Confidence-building needs transparency: an analysis of the BTWC's confidence-building measures

Iris Hunger and Nicolas Isla

Biological arms control is currently in one of its deepest crises since the Biological and Toxin Weapons Convention (BTWC) was signed in 1972.[1] Efforts to improve the BTWC by adding verification measures ended unsuccessfully in mid-2001, and states were unable to agree on reopening multilateral negotiations aimed at strengthening the BTWC at the Fifth Review Conference of 2001 and 2002.

There is, however, a recognized need to strengthen the BTWC. The "dual use" character of many of the activities in biotechnology means that transparency is key to the strength of the BTWC. The BTWC confidence-building measures (CBMs)—the only existing transparency enhancement mechanism—are of limited effectiveness. But since there is little prospect of agreement over stronger transparency enhancement mechanisms for biological arms control in the near future, we must move ahead on improving the existing mechanism as much as possible.

The virtues of transparency for the effectiveness of multilateral control regimes have been touted repeatedly and consistently. To be able to regulate the behaviour of states and assess regime effectiveness, actors must have information about the activities they want to regulate. Transparency about and the willingness to explain the biological activities performed in a given country are of utmost importance in increasing confidence in their peaceful nature and preventing suspicion, hostility and aggression among states.

Transparency refers to the availability of relevant information and—in a more extensive understanding—to the openness of a system (a government or a company for instance) to external observers. Transparency serves three purposes: it deters violations of norms, it reassures actors that others are not misusing technologies and goods, and it may also reveal problems with the existing regime that actors have not recognized before.[2] Transparency is fostered by consistent, timely, accurate and comprehensive reporting of activities by leader states; by removing disincentives and obstacles to reporting, and rewarding reporting; and by collecting, processing, analysing and disseminating the relevant information that is provided.[3]

Yet most security regimes are not transparent: they fail to produce accurate and timely information, making it difficult both to assess actors' compliance and regime effectiveness, and to decide on the evolution of a regime and sanctioning violations.[4] The biological arms control regime is no exception. Transparency enhancement measures are limited. The most important are the confidence-building measures in the framework of the BTWC. So far, these have been of limited effectiveness, mainly because of a lack of participation and follow-up: states have not yet been willing to substantially

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Iris Hunger heads the Hamburg Centre for Biological Arms Control at Hamburg University, Germany. Nicolas Isla is a researcher at the Hamburg Centre for Biological Arms Control.

improve the level of participation in and quality of the CBMs. Nonetheless, the CBMs do have the potential to strengthen the BTWC.

This paper starts with a short history of the BTWC CBMs and then looks at their current state and possibilities for improvement in four areas:

- consistency and timeliness of reporting;
- relevance and comprehensiveness of reported data;
- collection, processing, analysis and dissemination of reported data; and
- removing disincentives and obstacles to reporting, and rewarding reporting.

History of the BTWC confidence-building measures

The first CBMs for the BTWC took the form of data exchange measures and were agreed upon during the Second Review Conference in 1986 "in order to prevent or reduce the occurrence of ambiguities, doubts and suspicions".[5] They were extended at the Third Review Conference in 1991. They were not discussed in detail at the Fourth Review Conference in 1996 because efforts were instead focused on the work of the Ad Hoc Group, which, among other things, was considering a legally binding system for states' declarations of relevant activities. In 2001, at the Fifth Review Conference, states made a number of proposals to improve and broaden the CBMs. However, as the conference was unable to agree on a Final Declaration, these proposals did not translate into action. Therefore, the topics that were agreed in 1991 are still valid today.[6]

- Confidence-building measure A: Part 1: Exchange of data on research centres and laboratories; Part 2: Exchange of information on national biological defence research and development programmes.
- Confidence-building measure B: Exchange of information on outbreaks of infectious diseases and similar occurrences caused by toxins.
- Confidence-building measure C: Encouragement of publication of results and promotion of use of knowledge.
- Confidence-building measure D: Active promotion of contacts.
- Confidence-building measure E: Declaration of legislation, regulations and other measures.
- Confidence-building measure F: Declaration of past activities in offensive and/or defensive biological research and development programmes.
- Confidence-building measure G: Declaration of vaccine production facilities.

