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Russian Biological and Chemical Weapons Capabilities: Future Scenarios and Alternatives of Actions

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Russian Biological and Chemical Weapons Capabilities: Future Scenarios and Alternatives of Actions - Report 1

Abstract (not more than 200 words)

The aim of this report is to evaluate one possible future development of the Russian Federation in a 10-year perspective, using a forecasting method. The main trend in the scenario that this report focuses on is Russian estrangement with the west. Key drivers are authoritarian rule, Sino-Russian relations, Chechnya and terrorism, proliferation of weapons of mass destruction, co-operative threat reduction, chemical weapons destruction, biosecurity and biosafety.

Keywords

Russia, China, weapons of mass destruction, terrorism, biological and chemical weapons, Chechnya, co-operative threat reduction, biosecurity, biosafety

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Sammanfattning (högst 200 ord)

Rapporten diskuterar och utvärderar en möjlig utvecklingsväg för Ryska Federationen i ett tioårsperspektiv. Det arbetssätt som har valts är att skapa ett scenario med hjälp av forecasting-metoden. Huvudtrenden i scenariot är ett ryskt avfjärmande från väst. Viktiga drivkrafter är auktoritärt styre, relationerna mellan Kina och Ryssland, Tjetjenien och terrorism, proliferation av massförstörelsevapen, ”co-operative threat reduction”, destruktion av kemiska vapen samt biosecurity och biosafety.

Nyckelord

Ryssland, Kina, massförstörelsevapen, terrorism, biologiska och kemiska vapen, Tjetjenien, biosecurity, biosafety

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Executive Summary

The overall aim of this report is to discuss on a policy relevant level how to prevent a scenario-generated development from materializing. The ambition is not to give explicit policy advice, but to discuss and highlight some of the critical issues that policymakers in co-operative threat reduction (CTR) donor countries and others should be aware of.

Although CTR activities have made substantial progress during the last decade, many aspects of the Soviet-Russian chemical and biological weapons (CBW) complexes are still opaque.

In the abundant literature on Soviet-Russian efforts within the CBW field almost all publications have had a historical perspective. In order to be of even greater policy relevance the current report has adopted a future-oriented perspective using a scenario technique. A forecasting approach has been used to generate one possible development of Russian foreign and defence policies in a ten-year perspective. The developments concerning CBW issues are then fitted into this scenario context.

Trends and mechanisms at play in Russian politics during the late 1990s and up till the end of 2004 have been identified and used as driving forces behind a future development. The development in this period are thus of a purely factual nature. From 2005 and beyond the description is mostly of a fictitious. This mix of facts and fiction ends in a hypothetical state of Russian CBW issues in 2014.

The main trend that the scenario focuses on is Russian estrangement with the West. The key scenario drivers are: authoritarian rule, Sino-Russian relations, Chechnya and terrorism, proliferation of weapons of mass destruction (WMD), CTR support, chemical weapons (CW) destruction, biosecurity and biosafety activities.

In this scenario both positive and negative trends can be observed as far as CBW issues are concerned. The situation in 2014 can be viewed as follows. Due mainly to increased terrorist threats the CW stockpile is finally destroyed and Russian biosecurity and biosafety efforts are enhanced. However, new doctrinal documents do not rule out other types of WMD than nuclear weapons. The corruption within the CBW archipelago contributes to further proliferation of the Soviet legacy. In the scenario Russia continues its non-constructive positioning in multinational arms negotiations. In addition, disarmament measures, other than those related to CW, are scarce. Conversion of the CBW part of the military industrial complex is never complete and irreversible. Thus, the lack of transparency and the dual-use nature of the increased biodefence activities make it hard to rule out that Russia has no offensive CBW activities.

The report concludes that without foreign financial contributions Russia will not be able to destroy its CW stockpiles within the Chemical Weapons Convention (CWC) timeframe. Both Russia and the donor nations will have to combine their efforts. The donor nations must also make sure that the financial assistance provided is used for the actual destruction. As the importance of bio-terrorism countermeasures rises in Russia, it is crucial for the West to explore possibilities for future co-operation and dialogue, which will enhance openness and transparency. Thus, as the scenario presents a situation where Russia and U.S. relations deteriorates, the issue of CTR (the U.S. being the main donor) has to be reviewed by the EU and the European nations in order to counter an increasing Russian lack of interest regarding transparency and co-operation in CBW and proliferation issues.

1 Introduction

This report is the first in a series that discusses problems associated with chemical and biological weapons (CBW) and corresponding weapons programmes in the former Soviet Union and Russia in a future-oriented setting. This project's main aim is to examine a number of hypothetical futures pertinent to these problems and use the findings to formulate policy recommendations.

The Soviet Union was a States Party to the Biological and Toxin Weapons Convention (BTWC), a responsibility Russia assumed after the fall of the Soviet Union. Russia is also a States Party to the Chemical Weapons Convention (CWC). Accordingly these questions should theoretically not be of any concern. However, beginning in the late 1980s, a covert biological weapons (BW) programme was revealed in the Soviet Union, in breach of the BTWC.[1], [2] To this day, Russia has not exhaustively demonstrated that all parts of the offensive programme have been terminated. Furthermore, with a few exceptions it has not even been officially acknowledged.

Until 1972, the secret BW programme mainly involved Ministry of Defence facilities and some research institutes under the Ministries of Health and Agriculture. A new phase came in the 1970s as the potential of genetic engineering began to be realized. The core of the new organization was a civilian research and production organization, Biopreparat, which would focus on fundamental problems in molecular biology and genetics, and the development of advanced technology for military use.[3, 4]

The BW programme involved a total of about 50 institutes and sites and 50 000 people. About 50 different human and animal pathogens were being studied, in addition to several plant pathogens. Some bacteria and virus strains were genetically altered to increase potency or resist antibiotics. The Soviet BW programme reached the stage where biological agents were weaponised, and the Soviet military developed a range of tactical and strategic weapons for

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1 James Adams. Chapter 20: The weapons of special designation. The New Spies - Exploring the Frontiers of Espionage (Hutchinson: London, 1994), pp. 270-283.

2 Alibek, K. Biohazard (Hutchinson: London, 1999).

3 Rimmington, A. 'Invisible Weapons of Mass Destruction: The Soviet Union's BW Programme and its Implications for Contemporary Arms Control', *Journal of Slavic Military Studies*, vol. 13, No. 3 (September 2000), pp. 1-46.

4 Domaradsky, I.V. and W. Orent, 'The memoirs of an inconvenient man: Revelations about the biological weapons research in the Soviet Union', *Critical Reviews in Microbiology*, vol. 27, No. 4 (2001), pp. 239-266.

delivery of BW.[5, 6] For in-depth background on the Soviet and Russian BW programmes, consultation of some previous FOA and FOI publications are recommended.[7, 8, 9, 10, 11]

In 1992, President Yeltsin acknowledged in a decree, ”on ensuring the implementation of international pledges in the sphere of BW”,[12] that there had been a breach of the BTWC and that further offensive BW work would be banned. It was also stated that the number of personnel working in this area would be decreased by half and the funding by 30%.[13] The trilateral process that ensued between Great Britain, the U.S. and Russia resulted in visits to four civilian facilities in Russia. Further international initiatives to prevent proliferation have been undertaken during the 1990s, but their efficiency remains unclear. BW facilities and key personnel are still matters of concern, and Russian disarmament measures reveal a number of negative indicators.

