UNSGM Designated Laboratories Workshop Report

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9 – 11 November 2015

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Executive summary

The United Nations Secretary-General's Mechanism (SGM) and related documents call for off-site laboratory analysis by designated laboratories to support an investigation of alleged use of chemical, biological or toxin weapons. This was the first of a series of workshops that Switzerland is organising with the objective to establish a network of laboratories for the analysis of samples in relation to biological weapons. The workshops intend to clarify the tasks UNSGM designated laboratories should expect and discuss how laboratories may fulfil these. Furthermore, the workshops want to identify steps that will lead to full international scientific and political acceptance of laboratory results.

SGM Guidelines and Procedures require from designated laboratories the identification and characterisation of agent(s) used – in environmental and clinical samples – as well as other information that may assist an investigation in attributing a possible release. To date, a few dozen laboratories have been designated by UN Member States. Little is known however about their capabilities as well as capacities. Laboratories submitted information as part of their designation process. But based on this information only, Member States are unable to assess, whether designated laboratories meet the high standards that are required so that the findings of an investigation will be trusted. The network of off-site laboratories of the Organisation for the Prohibition of Chemical Weapons, OPCW, may serve as example.

Worldwide, there are many high-quality laboratories covering human, animal and plant pathogens as well as toxins. However some biological agents of interest in the context of biological weapons investigations are of little interest to public health. What is missing is a dedicated network of laboratories that maintains the scientific competence for the analysis of samples related to a possible use of biological weapons as well as meets the forensic and procedural requirements and is able to face the scrutiny that accompanies such an investigation. The experience of a number of national, regional and international networks and initiatives mentioned in this report could offer a starting point. Laboratories that take part in SGM investigations cannot afford to report false positive or negative results. For this type of investigation quality assurance and validation of methods and procedures is of utmost importance. Furthermore, laboratories must adhere to rigid administrative and reporting requirements, and demonstrate a strict chain-of-custody of samples.

Advances in life sciences are expected to increase the capacity for biological analysis and create new opportunities for investigating biological incidents. Automated commercial systems however frequently operate as "black boxes" rendering an assessment of obtained results difficult; a disadvantage in a political context. At a fundamental level, there is the question of what "identification" actually means in the context of a biological weapons investigation. An important issue is also, how reliable and comprehensive reference data libraries on biological agents are, and how easily designated laboratories can access them.

A peer-to-peer network of designated laboratories carrying out confidence-building exercises would enhance mutual trust in the validity, accuracy and traceability of reported results. Such a network must be approached step-by-step with a long-term view: starting by the sharing of information about existing capabilities and capacities and continuing with a whole range of benefits for the laboratories, such as opportunities for collaboration and sharing of best practices.

This process will, to a considerable extent, rely on the resources and expertise of Member States and on the willingness of their laboratories to engage in the formation of a trusted laboratory network on a voluntary basis. Switzerland and Spiez Laboratory stand ready to provide a platform to further progress on these issues.

1. Introduction

The United Nations Secretary-General's Mechanism (SGM) is a unique tool of the international community to investigate allegations of the use of chemical and biological weapons. Its strength rests on the authority of the Secretary-General to use the mechanism whenever a Member State reports an allegation of the use of such weapons and the resources that UN Member States make available to prepare for and implement such investigations. The SGM Guidelines and Procedures[1] provide for UN Member States to nominate qualified experts as well as designate analytical laboratories to conduct and support SGM investigations. Designated laboratories would be requested to analyse samples gathered during an investigation in order to help determine whether a chemical, biological or toxin (CBT) weapon has been used. They will have to identify and characterise the agent used and if possible, characterise sample constituents to establish the origin of the weapons.

In the case of chemical weapons, a network of designated laboratories has been established by the Organisation for the Prohibition of Chemical Weapons (OPCW); this network is available to SGM investigations and in 2013 it confirmed the use of Sarin in Syria. As for toxins, the OPCW has begun developing a capacity for conducting analyses of environmental samples containing toxins but the number of OPCW designated laboratories capable of undertaking such analysis, and the range of toxins tested, are still limited. There is, today, no similar network for the investigation of the use of biological weapons.