Each year, every BTWC member state must submit a CBM return to the United Nations (UN) Department for Disarmament Affairs (DDA) by 15 April, covering the previous calendar year. If a state has nothing, or nothing new, to report, it can use Form 0, indicating with just a tick whether there is no, or no new, information to declare on the different CBM topics. The UN collects and copies the CBM returns and distributes them to states parties. The United Nations does not, however, have a "collection mandate"; it cannot ask states for their CBM returns.

A limited amount of information from the CBMs is made public in the reports that the Department for Disarmament Affairs prepares for the BTWC review conferences. These reports list, in a yes/no

format, which CBM forms states have submitted, but they do not contain declared data, much less provide analysis or evaluation of those data.[7] In the late 1980s the Stockholm International Peace Research Institute (SIPRI) was granted access to the CBM submissions for its study on the first three rounds of data exchanges.[8] Some states have made their CBM submissions public. Australia posted its CBM returns on the internet in 2002, 2004 and 2005, the United Kingdom did the same in 2003 and 2004, the United States in 2004.[9] Other state representatives have claimed that the CBMs are "for government use only". However, when adopting the CBMs, states did not specify that access to data would be restricted. Moreover, confidentiality obviously runs counter to the goal of transparency.

Consistency and timeliness of reporting

States party to the BTWC are politically bound to hand in a CBM submission every year. Not doing this brings countries into technical non-compliance with the BTWC. Nonetheless, a large number of BTWC states parties fall into this category, seriously undermining the biological-weapon control regime. Only a few states have provided information on a regular basis as required. Only eight countries submitted CBM returns in every single year between 1987 and 2005: Canada, Finland, Germany, the Netherlands, Norway, Russia, Spain and the United States.

Over the years, usually under one-third of states parties has submitted information in any one year. The number of CBM submissions per year is shown in Figure 1. Participation peaked in 1996 with 53 CBM submissions. This was the year of the Fourth Review Conference, when states expected a verification instrument for the BTWC in the near future. In the five-year period 2001–2005, 26 countries provided information annually.[10]

Since 1987, 93 states parties have taken part in the process at least once (Figure 2). This means that more than 40% of BTWC member states have never submitted any information (up to 2005). Among those that have never participated are Algeria, Bosnia and Herzegovina, Ethiopia, Ghana, Indonesia, Kenya, Lebanon, Malaysia, Nigeria, Oman, Pakistan, Singapore, Sudan, Uruguay, Venezuela, Viet Nam, Yemen and Zimbabwe.

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Figure 1. Number of CBM returns by BTWC states parties, 1987–2005

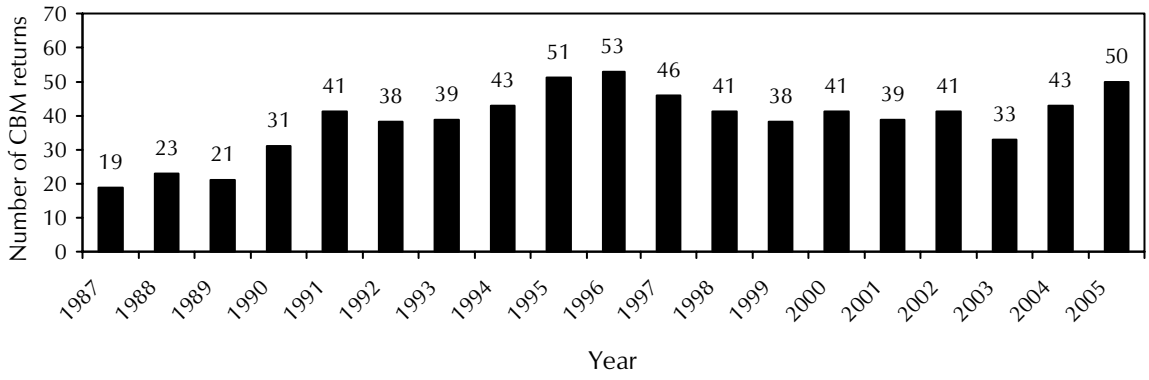
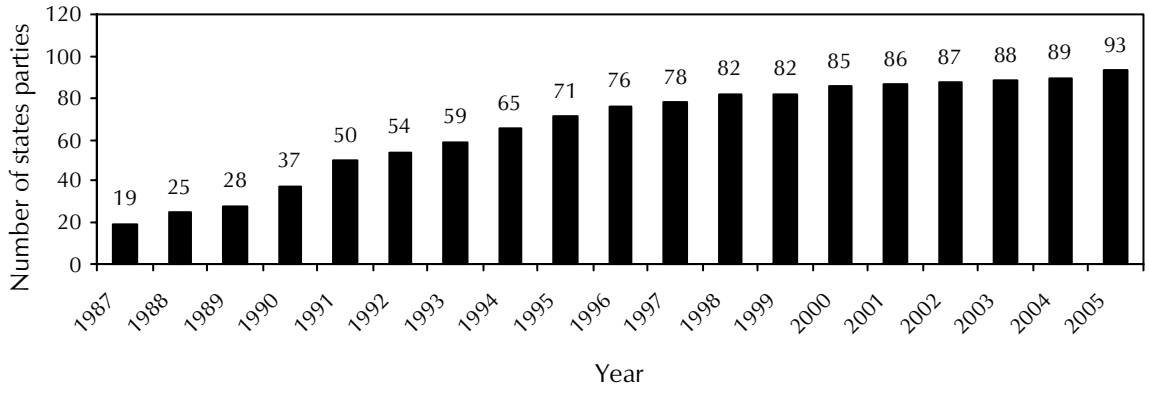