Within the chemical weapons (CW) sphere problems of a different kind have presented themselves. Here lack of funds, incentives and perhaps political will have delayed the destruction of Russia’s extensive stores of CW and munitions.

CW was a prominent part of Soviet war planning. Sophisticated and extensive programmes for development and production of CW agents as well as their means of delivery seem to have existed. During the cold war era, transparency on Soviet military matters was low and until the 1970s nuclear and to some extent BW issues were dominant. After the BTWC went into force in 1975 worries about CW slowly came to the fore. In the mid-1970s U.S. and NATO planners reassessed Soviet CW stocks which led to enhanced protective measures being taken both within NATO and the U.S. Discussions on a convention banning CW soon came under way and developed into regular multilateral negotiations under UN auspice in 1984. At the same time the U.S. and the Soviet Union were engaged in bilateral negotiations on the destruction of CW. In 1987 the Soviet Union declared that production of all CW agents had been halted. Throughout this process the extent of Soviet CW complex was still generally not known due to the persistent lack of transparency.

With the break up of the Soviet Union the bilateral agreements reached by 1990 never entered into force. Instead the UN conference on disarmament came to a final agreement on CW

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5 Alibek, K. Biohazard (Hutchinson: London, 1999).

6 James Adams. Chapter 20: *The weapons of special designation. The New Spies - Exploring the Frontiers of Espionage* (Hutchinson: London, 1994), pp. 270-283.

7 Lilja, P. Roffey, R., Westerdahl, .K., S: *Disarmament or retention: is the Soviet biological weapons programme continuing in Russia?*, FOA-R--99-01366-865--SE (FOA: Umeå, 1999).

8 Roffey R., Westerdahl, K., S.: *Conversions of former biological weapons facilities in Kazakhstan : a visit to Stepnogorsk, July 2000*, FOI-R--0082--SE (FOI: Umeå, 2001).

9 Westerdahl, K. S.: *Building and measuring confidence : the biological and toxin weapons convention and vaccine production in Russia*, FOI-R--0189--SE (FOI: Umeå, 2001)

10 Clevström, Jenny, Roffey, Roger, Unge, Wilhelm Westerdahl, Kristina, S.: *Support to threat reduction of the Russian biological weapons legacy - conversion, biodefence and the role of Biopreparat*, FOI-R--0841--SE (FOI: Umeå, 2003)

11 Häggström, B., Forsberg, Å., and Norlander, L.: *Conversion of a former Biological Weapon Establishment,* FOI-R--1316--SE (FOI: Umeå, 2004)

12 Decree of the President of the Russian Federation, Edict No. 390, B Yeltsin, Moscow, 11 April 1992.

13 Leitenberg, M.: ‘The possibilies and limitations of biological weapons conversion’, in Geissler, E. E., Gazso, L., and Buder, E.: *Conversion of former BTW facilities*, NATO Science Series, 1 Disarmament Technologies vol. 21, (The Netherlands: Kluwer Academic Publishers, 1998)

issues in 1992 and the CWC was opened for signature in 1993. After signing the CWC in 1993 Russia declared a total of 40 000 tons of CW agent. This proved to be by far the largest stockpile that any possessing state has declared.

However, several problems have presented themselves. While the U.S. destruction of its CW stockpile has been proceeding more or less in accordance with CWC obligations Russia has only destroyed 1% of its CW and is behind the original schedule. If it were not for several dispensations Russia would be in breach of the CWC. These problems have several explanations. Most important is the lack of funds for managing the destruction but issues such as lack of political will and organisational problems can not be discounted. Generally, expectations on Russia's ability to destroy its stockpile in a near future are low.

There are also the allegations of Russian work on a new series of CW agents which surfaced in the beginning of the 1990s. According to Russian sources this programme has been discontinued, but it is a reminder of the large and to some degree self-sustained infrastructure that made up the Soviet CW complex. Since there is no certain evidence that facilities within this infrastructure have been dismantled or converted to such a degree that CW production is no longer possible, fears of dormant Russian capacity still exists. Of the 24 declared CW production facilities six have been destroyed and seven have been converted to other production. There have also been fears that redundant CW scientists could "sell" vital information about CW or that CW from Russian stocks could be sold on the black market. So far, these fears have not materialized to any significant extent due to several initiatives and programme to address these threats.

Russia has received substantial support from the Cooperative Threat Reduction (CTR) programme, established in 1991 and managed by the American Department of Defence (DoD). The original purpose of the CTR programme was to reduce the dangers posed by the old Soviet Union's massive Cold War arsenal. The CTR programmes became revitalized and broadened, following the attacks of 11 September 2001, generating an urgent search for measures to achieve non-proliferation and counter-terrorism objectives. Subsequently, the Group of Eight (G8) industrialized countries, in June 2002, made a political commitment to raise up to $20 billion over ten years for a Global Partnership against the spread of weapons of mass destruction (WMD), and to provide assistance to states, foremost to the Russian Federation, lacking the means to implement disarmament and non-proliferation objectives. The current CTR agenda includes projects related to non-proliferation, disarmament, nuclear safety, environmental protection and counter terrorist measures.[14]

Several conversion programmes have been established in order to stem the flow of weapons expertise and material from the former Soviet Union. In Russia, one of these programmes is managed by ISTC[15], which began issuing grants in 1994 to nuclear, chemical and biological scientists. The founders are the EU, Japan, Norway, South Korea, and the U.S. To begin with, funding was limited to the nuclear area, but it has later also supported scientists in the CBW area.

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[14] Anthony I. *'Reducing Threats at the Source'*, SIPRI Research Report No. 19, 2004.

[15] International Science and Technology Center, URL <http://www.istc.ru>

1.1 Aim

The main aim of this project is to discuss a range of policy questions for continued Swedish (and possibly EU) work on matters concerning CBW issues in Russia. To be able to do this, two primary questions need to be answered:

- What will be the status of Russia's biological and chemical complexes in the future, for example in ten years time?
- What key decisions will guide the future of Russia's biological and chemical complexes?

These questions will in turn be broken down into several parts dealing with issues such as export control, the military industrial complex, CBW terrorism, the future of the BTWC and the CWC, etc.

1.2 Methods

To achieve the main aim of this study some judgements about the future are needed. In fact, one or several futures will have to be constructed within which biological and chemical developments can be estimated and analysed. In doing this one is often faced with considerable uncertainties. This is especially true for political developments. When it comes to technical issues there tends to be lesser degrees of uncertainty. However, one should not exclude the possibility of technological breakthroughs, which would revolutionize the CBW field. In this study the general development of Russian policy is marred with great uncertainty, while possible developments within the biological and chemical complexes can be predicted with greater certainty.

Generally, scenarios are useful tools for decision-makers (and others) to deal with future developments and hedge against uncertainties.[16] In this paper a scenario describing one possible development of Russian foreign and defence policies in a ten-year perspective is generated. The developments concerning CBW are then fitted into in this scenario context.

The scenario used in this report will be generated using a method known as forecasting. Forecasted scenarios are generated in a multi-step process. First dominant trends are identified. Logical reasoning using explicitly or implicitly known causalities is then used to construct a plausible chain of events taking the present into the future.[17] Once a stated chronological goal, typically a future within 5-30 years time, is reached, the scenario is fleshed out to a size and level of detail deemed appropriate.

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[16] The main alternative to making scenarios is prognosis-making. However, the obvious advantages of prognoses in a short-term perspective tend to decline with increasing time perspective. Therefore scenarios are often appreciated by decision makers when dealing with longer time-perspectives. See for example George, A.L., *Bridging the Gap: Theory and Practice in Foreign Policy* (United States Inst. Of Peace: Washington DC, 1993).