This was the reason why Switzerland decided to organise a series of expert workshops to discuss the necessary steps to establish a network of designated laboratories in the field of biological weapons. The objectives of this first of three workshops were to:

- Clarify the tasks of designated laboratories in an investigation of alleged use of biological weapons;
- Discuss how the designated laboratories can fulfil these tasks; and
- Identify steps to ensure that designated laboratories meet international requirements in order to gain full scientific and political acceptance.

52 participants from 15 countries (Australia, Canada, China, Denmark, Finland, France, Germany, Norway, Portugal, the Russian Federation, Singapore, Sweden, Switzerland, the United Kingdom of Great Britain and Northern Ireland, and the United States of America), the United Nations Office for Disarmament Affairs (UNODA) and the OPCW attended the workshop. They included arms control and technical experts from a range of laboratories with relevant scientific competence. The following report summarises the findings of the workshop and sets out the next steps that the participants considered necessary for the development of a trusted international laboratory network to investigate allegations of the use of biological weapons.

[1] General Assembly Document A/44/561 Annex I (4 October 1989) - Guidelines and procedures for the timely and efficient investigation of reports of the possible use of chemical and bacteriological (biological) or toxin weapons.

2. Why a network of designated laboratories for biological weapons?

UN Member States, in collaboration with the UNODA, have made significant efforts in recent years to strengthen the international capacity to investigate allegations of the use of CBT weapons. A total of 6 training courses for experts nominated to the SGM roster of qualified experts were organised between 2009 and 2015, as well as a table-top exercise and a lessons-learnt exercise for the Syria Mission. To gain full confidence in the utility of the mechanism, it is important also to address the second leg on which an SGM investigation stands: the designated laboratories. A first workshop towards this goal was organised by Sweden in June of this year. The workshop series organised by Switzerland now attempts to extend the range of laboratories and countries involved and to provide a platform for discussing practical steps to strengthen the SGM in the field of laboratory analysis of alleged biological weapons use.

The SGM Guidelines and Procedures set out what the designated laboratories are expected to contribute to an investigation. This includes the identification and characterisation of the agent(s) used in both environmental and clinical (biomedical) samples, structural elucidation of unknown agents, the identification of other sample constituents that could shed light on the characteristics and origin of the weapons, and support in such areas as dispersal modelling, epidemiology or evaluation of munitions and dissemination devices.

Particularly in the case of biological and toxin weapons, it is not self-evident what unambiguous identification of a causative agent entails. These agents occur in nature and to discriminate between a deliberate release of a biological or toxin agent and its natural background requires detailed characterisation of the agent identified. Designated laboratories will be expected to identify and report unexpected features of the attack strain such as atypical or engineered DNA sequences or unusual patterns of resistance, and other data that are of forensic importance. The SGM Guidelines and Procedures also indicate that designated laboratories may contribute other types of expertise to the interpretation of the data, such as the detection of abnormal or unexpected ways in which the disease outbreak has evolved. There may also be a need for other types of forensic analysis.

For SGM investigations, quality assurance is a must. For the analysis of environmental samples in investigations of the alleged use of chemical weapons, the OPCW's Designated Laboratories are required to demonstrate their competence and quality assurance on a regular basis in proficiency tests. These laboratories must have a laboratory quality control system in place such as an accreditation under ISO standard 17025,[2] and are required to participate at least once a year in official OPCW Proficiency Tests. They must achieve top scores in three consecutive tests to maintain their designation status. Despite these requirements, the OPCW has at its disposal today a network of 19 designated laboratories[3] from 15 countries (5 of them are temporarily suspended but may regain full designation depending on their future performances). OPCW Designated Laboratories come from many parts of the world and their competence and integrity is trusted worldwide.

The OPCW is currently setting up a similar network for the analysis of biomedical samples[4] and has also begun to address the

[2] ISO/IEC 17025:2005 specifies the general requirements for the competence to carry out tests and/or calibrations, including sampling. It covers testing and calibration performed using standard methods, non-standard methods, and laboratory-developed methods (see http://www.iso.org/iso/home/).