Figure 2. Number of states parties that have submitted CBMs at least once



Eastern European countries and Western states have taken part much more frequently than members of the Non-aligned Movement (NAM). Over the past 10 years, almost all Western states and four-fifths of Eastern European countries participated at least occasionally, compared with only one-third of NAM states.

Even politically important countries and countries very supportive of the BTWC have not always participated regularly. To name just a few examples: India participated in 1997 only; Iran only provided CBMs in 1998, 1999 and 2002; Sweden failed to submit CBMs in 2002 and 2003; the United Kingdom missed providing a CBM in 2001. Irregular participation not only undermines the regime, it creates problems in interpreting those data that have been declared. If a country participated in 1997 for the last time (as for instance India did), should one assume that the 1997 data are still valid in 2005? Besides overall low participation, the declarations that are submitted are frequently late. The most extreme case is Japan, which handed in its CBMs for 1994 and 1996 in 1998.

Possibilities for improvement

In order to improve the consistency and timeliness of reporting, a number of steps should be taken. First, more countries have to be convinced to take part more frequently and to respect the deadline. States should be reminded of the approaching submission date of 15 April each year; the UN should be accorded a collection mandate. Annual lists of participating states would also help to remind states of their reporting duties. A low-level follow-up process is recommended to improve consistent and timely reporting, such as asking for missing CBMs at a certain point after the deadline and offering assistance. Technical assistance should be provided to states that struggle with collecting the declarable data and completing and submitting the forms. Efforts should focus on "particularly important states". These are the depositary states, because they are expected to serve as role models; countries that have had biological-weapon programmes or that have been officially accused of biological efforts, because such efforts could have given rise to dual-use knowledge and materials of concern to BTWC member states; and global and regional leaders in biotechnological capabilities.[11]

Relevance and comprehensiveness of reported data

Relevance of reported data

The relevance of the data asked for is not ideal. But what *is* relevant data? When discussing biological weapons (BW) and the technologies necessary for their development, the term "dual use" frequently appears. Dual use is not exclusive to biotechnology. But the degree of dual use is particularly high in the biological sciences. Dual use means that equipment, agents, technologies and knowledge used in producing a biotechnology product such as medicine or food can also be used to produce BW. At times, only a very thin line separates legitimate from illicit activities.

But while it is true that many activities in the biological field have a strong dual-use character, qualifications have to be made. There are certain activities that have a very limited use for peaceful purposes, and even activities that cannot be justified as having any peaceful intention at all. Clearly offensive activities are work on BW munitions and delivery systems for such munitions. Such work can never be justified as peaceful. It is prohibited without any qualification by Article I of the BTWC.