[17] Karl Henrik Dreborg: "Essence of Backcasting", *Futures*, vol. 28, No. 9 (1996), p. 816. Despite the title, this reference also treats the main characteristics of forecasting and compares them with those of backcasting. Since backcasting most likely will be one of the scenario methods in a coming report in this series the reference to Dreborg is deemed appropriate in his context.

This kind of scenario work has some advantages and some drawbacks. Forecasting is firmly based in a more or less positivist tradition. Some form of causality and perhaps determinism is implied in the method. This in conjunction with forecasting being thoroughly based on what we actually know today, the futures generated will probably achieve some degree of both relevance and plausibility. The result will not deviate radically from today's world but will still identify a range of possible trends and key changes. Given this, the forecasted scenarios are generally useful tools for policymakers who need relevant and plausible trends and futures to base their decisions on.

However, a forecasted scenario is a double-edged sword. Important guidance to more or less plausible futures is achieved. Plausibility often means relevance for decision-makers, and futures that follow from dominant trends are often both the most relevant and the only possible to plan for. However, since surprise and major changes are bound to happen sooner or later there is also the need to prepare for and increase the mental and political preparedness for major changes to come to shorten the reaction time when radical changes happen. In this perspective forecasted scenarios are less apt as tools because they most often will not generate radically different futures deviating from the current trends.

It is important to stress that policymakers often need both plausible and relevant information about the future, as well as challenging radically different and surprising scenarios. In the coming reports other scenario methods will be used. Backcasting is more suitable for generating scenarios that divert significantly from the "extrapolated" futures of forecasting using today's trends.

Once the scenario is established we apply the results to the key issues in this report, those of the BW and CW complexes in Russia. These issues are in one sense uncertain. But, enough is known about both biological and chemical issues in Russia to argue for some degree of certainty. Rather than extending the scenario to particular descriptions of the development of the BW and CW complexes, the general development described in the scenario will be applied to these. Given where Russia has gone in the scenario, what developments and what decisions concerning BW and CW issues are likely?

During the preparatory phase of this work a large number of areas of relevance to CBW issues in Russia have been identified. The intention is to use these as scenario drivers. Only a limited number of them are used in the current report. The others have been left out intentionally for future use in coming reports in this series.

2 The Scenario: Russia 2004-2014

This scenario has been developed using a forecasting approach. Trends and mechanisms at play in Russian politics during the late 1990s and up till the end of 2004 have been identified and used as driving forces behind a future development. The developments up till late 2004 are thus of a purely factual nature (section 2.1). From 2005 and beyond the description is mostly of a fictitious nature, although it may be interspersed with factual circumstances (section 2.2). The key drivers in the scenario are authoritarian rule, Sino-Russian relations, Chechnya and terrorism, proliferation of WMD, CTR support, CW destruction, biosecurity and biodefence activities.

The scenario text in this chapter intends to give the reader the overall political, economic and strategic developments, including those relevant to CBW issues. The scenario leads into a policy-relevant discussion of how to counter-act some of the forecasted developments.

In seven appendices seven specific areas of interest (basically the key scenario drivers) are elaborated in-depth. The aim of these appendices is to create a solid foundation for the forecasting of future developments building on factual trends visible up till 2004.

Interspersed with the main scenario text are boxes in which the reader finds the essence of the texts in the appendices. These boxes serve as references to the appendices.

2.1 Factual developments up till 2004

From the very beginning of Vladimir Putin's presidency it was obvious that Russia's new grand strategy after the Yeltsin years would be one of constructive engagement in the foreign policy domain and increased intolerance in the domestic policy domain. The aim of the new strategy would be to avoid international isolation and at the same time to strengthen the domestic regime. The simple calculus of the power elite was that the Russian voters would want a strong hand to govern the country and to restore some of its lost prestige on the international arena, whereas the West would not object to Russia's domestic policies, including the war in Chechnya, as long as Moscow engaged constructively in the fight against international terrorism and the spread of WMD.[18]

First, Russian-American and Russia-NATO relations survived the Balkan crisis of 1999 and then Putin kept the relations on track, despite differences of opinions over the U.S. withdrawal from the anti-ballistic missile (ABM) treaty and the decision to build a ballistic missile defence (BMD). The relations even survived the Iraqi crisis of 2002-2003. Russia ratified the new strategic offensive reduction treaty (SORT) directly after the war in Iraq ended in May 2003. Despite differences of opinions in important world affairs, the year 2003 was regarded as the best cooperative year so far in NATO-Russia relations.[19]

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[18] Roffey, R. *et al.*, *Support to Threat Reduction of the Russian Biological Weapons Legacy – Conversion, Biodefence and the Role of Biopreparat*, FOI-R--0181--SE (FOI: Umeå, 2003), pp. 17-20.

[19] Major General Peter Williams (Head of NATO Military Liaison Mission in Moscow), 'Sotrudnichestvo Rossiya-NATO: Otsenka "otlichno"' [2003 – An Excellent Year for NATO-Russia Cooperation], Voyennyi Diplomat [Military Diplomat], Jan—Feb. 2004, pp. 68-69.

In 2001 Russia and China signed a friendship and co-operation treaty.[20] It was evaluated as a tactical partnership to prevent the other part from drifting towards the West.[21] The treaty talks about a strategic coordination of politics. Although no names are mentioned, it is clear that the aim is to counterbalance the American dominance. According to the treaty, Russia is obliged to counteract any form of Taiwanese independence.

Towards the end of Putin's first term some negative signs became visible on the horizon.

Russia's relations with the EU were negatively affected by the development in Russia. The new 2004 EU strategy towards Russia painted a much gloomier picture of the developments in Russia than the 1999 EU common strategy.[22] Several demands on Russia were outlined if any substantial co-operation was to materialize. Russia at first blocked the renegotiation of the EU–Russia *Partnership and Co-operation Agreement* (PCA) to include the EU's new Member States from 1 May 2004.

Russia also continued to oppose the eastward expansion of NATO; it stepped up its pressure on Latvia because of alleged violations of the Russian minority's rights and in Lithuania the hand of the Russian intelligence services was visible behind President Paksas.[23] In 2004, NATO based four fighter aircraft in Lithuania to protect the air space of the three Baltic States. And although the crisis in the break-away republic of Adzharia was constructively solved by Russia and Georgia, the cases of Abkhazia and South Ossetia remained unsolved.

With his constructive engagement vis-à-vis the West and China firmly on track President Putin decided to strength his domestic position and his attempted to carry out his '*dictature of laws'*. During his first term in office Putin systematically assigned uniformed personnel from the power ministries, preferably from the Federal Security Service (FSB), to an increasing number of positions in the state bureaucracy.[24] The freedom of media was limited step by step. He also struck at the oligarchs.[25]

As far as the Russian strategic defence posture was concerned the doctrinal documents published in the year 2000 had an ambivalent character. On the one hand, they talked about the importance of Russia being integrated into the global economy. On the other hand they stressed the importance of technical-industrial self-sufficiency.

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[20] Ministry of Foreign Affairs of the Russian Federation, *Treaty on good neighbourliness, friendship and cooperation between the Russian Federation and the People's Republic of China*, URL <http://www.mid.ru>.

[21] Ingmar Oldberg, 'Towards Alliance? Russia's Relations with China in an International Context' in Ingolf Kiesow (ed.) From Taiwan to Taliban: Two Danger Zones in Asia, FOI-R--0393--SE, (FOI: Umeå 2002, pp. 22-54.