[3] See the Note by the OPCW Technical Secretariat S/1308/2015, dated 2 September 2015.

[4] See Draft Decision EC-80/DEC/CRP.3, dated 21 September 2015.

analysis of certain toxins. Five exercises with biomedical samples have been conducted so far and a first Proficiency Test is planned for early 2016. The OPCW aims at broadening the capacity in this type of analysis across CWC Member States, and is developing identification criteria particularly for cases when full scan mass spectra cannot be obtained. In accordance with the provisions of the Chemical Weapons Convention and the Relationship Agreement between the UN and the OPCW, as well as subsidiary arrangements, OPCW Designated Laboratories can be put at the disposal of the Secretary-General in support of SGM investigations.

In the biological weapons field, a few dozen laboratories have been designated by UN Member States to the SGM. It remains uncertain, however, how robust and competent this laboratory capacity actually is. So far no proficiency tests specifically related to SGM investigations have been conducted, and the information submitted by Member States on their designated laboratories would not suffice to prove that they meet the highest standards of science and quality assurance that Member States would expect in order to trust the findings of an investigation.

This is why a peer-to-peer network of designated laboratories is needed to allow laboratories to regularly test and improve their scientific competence and quality, and show that they are fit for investigation purposes. Such a network would enhance mutual trust in the validity, accuracy and traceability of the analytical results reported by these laboratories. Networking is also a proven tool to:

- Facilitate face to face meetings of experts from the participating laboratories and provide a platform for exchanging information on sample preparation, analytical methods and parameters, and on recommended operating procedures;
- Help laboratories gain experience in developing good analytical strategies, validating analytical methods, and developing and applying recommended operating procedures and performance criteria;
- Facilitate the identification of sources of validated reference materials and data and help build up curated repositories of such reference standards;
- Support training, self-assessments, quality assurance and accreditation, thus raising the competence of the participating laboratories over time;
- Provide a platform for the evaluation of new technologies and analytical methods.

The network would provide a sound basis for the Secretary-General to select from among the laboratories designated to the mechanism those that in a particular investigation would be the most appropriate to undertake off-site analysis of authentic samples collected by an investigation.

3. Current capabilities and gaps

In principle, the international capacity for sampling and analysis that the SGM would need to investigate the alleged use of biological and toxin weapons exists today. There are many high-quality laboratories worldwide covering human, animal and plant pathogens as well as toxins. Many of them are connected in existing national, regional or international networks and regularly test and improve their capabilities. Gold Standard technologies and assays for the analysis of biological and toxin agents are in the public domain, and relevant clinical, epidemiological and analytical expertise is widely available in UN Member States and networks of international organisations such as the World Health Organisation (WHO) and the World Organisation for Animal Health (OIE).

What is missing is a dedicated network of laboratories that possesses the scientific competence required for the analysis of samples related to the possible use of biological weapons *as well as* meet the forensic and procedural requirements of the SGM. Some otherwise highly competent laboratories also lack knowledge in other critical areas, such as weaponisation, analysis for components of agent mixtures other than the causative agents (carriers, fillers, stabilisers and so on) and dispersal analysis.

The experience of a number of national, regional and international networks and initiatives could offer a starting point to clarify requirements and develop a roadmap for the establishment of an international laboratory network for investigations of the alleged use of biological weapons. Some of them may be suitable as a foundation on which to build and sustain such an SGM network.

An example presented at the workshop was the preparation of biological missions under NATO's Partnership for Peace programme, which has resulted in the NATO Standard AEP-66 "NATO Handbook for Sampling and Identification of Biological, Chemical and Radiological Agents (SIBCRA)".[5] This standard takes account of both preparedness/response and investigation requirements, and identifies procedures necessary to provide NATO command authorities with the evidence needed for international prosecution. The design criteria of this approach include unquestionable sample integrity, and assured chain-of-custody to prevent tampering or contamination of the sample from sampling site to analytical results. Special packaging/transport containers to implement these principles have also been developed. The analytical laboratories undertaking the off-site analysis need to meet chain-of-custody procedures equivalent to what the OPCW requires for chemical weapons investigations, and they must have the capacity to analyse a range of sample types (environmental, urban, food, clinical, munitions fragments and other materials, swipes) and experience in microbial forensics.