Of extremely limited non-offensive use is work aimed at enhancing the characteristics of agents to make them more suitable as weapons, such as: enhancing infectivity and pathogenicity of agents; improving transmissibility; altering agents to evade current detection methods; enhancing resistance to current therapeutics such as antibiotics or resistance to host immunological defences; improving the ability of an agent to remain viable and virulent during production, weaponization, storage, transport and during and after release into the environment; and facilitating the dissemination of agents as a fine particle aerosol, or by contamination of food or water sources.[12] Of extremely limited non-offensive use are also the mass production of biological agents that have no commercial application and open-air field testing of live biological agents. Such activities at the hostile end of the spectrum are carried out most often in biodefence programmes. In the last decade, many states have enlarged existing or created new biodefence programmes. Activities undertaken in these programmes quite often involve creating offensive capabilities in the name of biodefence. Therefore, of the current CBM topics, the most relevant in terms of biological arms control are data on national biodefence programmes, because they are likely places of dual-use activity close to the hostile end of the dual-use spectrum.

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In addition, information on vaccine production is relevant, because it indicates large production capacities and the related know-how, which are also necessary for a large-scale BW programme. Data on biosafety level 4 (or BL4) laboratories are also of relevance, because it is likely that particularly dangerous activities, such as making biological agents more pathogenic or increasing their transmissibility, are carried out under high biological containment to prevent damage to the environment or to keep the activities secret. These three topics—biodefence programmes, large vaccine production capacities and maximum biological containment—were important triggers for declarations by states parties in the draft verification protocol to the BTWC.[13] More detail on data currently declared under these three topics is provided below.

CBM Form A2 asks for information on "national biological defence research and development programmes". In addition to an overview of the programme (CBM Form A2ii), states also have to declare detailed information on facilities that have "a substantial proportion of … resources devoted to the national biological defence research and development programme" (CBM Form A2iii). During the period 1992 (when CBM A2 came into existence) to 2003, 23 states declared biodefence programmes:

Australia, Belarus, Belgium, Canada, China, Czechoslovakia, Finland, France, Germany, India, Italy, Japan, the Netherlands, Norway, Poland, the Russian Federation, South Africa, Spain, Sweden, Switzerland, Ukraine, the United Kingdom and the United States.[14] The number of biodefence programmes declared per year is shown in Figure 3. There is a visible trend toward the establishment of new biodefence programmes. Australia, Belarus, Belgium, Italy, Japan, Poland, South Africa, Spain, Switzerland and Ukraine declared initiating a biodefence programme during the period under review. The Czech Republic and Slovakia declared from 1994 onward that they do not have a biodefence programme. Ukraine did the same from 1997 onward.

CBM Form A1 asks for information on "research centres and laboratories that meet very high national or international safety standards" or specialize in "permitted biological activities directly related to the Convention". A huge number of facilities were declared: most were neither funded by ministries of defence nor equipped with BL4 containment. During the 10-year period 1994 to 2003, 22 states declared 57 BL4 facilities: 43 of these were declared to be in existence in 1994, 36 in 1998, and 32 in 2003. Four of the 57 declared facilities were partly, one was fully, funded by ministries of defence.[15]

Information on facilities "producing vaccines licensed by the State party for the protection of humans" should be provided on CBM Form G. Almost 300 vaccine production facilities have been declared during the period 1992 (when CBM G was adopted) to 2003. Not all of them are producing vaccines for use on humans; a number of states also declared animal vaccine production facilities. Of the many facilities producing vaccines for humans, most produce vaccines against "classic" diseases

