parties where additional resources, improved infrastructure, additional technical expertise, appropriate equipment and increased financial resources are needed to build capacity. Various subsequent initiatives on capacity building in this area have considered such issues.

II. Chatham House International Conference

2. The Centre on Global Health Security, and International Security at Chatham House recently hosted an international conference on *Safe and Secure Materials: Matching*

Resources to Reality, with representatives of governments, health protection agencies, medical experts, architects and engineers as well as biosafety and biosecurity experts.[1] The Conference was funded by the UK Government under the Global Partnership. The objectives were to consider current Western biosafety and biosecurity standards, to understand the needs of developing countries and to consider innovative solutions. It also explored whether and how standards and practices could be improved with limited resources in a way that would allow standards to be met without inhibiting necessary diagnostic and surveillance activities. This Working Paper highlights some of the key points made by participants that may be useful to consider in addressing the challenges to developing cooperation and assistance on biosafety and biosecurity. Further information can be found in the Chatham House Meeting Summary.[2]

3. **Issues raised** included the following:

(a) Legislation often promotes highly secure physical containment with new buildings, high-tech security systems and personnel training, which are associated with high costs. However, some developing nations may not have the necessary resources, infrastructure and regulatory capacity to construct and operate such facilities. Furthermore, there is no point in specifying high-tech, high-maintenance equipment if it cannot then be adequately maintained through its life.

(b) Perception of risk is a key factor. There is a need to counter the provision of 'over-regulated' or 'over-engineered' solutions that are unsuitable for developing countries due, for example, to cost or lack of local availability of resources such as building materials and electricity supply. Much work is required to develop realistic operating protocols, and in matching risks to resources. A single uniform international standard may not be appropriate for all developing countries. However, there is also a need to address the possible perception that this could result in an unethical approach of providing lower quality or higher risk solutions than those applied in developed countries.

(c) Project funding is usually short-term, but effective capacity building requires long term commitment from funders. It is important to take account of whole-life costs, including running costs and maintenance as well as initial capital investment.

(d) Engineering and technology are not the whole picture. The need for training, and local solutions to its provision must not be forgotten – including consideration of how people learn and perceive risk. It is also important to address the attitudes of policy makers and managers. Effective biorisk management is thus a key issue.

4. **Potential means for solutions** emerging from the discussions included:

(a) an approach based on systematic risk assessment and the adoption of technologies and materials that are in line with local needs and availability. A 'whole-system' approach would include consideration of engineering and technology, training, cultural and behaviour changes, and whole-life costs and sustainability to achieve effective biorisk management;

(b) a prototyping approach to building or renovating facilities, which is cheap, customisable and adaptable. Such an approach can use locally available and sustainable resources. It is important to engage with local people, including the users, in the development process. Modular and mobile equipment could be particularly relevant in this context;

[1] http://www.chathamhouse.org/publications/papers/view/183523

[2] http://www.chathamhouse.org/sites/default/files/public/Research/Global%20Health/170512summary.pdf

(c) development of minimum global standards that are based on performance and outcome-based regulation and are sustainable;

(d) development of a nationally based risk-assessment with global management tools and innovative scientific and technical system designs;

(e) improved knowledge management and communication to facilitate the availability to developing nations of benchmarked equipment, building design and protocols. Creation of, and support to, networks is key to this;

(f) engaging governments and international organisations to support the scientific work, and involvement of the private sector in development of low cost solutions.

III. Other activities

5. In January 2012, the WHO, recognising that developing countries in particular often struggle to implement laboratory biosafety and biosecurity solutions designed for use in other parts of the world where different working conditions prevail, issued the Laboratory Biorisk Management Strategic Framework for Action 2012-2016. With no overarching framework or global strategy in this area to provide direction in meeting these needs, biorisk management may fail to provide solutions that allow all countries to build stand-alone capacity and capability. The Framework sets out a basis and rationale for WHO's coordinating role in supporting partnerships to address issues such as: leadership and communication; governance, standards and guidelines; tools and methodologies; and competence development.[3]

6. The International Federation of Biosafety Associations (IFBA) has developed a 5-Year Strategic Plan for strengthening global biosafety and biosecurity in collaboration and partnership with its member and observer organisations. Its objectives include the identification of innovative approaches to develop affordable biosafety and biosecurity capacities appropriate for areas with limited resources. The IFBA Second Annual Conference in June 2012, '*Biosafety and Biosecurity: Building Sustainable Capacity*' aimed to identify such approaches, and to advocate strategies to collectively address urgent gaps and priorities in under-addressed regions of the world.[4]

7. Similar issues are being addressed in building capacity in related areas. A recent report by the American Academy of Microbiology, highlighted challenges in developing diagnostic capabilities for limited resource settings.[5] This is also of particular relevance to the BTWC intersessional programme Standing Agenda Item on review of science and technology developments, which in 2013 will address technologies for diagnosis of infectious diseases.

IV. Conclusion

8. Preliminary steps have been taken to consider the challenges associated with developing appropriate solutions to provide biosafety and biosecurity capabilities in

[3] http://www.who.int/ihr/publications/strategic_framework/en/index.html

[4] http://www.internationalbiosafety.org/

[5] 'Bringing the Lab to the Patient: developing point-of-care-diagnostics for resource limited settings' American Academy of Microbiology (2012). http://academy.asm.org/index.php/colloquium-program/browse-all-reports/495-bringing-the-lab-to-the-patient-developing-point-of-care-diagnostics-for-resource-limited-settings-2012

resource-limited scenarios. Some issues in developing international cooperation and assistance in this area have been identified and potential means to address them have been suggested. The pressing challenge now is to act to implement appropriate solutions around the world, which will require international leadership, coordination and communication as well as local engagement. The Standing Agenda Item on Cooperation and Assistance in the new intersessional programme provides an appropriate platform to discuss such challenges and, as the intersessional programme mandate requires, to promote effective action.