However, there are also limiting factors. For example, many biological agents of interest in the context of biological weapons investigations are of little or no interest to public health. Many databases consequently lack accurate data on the target agents and an internationally accessible database of microbial profile information for investigations of alleged use of biological weapons has yet to be established. NATO's experience has confirmed that peer recognised analytical laboratory networks are essential to install and maintain trust in investigation results, especially given the high diversity of samples and agents to be analysed, the complexities of the analytical techniques and chain-of-custody requirements. In 1999 annual biological exercises (inter-laboratory comparison tests SIBA) were implemented but discontinued in 2010.

Other examples for networks and exercises that were highlighted at the workshop

[5] Revised NATO AC/225 (LG/7) AEP-IO.

included the European Mobile Laboratory Project for Pathogens up to Risk Group 4, two projects funded by the European Union to test and improve laboratory capacity for the identification of pathogens (QUANDHIP) and toxins (EQuATox), and national networks established by Member States.

The European project EQuATox is an example for efficient civilian-military cooperation (with participating laboratories coming from security, verification, public health and food safety sectors). It involves 35 laboratories from 20 countries and focuses on proficiency testing for the analysis of four toxins relevant to biological weapons investigations: Ricin, Saxitoxin, Staphylococcal enterotoxin B, and Botulinum neurotoxins. The project allowed participating laboratories to identify good analytical practices including the most promising combinations of technical approaches for identification and to assess and improve their performance. Efforts are under way to consolidate the network and make the results sustainable. Additional technical needs have been identified to improve the capacity for analysis in the field of toxins.

The European QUANDHIP network is an example for uniting two existing networks: the European Network for Highly Pathogenic Bacteria (EQADeBa/ENHPB) and the European Network of P4 Laboratories (ENP4Lab). It brought together 35 partners from 22 countries and had to address many of the questions that an SGM network of designated laboratories would also have to tackle, including quality assurance exercises, the setting up of a repository of reference materials, and the training and improvement of diagnostic as well as biosafety/biosecurity practices. The proficiency tests also contribute to the implementation of reliable sample shipment methods that allow tracking chain-of-custody and preservation of sample integrity.

WHO and OIE – both partners of the SGM based on memoranda of understanding between them and UNODA – have established their own networks of reference laboratories and collaborating centres. Whilst these reference laboratories play an important role in disease surveillance, outbreak investigation and response, they are not, as such, set up to meet forensic or chain-of-custody standards akin to an SGM investigation. It is likely, however, that they will already be analysing clinical samples related to a disease outbreak when the SGM is activated. Furthermore, some of these reference laboratories are currently designated to the SGM. Laboratories designated to the SGM that are interested in setting up a network should therefore touch base with WHO and OIE networks of reference laboratories. This could start with involving those laboratories that are WHO or OIE reference laboratories *as well as* designated to the SGM.

4. Importance of standardisation and integrity of results

An important requirement for designated laboratories in the SGM Guidelines and Procedures is the ability to demonstrate the quality of the analytical results and the validity of the methods used. Increasingly, this is accomplished by certification and accreditation to the appropriate ISO Standards (including ISO 9001 setting out the criteria for a quality management system, ISO 17025 regarding the competence of testing and calibration laboratories, ISO 15189 setting out the requirements for quality and competence of medical laboratories, and ISO 17043 pertaining to providers of proficiency testing). Many diagnostic laboratories in the biological field already have an ISO certification, or are working towards accreditation. The experience of the OPCW demonstrates that accreditation is an important aspect of demonstrating fit-for-purpose for a designated laboratory.