Figure 3. Number of biodefence programmes declared per year

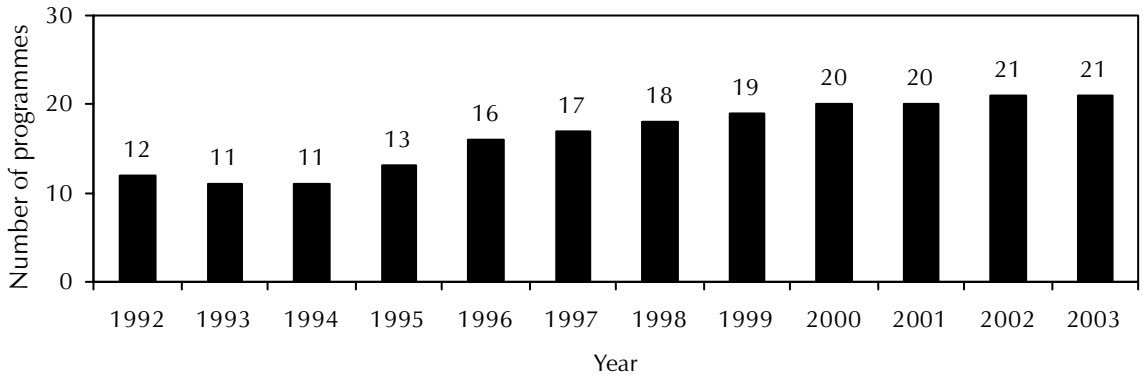
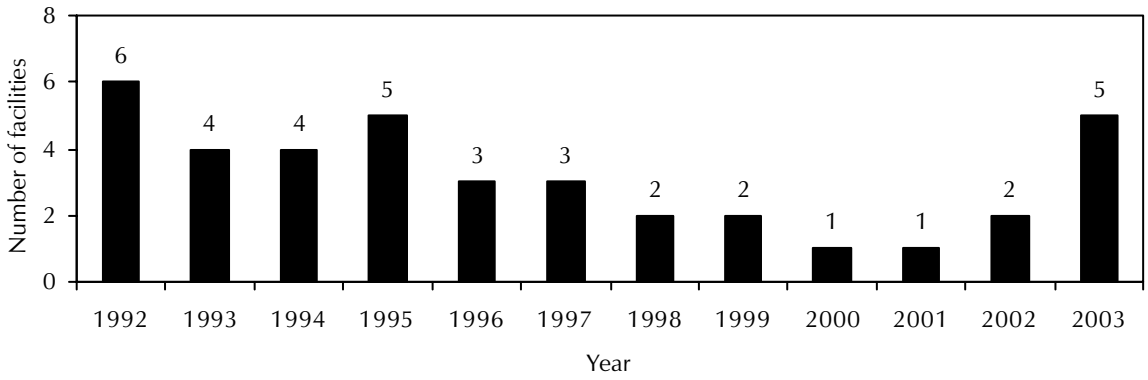


Figure 4. Number of smallpox vaccine production facilities declared active per year



such as diphtheria, tetanus, pertussis, measles, mumps and rubella. Nine states declared a total of 11 smallpox vaccine production facilities between 1992 and 2003: Australia, Canada, Germany, Japan, the Netherlands, Romania, the Russian Federation, Spain and the United States. Five smallpox vaccine production facilities were declared active in 2003: one each in Canada, Germany, Japan, the Netherlands and the Russian Federation. The number of smallpox vaccine production facilities declared active during the period 1992–2003 is shown in Figure 4. Four states declared a total of six plague vaccine production facilities over the years: Australia, China, the Russian Federation and the United States. In 2003, four plague vaccine production facilities were declared active: one each in Australia and China, and two in the Russian Federation.

Comprehensiveness of reported data

There are almost no analyses of the comprehensiveness of data declared in the CBMs.[16] From the little that is known it is clear that data submitted have not always been comprehensive or complete. Sometimes this is due to the forms themselves, which contain some ambiguous questions. Form A2iii, for instance, asks for the number of staff working at a biodefence facility, and also for the number of contractor staff working there. It is unclear, and states have handled this differently, whether the first number of staff should include or exclude the number of contractor staff. Often, it is difficult to know whether older information provided by states is superseded by newer information or whether newer information is simply in addition to older information. And then there are the cases of incomplete information. Spain, for instance, did not provide information on funding for its biodefence facilities as required in CBM Form A2iii. Italy lists a number of vaccine production facilities but does not mention the diseases covered, as required in CBM Form G.

Possibilities for improvement

In order to improve the relevance and comprehensiveness of reported data, two issues have to be addressed. First, the CBM topics have to be reviewed. It is obvious that some relevant topics are not covered, such as the production of animal vaccines, plant inoculants, aerosol studies and military vaccination programmes. It is also obvious that some of the existing CBM topics are of limited relevance, such as the requirements to report on efforts to actively promote contacts between scientists, on efforts to encourage the publication of results of biological research, and background information on outbreaks of reportable infectious diseases. Superfluous topics should be removed or amended, and relevant new topics should be added. A number of proposals in this regard were made during the Fifth Review Conference of the BTWC.[17]