[22] *Communication from the European Commission to the Council and the European Parliament on relations with Russia*, COM(2004) 106, 9 February 2004.

[23] Cf. the case of Rolandas Paksas and his highly dubious contacts with the Russian business man Borisov. Behind Borisov were the Russian security and intelligence services.

[24] Blomgren, J., 'KGB-kompisarna flockas runt Putin' ['The KGB buddies flock around Putin'], *Svenska Dagbladet*, 30 Oct. 2003, p. 17 (in Swedish).

[25] Winiarski, M., 'Putin gör sig av med rövarbaronerna' ['Putin gets rid of the robber barons'], *Dagens Nyheter*, 7 Nov. 2003, p. 13 (in Swedish) and Hansson, W., 'Putins oligark-krig' ['Putin's Oligarch War'], *Aftonbladet*, 31 Oct. 2003, p. 26 (in Swedish).

In October 2003, a document outlining the views of the Ministry of Defence on the future development of the Armed Forces was published.[26] It mentioned the possibility of amending the Russian military doctrine and changing the defence posture. The document sent mixed signals to the surrounding world and NATO, being called offensive military alliance, objected. This sparked some tension. The document stressed the importance of a revitalisation of the technical-scientific complex.

In comparison with the initial constructive political behaviour of Russia under Putin, Moscow's behaviour when it comes to dismantlement of the CBW complexes is somewhat of an anomaly. It can be described as a non-constructive strategy with considerable foot-dragging.[27]

Russian historical behaviour within the fields of CBW, observable disarmament measures, non-constructive positioning in multilateral arms negotiations and an almost total lack of transparency, withholding of information pertaining to the earlier Soviet offensive CBW programmes and the (non-)successes of conversion has lead many international experts to believe that Russia has retained parts of its earlier CW and BW programmes.[28]

In 2002 it was assessed that Russia had a more than sufficient technology capacity for production of biological and chemical materials/substances, as well as for potential CBW, including delivery systems.[29]

At the same time, according to Russian assessments, civilian biotechnology is a research and development (R&D) area of relative weakness, whereas a sufficient capacity is said to exist as far as chemical technologies are concerned. Biological and chemical technologies are two of the prioritized areas in the so-called Federal Target Programme for the *National Technological Base 2002-2006*. The programme aims at concentrating resources on defence related critical dual-use technologies and is to be financed outside the military budget. The R&D efforts in critical chemical technologies are substantial, whereas the R&D efforts in biological and biomedical technologies are noticeable but somewhat less substantial.[30]

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[26] Ministry of Defence of the Russian Federation, *Aktualnyie zadachi razvityia Vooruzhonnykh Sil RF* [*Current tasks for the development of the RF Armed Forces*], URL <http://www.mil.ru>, Oct. 2003.

[27] Roffey, R. *et al.*, *Support to Threat Reduction of the Russian Biological Weapons Legacy – Conversion, Biodefence and the Role of Biopreparat*, FOI-R--0841--SE (FOI: Umeå, 2003), pp. 21-25.

[28] In a FOI report the weight of the above mentioned factors of influence was related to the potential political price for retaining a BW programme. It was concluded that the political drawbacks of retaining a programme would be less than the military benefits. Source: Lilja, P., Roffey, R. and Westerdahl, K.S., *Disarmament or Retention – Is the Soviet Biological Weapons Programme Continuing in Russia?* FOA-R--99-01366-865--SE (FOI: Umeå, 1999).

[29] Leijonhielm, J. *et al.*, *Russian Military-Technological Capacity – Russian R&D, Critical Technologies and Weapons Systems*, FOI-R--0618--SE (FOI: Stockholm, 2002), p. 110 (in Swedish with a summary in English).

[30] Leijonhielm, J. et al., *Russian Military-Technological Capacity – Russian R&D, Critical Technologies and Weapons Systems*, FOI-R--0618--SE (FOI: Stockholm, 2002), p. 99-101 (in Swedish with a summary in English).

2.2 Fictitious developments from 2005 and beyond

During President Putin's second term in office, Russian foreign policy becomes increasingly anti-western. He underestimates the west's criticism of the war in Chechnya, human rights violations, lack of freedom of the press etc. East-west co-operation deteriorates. The power ministries become more and more influential and dominate the state administration and domestic life in general. This is especially true of FSB's influence. The widespread corruption and the inefficient bureaucracy work to limit Russia's development towards a real democracy. The legal system remains flawed and western type rule of law will continue to be a distant goal. These factors also paradoxically limit the effectiveness of carrying out the domestic policies of the Putin administration. The absence of a rule-of-law-society leads to a redirection of foreign investments to other markets, such as China and India. This in turn hampers Russia's economic development.

During President George W. Bush's second term in office, relations with Russia deteriorate. The energy co-operation, including a huge oil terminal in Murmansk, envisaged between the two countries around the time of the Iraq crisis 2002-2003 stalls. Co-operation in the field of energy is replaced by competition and confrontation. The new great game around the Caspian Sea is further heated by disagreements over Georgia and by a renewed Russian preventive military strike against Chechen rebels in the Pankisi valley in 2006. Continued Russian pressure against the Baltic States annoys NATO and the EU. Continued U.S. support for Israeli policy vis-à-vis Palestine effectively derails the Road Map talks in which Russia was an important part. A continued hard-line U.S. policy towards North Korea polarizes the relation further. And since the EU makes no headway in relation with Iran and its covert nuclear weapons programme,[31] the U.S. increases the pressure on Russia in an effort to halt the nuclear technology transfers to the Iranian Bushehr nuclear power plant.[32] At the same time, co-operation against international terrorism continues, albeit on a modest level.

The U.S./EU-Russia quarrel over the outcome in the Ukrainian presidential elections in late 2004 was the decisive factor tipping Russia away from co-operation with the West and towards closer relations with China.[33]

After initially having regarded the Sino-Russian friendship and co-operation treaty of 2001 as a tactical partnership, Beijing and Moscow boost the partnership to a strategic one in 2006 to

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[31] In late November 2004 Iran and IAEA reached an agreement. Iran would stop uranium enrichment until a long-term viable solution could be negotiated. France, Germany and Great Britain had offered Tehran civilian nuclear technology transfers in return for Iran's stopping uranium enrichment which would give the country a possibility to develop nuclear weapons. In 2006 no such deal had yet been struck and Iran resumed uranium enrichment.

[32] Several motives for Russia to support Iran in its nuclear efforts can be identified. First of all the NPT does not prohibit proliferation of civilian nuclear technology. The motive could therefore be purely economic. But why would Russia with its own domestic problems related to Islam want to support Tehran when such a support could result in a nuclear armed Islamic Republic on Russia's southern border? One explanation could be that Moscow assumes that Iran will acquire the bomb with or without Russia's help. By engaging in industrial-technological support Russian specialists simultaneously gain insight into the developments. It would also give Russia some leverage over Tehran and finally supporting Iran could serve as a security policy card to be played against the West.

[33] Felgenhauer, P., "The falsification of election results in Ukraine's presidential runoff, carried out by a corrupt local oligarchy with Kremlin support, seems finally to have ended the four-year romance between Russia's authoritarian president and the West", *Moscow Times*, 30 November 2004.

counteract the deteriorating relations with the west. President Putin's, and president from 2008 Novichok's, calculus is simply that Russia will be able to remain the stronger partner in the Sino-Russian relationship despite unfavourable historical sediments and despite a highly unfavourable demographic balance between the countries. Russia's main security levers are energy exports and high-tech goods such as civilian nuclear power and military equipment.