But this experience has also shown that investigations of alleged use pose particular requirements over and above those akin to disease surveillance and outbreak response. Scientific competence and appropriate instrumentation and analytical procedures are of course essential, but consideration also needs to be given to the agreement of common acceptance criteria. Whilst surveillance and response systems can tolerate a certain number of errors and emphasise early detection over deep identification and "getting it absolutely right", laboratories that take part in SGM investigations cannot afford to report false positives or false negatives (i.e. identify an agent that after careful examination is shown not to have been there after all, or where an agent is present but not detected), and neither should they miss anything else in a sample that would help demonstrate that a CBT weapon had been used, or where it originates. Finally, they must adhere to the rigid administrative and reporting requirements that stem from the need to protect the chain-of-custody in order to demonstrate the integrity of the analytical results.

5. Promises emanating from advances in science and technology

Advances in the life sciences are expected to increase the capacity for biological analysis and may soon contribute to close some of the existing gaps, or create new opportunities for investigating suspect biological incidents.

The borderlines between laboratory and field analysis are beginning to blur. Portable systems such as MinION for real-time on-the-spot DNA sequencing have been used during the recent Ebola outbreak in West Africa to sequence the causative agent. This signals a shift from biological functionality to data, thus reducing the need to ship biological samples and instead relying on sequencing in the field and transmission of data across the Internet.

Also, we are beginning to see the emergence of distributed networks for the diagnosis of disease outbreaks combined with standardised protocols and automated test systems. It should be possible, even today, to assemble existing analytical capabilities into a patchwork of integrated ("distributed") and fully automated diagnostic test facilities. Standardisation and automation are important features that the industrial developers and the users of such systems are promoting to enhance productivity and reduce costs. This may, on one hand, decrease error rates and improve the quality of the diagnostic results achieved, but on the other hand, such automated commercial systems are to be considered "black boxes" which render the assessment of obtained results a difficult undertaking, especially in a politically sensitive context.

Moreover, these systems will not replace the need for off-site laboratory analysis. Not only are there issues related to reliable data links in certain remote or non-permissible areas, the interpretation of the results in the given context as well as the detailed characterisation of the agents identified will still also require work that cannot in the near future be left to automated or distributed systems. However, such systems can be useful to record the footprint left behind by a disease outbreak, and could thereby significantly support the field investigation part of an SGM investigation. Bearing this in mind, SGM off-site and on-site laboratory capabilities are interlinked and should not be considered in isolation.

6. Challenges with regard to SGM investigations in the biological field

The SGM faces a number of challenges concerning investigations of allegations of the use of biological weapons. As far as laboratories are concerned, these are performance-related, administrative, and relate to funding. How many laboratories are needed and in which areas of analysis? How many samples should an investigation collect and analyse to provide confident answers? What exactly should the laboratories be looking for and how should the quality of the analysis be assured? What criteria should be applied when selecting designated laboratories to conduct the analysis in a particular investigation? And how much funding will be required to set up and maintain a system of designated laboratories, including some sort of proficiency testing, that is trusted as well as sustainable? These present considerable challenges and are likely to take a great deal of time and resources to address.

Some of the issues have to be considered from the perspective that a number of the laboratories designated to the SGM are mobile. Mobile laboratories can help in optimising field investigation work: they can provide dispersal modelling of the actual release scenario under local conditions to optimise the sampling plan and direct sampling teams to the most relevant sampling points. They can screen samples on-site to reduce the number of samples to be taken off site for detailed analysis; they can take on the role that in chemical weapons investigations falls to the OPCW Laboratory in Rijswijk, the Netherlands – the splitting of authentic samples[6]. Furthermore, mobile laboratories may be useful assets when it comes to the collection of control samples from or near the area of the investigation, and the preparation of positive and negative control samples. The level of rigour applied by mobile laboratories to quality assurance and chain-of-custody should of course be the same as that of designated laboratories for off-site analysis.