Second, the format of the CBM forms has to be reviewed. Not all relevant information is asked for in detail on each topic. The declaration on past offensive programmes, for instance, would benefit from more detailed questions on the categories of activities undertaken in the BW programme and on agents and facilities. In the declaration on national implementation (Form E) a question could be added on bioterrorism. When reviewing the forms, ambiguous questions, such as the questions on staff numbers in the biodefence facility declaration, should be amended and imprecise reporting requirements should be more focused, such as limiting the publication lists to works of particular relevance. In reviewing the CBM forms it could be useful to take a look at the work that was done on declaration formats by the Ad Hoc Group.[18]

Collection, processing, analysis and dissemination of reported data

Currently the CBMs are sent by states to the United Nations Department for Disarmament Affairs in New York. The information is then processed—in so far as it is copied. It is then assembled into a compendium and disseminated back to states. The CBMs are not translated. They are not analysed, except for a list of participating states that the UN prepares every five years for the review conferences. DDA archives the CBMs in its library.

In order to improve the organizational procedures for the CBMs, a number of steps need to be taken. States should have a choice over submitting and receiving the CBMs either electronically or on paper. An electronic database would help to ease access to the completed CBMs; if this were also available to non-governmental experts, it would greatly increase the possibilities for analysis and assessment of the CBMs. In addition, states should be encouraged to publish their CBMs on the internet.

The UN should have an information collection mandate, with the right to ask for missing returns. Translating the CBMs should be considered. Whether there can be agreement on translating into all UN languages is questionable for financial reasons, and translation only into English might be difficult for political reasons. An interim measure would be to encourage states to submit their CBMs in more than one UN language, or to make their national translations of other countries' CBMs available.

The most demanding organizational reform would be to start analysing the submitted information. This could take different forms. Low-level analysis would consist of more frequent lists of participation and yes/no lists for each CBM topic, as already done every five years for the review conferences. Medium-level analysis would comprise summaries of the declared data, such as names and locations of BL4 facilities or funding levels and staff numbers of biodefence programmes. High-level analysis would include comparison of CBM information with other information sources to assess accuracy and completeness. This could involve clarification and consultation procedures and voluntary visits to verify declared data.

Removing disincentives and obstacles to reporting, and rewarding reporting

There must be disincentives and obstacles to reporting, otherwise more states would take part. A first step in the direction of removing disincentives and obstacles was the introduction of Form 0 in 1991. However, as mentioned above, the forms need another revision process to make them as unambiguous and easy to complete as possible. Using tick-box formats for the majority of questions is one option. As mentioned above, looking at the work done by the Ad Hoc Group on declaration formats could be useful. To remove more complex obstacles, assistance should be provided to states in need of it. As a first step, Canada has prepared a detailed guide on the CBMs, giving advice on how to collect information, complete the forms and submit the CBM declarations to the UN.[19] International and regional workshops on the CBMs or an e-mail helpline would be even more useful.

So far, there is no incentive to report; there is no mechanism for rewarding reporting, nor is there any mechanism to sanction non-reporting. A very low-level incentive could be an annual list and statistics that indicate which states have participated in that year, for how many years each state has participated without interruption, and which states have never participated. Most important for transparency enhancement and confidence-building, however, is to explain again and again that consistent and timely submission of high-quality CBM declarations are crucial for a strong biological arms control regime, and to insist that states fulfil their obligations in this regard.

Conclusion

As the negotiations on a verification protocol for the BTWC, which would have included a legally binding declaration system, failed, the CBMs remain the only agreed permanent, multilateral transparency measure for the years to come. It is therefore important to make the best use of this mechanism.

The next milestone in biological arms control is the Sixth Review Conference of the BTWC at the end of 2006. While states party to the BTWC are unlikely to resume formal negotiations on verification measures, they should use this opportunity to take steps to increase transparency in biological activities worldwide. The commitment of member states to increasing transparency in areas relevant to biological arms control is crucial, at the Sixth Review Conference and beyond.