Russian plans for eastward oil and gas exports are, however, not entirely devoted to satisfying increasing Chinese energy demands.[34] Even though Russia cannot afford to miss the opportunity to sell oil to China its intention is to expand the pipeline infrastructure eastward so that oil can reach the world markets from Russia's eastern shore as well.[35] Another project that materializes under the aegis of the strategic Sino-Russian partnership is the Kovykta project. It is the creation of a new regional energy corridor in North East Asia supplying China and Korea with gas from the East Siberian fields.[36]

As a consequence of the new strategic character of the Sino-Russian friendship military-industrial co-operation is boosted.[37] There is a perceived need to be able to intimidate the Taiwanese with other means than nuclear weapons since a nuclear threat is not credible.

RUSSIAN-CHINESE RELATIONS IN 2014 **(Appendix 1)**

In 2014 the relationship between Russia and China is one of military alignment and wide-range co-operation. Moscow and Beijing have by their combined military strength removed the United States as the sole superpower and positioned themselves as powerful players in the new multi-polar world order. The Shanghai Co-operation Organization (SCO) has become a leading security alliance with 40% of the world's population and vast military capabilities, including WMD.

Russia's relations with the EU continue to deteriorate. Russia continues to exert pressure on the Baltic States with regard to transit trade, especially of energy carriers. Russia vetoes sharpened environmental rules for the Baltic Sea region arguing that these would hamper Russian economic development. Other sources of friction are: the situation in the Caucasus and the genocide in Chechnya. The Council of Ministers makes the strategic decision in 2007

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34 In April 2003, China thought it had struck a deal with Russia to build an oil pipeline from Angarsk in eastern Siberia to the Chinese oil city of Daqing. The $2.5 billion project would help to reduce China's dependency on Middle Eastern oil and be a symbol of the new friendship established between the former enemies. But, during 2004 it looked as if Russia had struck a deal with China's regional competitor Japan instead. See for example "East Asia's Oil Politics", *The Economist*, URL <http://www.economist.com /displaystory.cfm?story_id=S%27%298%2C%24RQ%5B%27%20%20%21D%0A>, 25 September 2003 and "Asia's oil wars", *The Economist*, URL <http://www.economist.com/search/search.cfm? qr=russian+pipeline&area=5&keywords=1&frommonth=01&fromyear=1997&tomonth=11&toyear=2004& rv=1>, 29 April 2004.

35 Leijonhielm, J. and Larsson, R.L., *Russia's Strategic Commodities: Energy and Metals as Security Levers*, FOI-R--1346--SE, (FOI: Stockholm 2004), p. 52.

36 Beveridge, N. (Commercial manager BP China), "Development of East Siberian gas for export to China & Korea markets", Nautilus Institute, URL <http://nautilus.org/archives/energy/AES2004 Workshop/Beveridge.doc>.

37 "Defense Minister Touts Russian-Chinese Military Cooperation", *RFE/RL*, 21 Apr. 2004, URL <www.rferl.org/newsline/fulltext.asp>.

to grant Chechen asylum seekers a safe haven in the EU. On the other hand, the interests of the EU and Russia still converge as far as the fight against international terrorism, non-proliferation of WMD and the Middle East is concerned.

The worsening relations with Moscow are troublesome for many European countries given their energy dependence on Russia. This is especially true for Germany with its large dependence on Russian gas. Germany has to revoke its historical decision in 2000 to renounce nuclear power until 2020.[38, 39] But, some EU member states will find it more difficult to find a quick fix to replace Russian energy carriers.

During President Bush's second term in office, the U.S. loses its patience. The U.S. agrees with the other donor countries to withdraw all CTR support beginning in 2006. However, the support to the destruction of Russian CW stockpiles continues as a consequence of a terrorist attack in 2006 (cf below).

These and other developments also lead to Russia not being invited to join the World Trade Organization (WTO). As a result of, among other things, continuing trade disagreements with China and against the background of the Sino-Russian strategic alliance the U.S. starts exerting pressure on the other member countries to return to the G 7 formula and Russia is finally excluded from the G 8 in 2008.

Frustration and bitterness in conjunction with the feeling of being treated unfairly leads to a shift in Russian politics after Putin in 2008. By this time Russia is *de facto* a one-party state with an industry that has been partly renationalized. A hardliner sceptic towards the West, President Novichok, replaces Putin. The conservative elite and a majority of the military leadership back him. But, the president becomes hostage of the fractions who at first took him to power. The power ministries of the state gain considerably in political influence. Soon the defence budget is pushed to a yearly increase of 20 per cent and Russian military strength starts to increase. These increased defence efforts are undertaken against the background of high oil and gas prices that remain throughout the decade. However, the high energy prices are a curse to Russia in the sense that they prevent necessary reforms in other areas of the economy, with the effect that the social and health-related hardship of the Russian population is aggravated. In conjunction with this and in accordance with the 2003 Armed Forces Whitebook, defence doctrines and capabilities become increasingly offensive.

As a consequence, Finland decides to join NATO in 2009, which further adds to the Russian perception of encirclement. This is also the year when Russia is excluded from the European Council summits. This is done despite Russia's extensive co-operation in the war on terrorism and it further aggravates the deteriorating relations between Moscow and the West. Because of continued atrocities in Chechnya, Russia is excluded from the Council of Europe in 2009.

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[38] "Germany renounces nuclear power", *BBC News*, URL <http://news.bbc.co.uk/1/hi/world/europe/791597.stm>, 15 June 2000.

[39] "Nuclear Power in Germany", *Nuclear Issues Briefing Paper 46*, URL <http://www.uic.com.au/nip46.htm>, July 2004.

RUSSIAN DOCTRINES AND CONCEPTS IN 2014 **(Appendix 2)**

In 2014 Russia has a new national security concept and a new military doctrine, which are more anti-western than the 2000 doctrinal documents. The emphasis is on a continued strategic partnership with China. Local wars and the fight against international terrorism are assessed as being of secondary importance. Russia continues to officially adhere to its international obligations under the WMD-related international treaties, incl. the BTWC and the CWC.

After the inauguration of the new Russian president in 2008 the Security Council and Ministry of Defence is tasked with the formulation of a new national security concept and a new military doctrine. The idea is that these new doctrines should better reflect the realities of the world surrounding Russia and its deteriorating international relations. This work is completed in 2010.

The unbalanced economic development continues. Increased Chinese weapon imports make for one of the few substantial flows of hard currency into Russia apart from energy carriers. The two states join in an aggressive policy aimed at counterbalancing American power and becoming the world's second economic and military power. At a time when the U.S. is heavily involved in both Central Asia and the Middle East, Russia and China tests the strength of the Moscow-Beijing axis in an aggressive political move on Taiwan in 2010. Russia leaves the NATO-Russia Council (NRC) in 2011 and suspends all military co-operations with the west. Russia coerces the Commonwealth of Independent States (CIS) countries into deepened defence co-operation. As a consequence CIS states terminate agreements that allow stationing of U.S. troops and let Russian forces in instead.

2.3 Some negative CBW trends during the period 2005-2014

Russia continues its non-constructive strategy as far as CBW is concerned. Observable CBW disarmaments efforts are scarce and Russia continues to withhold information about the Soviet CBW programmes and transparency remains highly questionable.