At a fundamental level, there is the question of what "identification" actually means in the context of a biological weapons investigation. A replication of the concepts used in chemical weapons investigations would be problematic, given the degree of variation in biological materials (strains, sub-strains, variants of toxins) and their natural origin. This natural background also means that it is not simply the confirmation of the presence of an agent in a sample that matters, but also its amount (concentration) and characteristics. Unambiguous identification is likely to require a range of techniques including biological culture, immunoassays, genetic assays (including deep sequencing), electron microscopy and perhaps others. In case of toxins, a typical suit of methods may include PCR-based sequencing and a range of methods to identify and characterise the toxins including immunological assays, functional assays, and spectrometric and chromatographic methods such as GC/MS.

An important issue is how reliable and comprehensive the reference data on biological agents are, and how easy a designated laboratory can access these data. Many biological databases today are not well curated and contain data that are difficult or impossible to compare, or simply wrong. Related to this, is also the question of the availability of validated reference materials (repositories of well characterised strains and sub-strains of pathogens and of toxin variants). The confidence in the quality of the reference data and materials used in an SGM investigation is critical. At the same time, some of these data are classified given their security relevance, and Member States would need to agree on ways to share this information as required. As a matter of fact,

[6] Authentic samples are usually split into at least four aliquots, one each for the two designated laboratories selected to conduct the off-site analysis, one for the State that hosts the investigation, and one as a back-up in case of discrepancies between obtained laboratory results.

all these aspects also apply to the even more demanding task of discriminating between natural and man-made events.

A discussion among interested laboratories designated to the SGM about their experiences, protocols and analytical procedures, and instruments would help to develop common acceptance criteria for the unambiguous identification of biological and toxin agents. The SGM Guidelines and Procedures already offer some guidance in this regard, and the experience of the OPCW could also be useful, in particular in identifying acceptance criteria as well as reporting rules that flow from the need to demonstrate an unbroken chain-of-custody linking each reported analytical result to a test sample[7].

Finally, there is the immense scope of the SGM: Member States may request the Secretary-General to investigate the alleged use of chemical, biological (bacteriological) or toxin weapons against humans, animals and plants. The range of possible biological agents is vast, reaching well beyond the lists of agents normally regulated by Member States for biosafety and biosecurity purposes. On the part of toxins, most of the analytical work in the context of investigation of and response to incidents has focussed on a few agents with a well-established history as threat agents (Ricin, Saxitoxin and a few others), but there are of course thousands of other toxins that may be relevant.

The establishment of a trusted system of designated laboratories for the investigation of alleged use of biological weapons must therefore inevitably be approached on a long-term, step-by-step basis. With limited funding, it is essential to establish priorities, start with the most obvious and simple tasks, and make maximum use of mechanisms, networks and projects already in existence. Nevertheless, the question of how the establishment and maintenance of such a network of designated laboratories for the investigation of alleged use of biological weapons should be funded needs an answer. UNODA at this time has no budgetary allocation for supporting the SGM. To compensate this gap, voluntary contributions by Member States and the device of hiring expert consultants have been used to provide a limited technical capacity for UNODA to work on practical measures to strengthen the SGM.

Future voluntary contributions should also support the establishment of a laboratory network, but actually a more predictable and sustainable mechanism is required to finance this work long-term.

[7] In the OPCW case that requires, amongst others, accreditation of the designated laboratories for sample receipt and chain-of-custody under ISO standard 17025 or 15189.

7. Towards a UNSGM biological analysis network of designated laboratories

The workshop identified and discussed a number of practical steps that could help strengthen the capacity for laboratory analysis under the SGM in the biological field.

An important first step would be to share information about the existing capabilities and competences of the laboratories designated by UN Member States. The information[8] that Member States are requested to provide on their laboratories could be a starting point for a top-level analysis of existing capabilities.

However, a more detailed analysis will be necessary to develop criteria for the assessment of the performance of designated laboratories and to help them with their own, internal assessment of how their capabilities would meet the requirements of an SGM investigation. This could, for example, be done by sending more detailed questionnaires to the designated laboratories (or to laboratories interested in being designated). There are examples for questionnaires that have been successfully used by laboratory networks and projects with a similar set of scientific and technical objectives and they could serve as a basis for compiling that additional information.