Notes

1. Full title: Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, opened for signature 10 April 1972, entry into force 26 March 1975, at<www.unog.ch/bwc>.
2. Ann Florini, 1998, "A New Role for Transparency", in Nancy Gallagher (ed.), *Arms Control. New Approaches to Theory and Policy*, London and Portland OR, Frank Cass, pp. 51–72.
3. Ronald Mitchell, 1998, "Sources of Transparency: Information Systems in International Regimes", *International Studies Quarterly,* vol. 42, no. 1, pp. 109–130.
4. Ibid.
5. Final Declaration, Second Review Conference of the Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, 1986, UN document BWC/CONF.II/13/II, p. 6, at <www.opbw.org/rev_cons/2rc/docs/final_dec/2RC_final_dec_E.pdf>.
6. For the current CBM forms see UN document BWC/CONF.III/23, Part II, Annex, at <www.opbw.org/rev_cons/3rc/docs/conf/BWC_Conf.III_23_PartII_Annex_E.pdf>. The forms are accessible individually online at <www.opbw.org>.
7. These documents from the Fifth Review Conference are BWC/CONF.V/2, BWC/CONF.V/2/Corr.1, BWC/CONF.V/2/Corr.2, BWC/CONF.V/2/Corr.3, BWC/CONF.V/2/Add.1 and BWC/CONF.V/2/Add.1/Corr.1 and can be found at <www.opbw.org/rev_cons/5rc/5rc_orig.htm> and <www.opbw.org/rev_cons/5rc/5rc_res.htm>.
8. Erhard Geissler (ed.), 1990, *Strengthening the Biological Weapons Convention by Confidence-Building Measures,* SIPRI Chemical & Biological Warfare Studies no. 10, New York, Oxford University Press, p. ix.
9. See <www.opbw.org>.
10. These were Argentina, Australia, Belarus, Bulgaria, Canada, China, Cuba, Czech Republic, Finland, Germany, Italy, Japan, Lithuania, the Netherlands, New Zealand, Norway, Poland, the Russian Federation, Slovakia, South Korea, Spain, Switzerland, Turkey, Ukraine, the United States and Uzbekistan.
11. Detailed information on the concept of "particularly important states" can be found in Iris Hunger, 2005, *Confidence Building Needs Transparency. A Summary of Data Submitted under the Bioweapons Convention's Confidence Building Measures 1987–2003*, The Sunshine Project, September, at <www.biological-arms-control.org/download/hunger_CBM.pdf>. The list of these "particularly important states" is as follows: Australia, Brazil, Canada, China, Cuba, Egypt, France, Germany, India, Iran, Iraq, Israel, Italy, Japan, Kenya, Libya, Mexico, Nigeria, North Korea, the Russian Federation, Singapore, South Africa, Sudan, Sweden, Syria, the United Kingdom and the United States.
12. Raymond A. Zilinskas and Jonathan B. Tucker, 2002, *Limiting the Contribution of the Scientific Literature to the BW Threat,* Research Story of the Week, Center for Nonproliferation Studies, 16 December, at <cns.miis.edu/pubs/week/021216a.htm>.
13. Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction, Procedural Report, Twenty-Second Session, Geneva, UN document BWC/AD HOC GROUP/55-1, 1 March 2001, pp. 28–38, at <www.opbw.org/ahg/docs/22nd%20session/22nd%20session%20part%201.pdf>.
14. A more detailed account of the declared data can be found in Hunger, 2005, op. cit., pp. 12–15.
15. A more detailed account of the declared data can be found in Hunger, 2005, op. cit., pp. 16–17.

16. One exception is Nicolas Isla, 2006, *Transparency on Past Offensive Biological Programmes. An Analysis of Confidence-Building Measure Form F: 1992–2003,* Occasional Paper no. 1, Hamburg Centre for Biological Arms Control.
17. Annex to the Draft Report of the Committee of the Whole, Fifth Review Conference, UN document BWC/CONF.V/COW/CRP.1, 30 November 2001, pp. 37–50.
18. Ad Hoc Group of the States Parties to the Convention on the Prohibition of the Development, Production and Stockpiling of Bacteriological (Biological) and Toxin Weapons and on their Destruction: Procedural Report, Twenty-Second Session, UN document BWC/AD HOC GROUP/55-2, 1 March 2001, pp. 276–338 and 343–344, at <www.opbw.org/ahg/docs/22nd%20session/22nd%20session%20part%202.pdf>.
19. Canada Department of Foreign Affairs and International Trade, *The Biological and Toxin Weapons Convention Confidence Building Measures: A Guide to Their Completion,* at <www.opbw.org/cbms/Guide_files/frame.htm>.