In an attempt to come clean of suspicions of having retained a clandestine BW programme Aleksei Arbatov, member of the international commission on WMD headed by Hans Blix, in 2004 admitted that "Russia had produced biological weapons in the past, and members of the commission are interested in visiting such countries".[40] This statement is revoked in 2006 by the Russian Ministry of Foreign Affairs and Arbatov removed from the commission. The official line is once again that the Soviet Union had no clandestine BW programme.

In 2005 a number of changes in research activities as well as inconsistencies have been discovered in the Confidence-Building Measures (CBMs), submitted by Russia to the United Nations (UN) within the BTWC. The Convention still lacks a universal verification mechanism. Still, bioterrorism preparedness and countermeasures are not included in the information to be shared among the States Parties of the BTWC. Some small progress has been made in creating alternative verification measures. Beginning in 2006 the follow-on

[40]"Non-proliferation of Biological Weapons to be Verified in Russia", Russian BW Monitor, URL<http://www.russianbwmonitor.co.uk>, 3 February 2004.

commission after the Blix WMD commission[41] makes inspections once or twice a year, but since they rely on an invitation from the States Party, these inspections are essentially voluntary.

An important aspect of CBW research during the period 2005-2014 is to regain ground lost during the years of brain drain. During a visit to a former BW research facility in 2004, President Putin had mentioned the possibility of attracting CIS citizens to Russian biological science.[42] In 2010 there are signs that this strategy yields results. Russian science in the fields of biology and chemistry is recovering and attracting large numbers of younger generation scientists from the whole CIS. The biological and chemical industrial complexes of Russia and the other CIS members are more and more closely integrated.

President Putin came to power by starting the war against Chechnya in 1999. After 2005 it becomes more and more clear that he is hostage to the 'Chechen mafia', i.e. a power centre consisting of parts of the General Staff, the commanders of the North Caucasus military district and the commanders of the battle groups in Chechnya. Hence, the war drags on with no viable and lasting solution during Putin's term in office. In the face of stubborn resistance from separatists in Chechnya and rebel attacks inside Russian cities, the armed forces answer with ever more brutal counterattacks. This dirty war leads to more and more critique from human rights groups, non-governmental organisations (NGO's) and western countries.

***CHECHNYA IN 2014* (Appendix 3)**

In 2014 Chechnya is a disrupted, partly abandoned Russian region with huge political, environmental and social problems. Both non-lethal and lethal CWs are used in the war, but all fighting fractions lack substantial supplies of CW, due to effective Russian destruction measures. The frequent eruption of epidemics leads to allegations of the use of BW. Chechnya has also become an important transfer point for the illegal sales of WMD-related equipment to the Middle East.

In early 2006 a Chechen separatist group acting with the federal authorities' consent double-crosses the security service FSB and is able to gain access to nerve agents. With the help of four insiders the separatists gain access to the train that transports nerve agent filled artillery ammunition to the destruction facility in Schuchye.

This nerve gas is later use against the G8 summit, taking place in St Petersburg in mid 2006. The Russian, French and German prime ministers are among the fatal victims.

In the late 1990s, Russia took new initiatives to counter terrorism, including bioterrorism. In 2004, the preparedness ranged from legal and policy documents to implementation in the form of e.g. two specialised research centres. Beginning during Putin's second term in office Russian biodefence activities are stepped up against the background of an increased risk of terrorists, e.g. from Chechnya, using BW, or the spread of a pandemic like SARS. During the SARS outbreak in 2003, a former Russian BW scientist voiced his concern that SARS might

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41 In December 2003 Hans Blix, the former head of UNMOVIC, presented a commission on weapons of mass destruction. The commission was established on the initiative of the Swedish government and after a suggestion from the United Nation. Blix is the chairman of the commission, which works independent from governments and states. It has committee members from 14 states.

42 'Putin Visit Yu.A. Ovchinnikov Institute of Bioorganic Chemistry', *Russian BW Monitor*, URL <http://www.russianbwmonitor.co.uk/index.asp >, 9 February 2004.

be a man-made disease, hence further strengthening the case for increased biodefence efforts.[43, 44] Such allegations are repeated in 2006, 2008 and 2010 during similar worldwide epidemics.

By 2008 most of the earlier unconverted industrial-sized biological production facilities have deteriorated beyond repair, making them useless as production units in a BW programme. However, the situation remains unclear at some important facilities. The four military BW facilities are still closed to international inspection in 2010. Russian authorities argue that an extremely high level of secrecy is necessary in order to protect biodefence capabilities in the light of possible bioterror attacks. In this respect Russia only reciprocates U.S. behaviour.

The efforts to strengthen the tools available for combating infectious diseases, for example development of vaccines and means of identification, can easily be motivated by the poor overall health situation in Russia. However, these efforts should mainly be focused on medically relevant organisms and to a lesser extent on biological warfare agents.

***RUSSIAN BIOTERRORISM COUNTERMEASURES IN 2014* (Appendix 4)**

In 2014, the anti-bioterrorism measures are suspected of having evolved into a cover for an offensive mobilisation resource in the BW area. The secrecy shrouding the activities at the two research centres and their ties to the military biodefence programme are the main reasons for these suspicions.

The need to further enhance the effectiveness of the domestic Russian pharmaceutical industry is also obvious.[45] At the same time suspicions that the biodefence activities work as a cover for offensive BW research linger on.

For many years there has been a growing concern that the Russian government has deliberately boosted the threat of WMD proliferation in order to extort CTR money from the West. This suspicion is further fuelled by a Russian denial in 2008 to carry out a comprehensive review of the present and former ISTC activities.

For instance, how can Russia not afford allocating a few billion roubles of the military budget of about 420 billion roubles in 2003 to the destruction of CW? Rhetorically, Russia has kept the flag of multilateralism and international disarmament high during the last decade, which makes the Russian stance an anomaly. This negative trend is finally broken under the pressure of increased risk of terrorists acquiring and using CW against Russia (cf. *Some positive trends during the period 2005-2014* below).

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43 'Onishchenko Warns of the Real Threat of Biological Terrorism', *Russian BW Monitor*, URL <http://www.rus sianbwmonitor.co.uk/index.asp >, 29 January 2004.

44 '"Vektor" Initiates Research on SARS', *Russian BW Monitor*, URL <http://www.russianbwmonitor.co.uk /index.asp >, 23 January 2004.

45 Clevström, J., Norlander, L. and Unge, W., *Rysk toxin- och bioregulatorkompetens*, [*Russian Toxin and Bioregulator Comeptence*], FOA-R--00-01703-170--SE (FOI: Stockholm, 2000), pp. 45-52.

At the same time there has been, and continues to be, numerous reports about suspicions that Russia is still contributing to CBW proliferation, especially in the Middle East.[46]

Despite Israeli military threats and strong U.S. opposition, the Iranian Bushehr nuclear power plant becomes operational after considerable delay in 2010 through Russian assistance.[47] The EU is ambiguous on this issue.

RUSSIA AND PROLIFERATION IN 2014 **(Appendix 5)**

Despite sincere political commitments to the international fight against proliferation, the Russian government has utterly failed to implement an effective export control system. The poor state of the Russian economy, wide spread corruption, and the increasingly divergent trend between Russia's and the Western countries security policy outlook, serves as incentives for an increasing trend of transaction of WMD-related technology and materials to other countries, foremost in the Middle East.

A powerful partnership between Saudi Arabia and Russia emerges, based on common interest regarding oil policy and security policy issues in the Middle East region. This partnership evokes concern amongst Western governments as there are allegations of Russia supplying Saudi Arabia with highly enriched uranium.