In addition to an analysis of existing capacities and gaps, it would be important to share the ideas discussed at this workshop with the laboratories nominated to the SGM roster. This would help to ascertain which of them are interested in participating in a network and allow them to join the discussion of how this could be accomplished. This is particularly important when it comes to acceptance criteria and other parameters of what the SGM Guidelines and Procedures refer to as "inter-laboratory calibration tests" – i.e. proficiency tests. A broad participation will also help to identify ways and means of ensuring the accessibility of high quality biological reference data and standards and to work in smaller groups on other specific issues.

Networking among laboratories designated by UN Member States to the SGM would bring important benefits for the laboratories themselves. It would give them the opportunity for self-assessment and increase Member States' trust in the mechanism. At the same time it would open doors for developing collaborations and facilitate the wider dissemination of best practices among these laboratories.

The establishment of a trusted laboratory network of the SGM for biological weapons investigations would have to address a range of practical issues. Some of these issues are types of matrices as well as biological and toxin agents which the laboratories (taken together) should be capable of analysing, the required biosafety levels, the acceptance criteria for identification, quality control and chain-of-custody, and other issues such as anonymity versus transparency of the performance in proficiency tests. On the practical side, an important first step would be to organise a series of confidence-building exercises (round robin tests) so that the participating laboratories can develop a better understanding of the requirements, assess their own procedures, protocols and standards, and compare their results with those from the rest of the network.

Given the size of the task clear priorities will be essential. For example, should the focus (at the beginning of the work of the network) be on human and zoonotic pathogens, ignoring other pathogens for the moment? Which particular pathogens and toxins should be considered first? How can the activities and results from other networks be used for the benefit of establishing this network?

[8] Appendix VI of the General Assembly Document A/44/561 Annex I (4 October 1989): "Information to be provided by Member States when proposing diagnostic and analytical laboratories".

This discussion will be continued at the second Spiez workshop and should soon lead to practical steps. However, all this will require the constant support by UN Member States. The UNODA can encourage Member States to engage in meaningful discussions about how the mechanism can be strengthened, and buttress its ties with partner organisations that have the mandate and competence to support the SGM, including the OPCW, the WHO and the OIE. Despite all of this it will, to a considerable extent, be the resources and expertise of the Member States and their laboratories that will determine the level of preparedness and the capabilities for such investigations, and thus the trust that Member States can have in the results of an SGM investigation. This is why it is vital that UN Member States take practical steps to strengthen the international investigative capacity in the field of biological weapons.

8. Way forward

The workshop did not attempt to agree on specific next steps towards the establishment of a network of designated laboratories for biological weapons investigations. The participants did however recognise that such a network would significantly enhance international capacity to investigate allegations of the use of biological and toxin weapons, and engaged in a discussion of what steps Member States and UNODA should take now, individually and collectively, to move closer towards the creation of such a network. The main suggestions were:

- UNODA should inform the laboratories nominated by Member States to the roster of designated laboratories about this workshop along with this report, and invite comments and feedback from them. This would help identify designated laboratories that are interested in participating in setting up the network.
- A capacity and gap analysis regarding the designated laboratories currently included in the roster is needed, based on the information available to UNODA. Such an analysis may have to be supported by expert consultants from Member States and is likely to involve a questionnaire (that could be adapted from existing models of similar laboratory networks). The questionnaire should request laboratories to provide additional details about their capabilities and reference functions on a national or international level as well as quality assurance systems.
- It will be important to engage with WHO and OIE reference laboratories that are also designated to the SGM.
- It is important to start soon with some simple practical steps towards the formation of a voluntary network of interested laboratories from the SGM roster within the next year, including the organisation of confidence building exercises (basic round robin tests focusing on identification). This would require direct laboratory-to-laboratory contact to discuss and agree on the practical arrangements. UNODA could help with making these initial preparations. The driving force, however, will have to come from the laboratories and the Member States that have nominated them, including the organisation and funding of such practical exercises.
- Switzerland and Spiez Laboratory stand ready to provide a platform for further conversations and workshops on these issues – two more workshops are currently planned. The second workshop will take place in June 2016, again in Spiez.


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