2.4 Some positive CBW trends during the period 2005-2014

In spite of the highly assessed risk of pathogenic organisms being used in acts of bioterrorism, the director of the Russian Defence Ministry´s Microbiology Research Institute, Colonel Vladimir Maksimov, claims that "Russia has stringent mechanisms of control over germs at the facilities reporting to the Defence Ministry, which rules out the possibility of manufacturing of such weapons by terrorist organizations".[48]

BIOSECURITY AND PROLIFERATION IN 2014 **(Appendix 6*)***

In particular, several of the Ministry of Health´s facilities harbouring large collections with dangerous microorganisms have been secured by CTR support. Russia has also further strengthened the security at other institutes that pose a risk. Taken together the information in 2014 gives a fairly satisfactory picture of biosecurity concerning BW agents in Russia.

This reassuring assertion is welcome in the light of the limited information concerning the facilities subordinate to Ministry of Defence. With CTR support, Russia has previously improved the biosecurity at several former BW sites in order to limit the access to equipment, material and technologies concerning BW.

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[46] Blank, S., 'War chemicals, from Russia with love', *Asia Times*, 28 August 2003.

[47] Israel has refrained from striking pre-emptively because of the large number of possible targets and because a majority of them are hardened underground facilities. The problem of accuracy of intelligence to support a pre-emptive strike is another restraining factor. The USA lesson in Iraq 2003 has been studied carefully.

[48] Russian virologists on risks of using germs in terrorist acts, ITAR-TASS News Agency, Moscow 29 April 2004.

In addition, Russia has improved the security concerning genetically modified organisms by adjusting laws and regulations to global norms. For instance, all new constructs are registered since 2001. The amount of genetically modified agricultural organisms has increased considerably and as a result the Russian harvests have increased. The close co-operation with China has strongly influenced this development. In 2012 Russia is ranked second after the U.S. in biopharming (cf. Appendix 6) and almost 12 per cent of the pharmaceutical products for domestic use are produced in plants. The rapid development of trans-gene plants has been observed with suspicion by the West, and in the annual report to the Congress in 2013, CIA accuses Russia of building an alternative production capacity for BW agents with help from its ally China. This accusation worsens the stretched U.S.-Russian relation even further.

After the CW attack on the G 8 summit in 2006 the CTR donor countries find themselves in an awkward position. Already in 2003, a U.S. General Accounting Office report is reported to have said that 65 per cent of Russia's nerve gas stockpile was insecure and that it would take 40 years to destroy Russia's CW stockpile at current rates.[49] Under U.S. pressure and as a consequence of Russian obstruction, the donor countries had cancelled the CTR support and all other forms of risk reduction support to the Soviet WMD legacy a couple of months before the terrorist attack. Now, fierce peace and ecology activists gain massive public support and put pressure the governments in the West to resume the CW destruction part, which is to be speeded up substantially. They also put pressure on the governments to exert pressure on Russia to discontinue the war in Chechnya as soon as possible.

In order for the world to see that Russia is making headway in its CW destruction, large sums are allocated to the destruction of the stockpiles. However, parts of them are transferred to countries in the Middle East against substantial financial rewards.

Russia continues to have severe economical and structural problems concerning the destruction of its CW stockpiles during the next ten years. But, Russian efforts in conjunction with strong coordinated support from the foreign financial donors to the Russian destruction programme during the period do, however, result in a total elimination of Russia's declared CW stockpiles by 2012.

***DESTRUCTION OF RUSSIA'S CW STOCK-PILES IN 2014* (Appendix 7)**

By 2014 Russia has no CW stockpiles. Chemical industries of potential CW use are monitored by the Organisation for the Prohibition of Chemical Weapons (OPCW). Officially, the remaining CW-related research concerns non-lethal agents for policing and anti-terrorist operations. Despite encouraging advances in destruction of stockpiles and verification, suspicions that Russia has a clandestine military programme die hard.

The stockpiles, which are useless from a military point, can not serve the purpose of security policy leverage in discussions with the West. In the end Russia therefore fulfil its obligations towards the CWC.

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[49] United States General Accounting Office, *Weapons of Mass Destruction – Additional Russian Cooperation Needed to Facilitate USA Efforts to Improve Security at Russian Sites*, March 2003, URL <http://www.gao.gov/new.items/d03482.pdf>.

The concerns voiced by some foreign experts that terrorist could access material from the CW stockpiles have unfortunately turned out to be true in two cases.

At the same time, in 2012, there are still worrying signs that CW R&D continues, motivated by among other things the necessity to develop non-lethal or incapacitating CW for anti-terrorist (non-military) use. According to the Russian view, the successful solution of the hostage-taking at the Dubrovka theatre in Moscow in 2002 further strengthens Russia's argument for continuing this development, as do alleged U.S. efforts to develop non-lethal agents for urban warfare purposes.

2.5 State of CBW issues in 2014

In this scenario the relations between the Russian Federation and the U.S., NATO and the EU deteriorate during the coming decade. As far as CBW issues are concerned, both positive and negative trends can be observed. There are also some areas where the states of affairs remain non-transparent. The state in 2014 is summarized below:

- Because Russian and Western interests coincide after a couple of CW terrorist attacks, the Russian CW stockpiles are finally destroyed.
- Russian biosecurity and biosafety efforts are stepped up as a result of an increased terrorist threat and some incidents. Supported by CTR funds they yield positive, but limited, results.
- However, new doctrinal documents do not rule out a role for other types of WMD than NW.
- Despite an effort to co-operate with the West to fight proliferation of WMD corruption in the CBW archipelago contributes to further proliferation of the Soviet CBW legacy, especially to the Middle East.
- There are suspicions that Russian forces may have used CBW in Chechnya.
- Russia continues its non-constructive positioning in multilateral arms negotiations.
- Apart from the CW destruction, observable disarmament measures are scarce.
- Despite some successes conversion of the military-industrial complex and in particular chemical and biological parts of it, conversion is never complete and irreversible.
- Russia continues to withhold information pertaining to the earlier Soviet offensive CBW programmes.
- The dual-use nature of the increased biodefence activities, in combination with continued Russian secrecy around some former CBW facilities, makes it hard to rule out that Russia has no offensive CBW activities.

3 Discussion

In the appendices of this report current trends and developments within some areas of relevance to Russian CBW issues have been described. The future development of these specific areas can be predicted with greater certainty than the overall general political development. Explicit projections ten years into the future have also been made. These projections have then been used as scenario drivers in a fictitious political development up till the year 2014. This faction (mix of facts and fiction) ended in a hypothetical state of Russian CBW issues in 2014.

The aim of this chapter is to discuss on a policy-relevant level how to prevent such a development from materializing. The ambition is not to give explicit policy advice, but to discuss and highlight some of the critical issues that policymakers in CTR donor countries and others should be aware of.

Destruction of CW stockpiles, biosecurity and biosafety, biodefence activities, proliferation, dual use, transparency, observable disarmament measures, conversion etc. are all of great importance, not only to the discussion of CBW issues in a Russian context. They also have a clear bearing on the future of arms control in general.

According to this scenario it has been speculated that if Russian co-operation with the West is estranged and terminated, the present (2004) relationship with China will most likely rapidly expand. In the scenario presented, the relationship between Russia and China has materialized into a strong entity from 2004 to 2014 in order to counterweight the American position in the world order. The relationship is founded on a bilateral security concept, which emerged in 2004, that is based on mutual trust, mutual benefit and core co-operation in fields such as military technology, arms, energy, motive power, aviation and space technology. The scenario emphasizes the fact that China in 2014 has come to constitute the most important factor in Russian foreign policy as relations with the U.S. deteriorated. The Shanghai Co-operation Organization (SCO) thrives as a strong security alliance, embracing 40% of the world's population, as a response to interventionist policies from the U.S. in Central Asia and the Middle East, which led to the end of Russian military co-operation with the West. It is crucial to consider that a development like the one presented will most definitely influence future power politics, especially regarding WMD, which Russia, China and the SCO will have vast combined quantities of. The exchange of engineers, scientist and military officers will also have an impact on their respective military capabilities, causing apparent apprehension for the international community as far as vertical and horizontal proliferation is concerned.

Western hopes for transparency regarding the legacy of the Soviet CBW, in return for financial aid to conversion and dismantlement, have not been fully realized neither in 2004 nor in 2014. Financial incentives have led to opening up of many BW institutes and production facilities;[50] access has been given to storages of CW and initiation of their destruction. However, several BW facilities remained closed. The opening up of CW-related storage and production facilities has been more successful in 2004, although the situation is different concerning CW-related research facilities. In the course of disarmament and

[50] Smithson, A.E. 'Toxic Archipelago: Preventing Proliferation from the Former Soviet Chemical and Biological Weapons Complexes', Henry L. Stimson Center, 1999.

conversion, a few Russian facilities have been transferred to civilian authorities[51] a step that could be expected to lead to transparency. A crux is that now the MoD is not in a position to grant access to these facilities and, in fact, foreign visitors have been denied access.[52]

Russian rhetoric does not facilitate the situation. Since the fall of the Soviet Union, Russian officials have denied the existence of a Soviet offensive BW programme, with very few exceptions. A prerequisite for the thousands of CBW scientists that have obtained grants from the ISTC is that they were involved in offensive activities.[53] Yet, since Yeltsin's decree in April 1992, offensive BW activities are criminal and the scientists could be liable to prosecution. (Offensive CW activities only became prohibited in 1997 when the CWC entered into force.) Russian officials regard the state as competent to guard sensitive CBW sites, but on the other hand, much foreign investment in the past few years has been in upgrading the physical security at selected facilities. There are many other instances of such paradoxes in Russian statements regarding the CBW sphere.[54] So far, the Western donor countries and organisations appear to have handled the inconsistencies in the Russian rhetoric by ignoring them. Public acknowledgement of offensive activities in the CBW area is not absolutely necessary, but continued denial on a diplomatic level leads to the conclusion that either the Russian government is not telling the whole truth about the Soviet programme, or it is engaged in deception regarding the threat reduction programmes. This continues to be a grave concern for the U.S. and the EU.[55]

The physical security surrounding the Russian CW storage sites seems to be relatively good. However, keeping a close watch on the status of the CW storage site is of importance. A continuing active Swedish involvement in the Russian CW destruction process will ensure first hand information about the status of the storage sites. The risk of theft of CW or agents from the Russian storage sites is assessed as very low. However, there might be a low risk that some criminals or other actors could acquire CW by the help of insiders.

Looking ahead we think it is justified to assume that without foreign economical contributions Russia will not be able to destroy all CW stockpiles within the CWC timeframe. Both Russia and the donating international community must more closely coordinate their support and

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51 For example, the Kirov-200 BW facility and the chemical research insitute GosNIIOKhT. Rimmington, A. 'From Offence to Defence? Russia's Reform of its Biological Weapons Complex and the Implications for Western Security', *The Journal of Slavic Military Studies*, volume 16, No. 1, March 2003, pp. 1-43.

52 Senator Lugar, who together with Senator Nunn initiated the USA CTR programme, wanted to visit the Kirov-200 after its transfer to the Mininistry of Education, and it is implied that the MoD could not grant access to a site of another ministry. Poroskov, N. 'We were not going to use biological weapons', *Vremya Online*, 24 April 2003.

53 Reportedly, 9000 scientists in biotech have received ISTC grants according to the Russian BW Monitor. ISTC Prioritises Biotechnology Projects', The Russian BW Monitor, 18 May 2004, URL <http://www.russianbwmonitor.com>.

54 Since 2001, the former field test facility at Vozrozhdeniye Island is under decontamination to eliminate any remains of the anthrax bioweaspons tested and deposited there by the USSR. The Russian government has not heeded the Kazakhstani demands that Russia take responsibility for this BW legacy. In light of this, the statements by Russian officials regarding BW that "there is nothing to destroy" can be questioned. Litovkin, D. 'Valentin Yevstigneyev on issues relating to Russian biological weapons', *Yaderny Kontrol Digest*, No. 11, pp. 43-51, 1999. 'Russian expert denies Russia ever had stockpiles of biological weapons', *BBC Worldwide Monitoring*, 10 July 2003.

55 Roffey, R. *et al.*, *Support to Threat Reduction of the Russian Biological Weapons Legacy – Conversion, Biodefence and the Role of Biopreparat*, FOI-R--0841--SE (FOI: Umeå, 2003), pp. 23.

efforts if success is to be achieved. Creating better ways of channelling money into Russia is essential and to achieve this, some restructuring of the process is necessary, including finding alternative recipient bodies within Russia. Actors that do donate money to the Russian CW destruction process must also secure that their donations are used for the actual destruction of CW. However, it is also essential that the Russian counterparts find ways to ensure donors that there is a preparedness and willingness to channel foreign financial contributions into the actual destruction of CW.

The problem of "end point of destruction" concerning CW stockpiles centres round a dual stage destruction process of nerve agents at some Russian facilities. Some state parties to the CWC want both stages to be subject to verification by the regime. This means that they will only accept "end point of destruction" after the second stage of the destruction process is finished. Russia however, has sometimes discussed the possibility to include only the first stage as in the actual destruction process. Russian compliance to the CWC destruction timetable, using the Russian view on this subject, will be more probable, given the current level of Russian financing. The differing views have several reasons among which are financial, practical and not least worries that the product from the first step could be turned back into CW agents. If any other State Party to the Convention should consider supporting the Russian view a lot of efforts have to be put into examining the security risks associated with this subject.

In the period up till 2014, observable disarmament measures are essentially limited to the destruction of the stockpiled CW. Assessments depicting the looming WMD threat are used in the Russian arguments to increase CTR support, but due to Western impatience with Russian obstructions the support is withdrawn. Given the present scenario, it can be discussed if it is lack of money that halts disarmament, or whether structural problems are at the heart of the matter. An overview up to the beginning of 2003 of Western non-proliferation efforts related to BW, showed a plethora of programmes with little mutual co-ordination.[56] Regarding CW destruction, the number of support programmes seems to have become fewer over time, by merging them for better co-ordination and a pooling of resources. Moreover, the Russian counterparts for the CBW-related activities were about as many as the programmes, and experience has shown that little co-ordination exists between them.[57] A similar problem can be seen in the area of export control.

In a time when U.S., the dominating donor of CTR to Russia, is wavering its future commitments, there is a need for the EU and the European countries to review its CTR engagement with Russia. This is essential in order to counter an increasing Russian lack in interest regarding transparency and co-operation in CBW and proliferation issues. American drawback of CTR, and a possible emerging isolation of Russia regarding these issues, may even create an increased opportunity for the European community to upgrade and render its CTR programmes more effective. Given the tense relations between Russia and the U.S. in some aspects of the non-proliferation dilemma, the EU may be in a better position to establish the necessary trust from Russia in order to further develop its CTR assistance and co-operation.

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[56] Roffey, R. *et al.*, *Support to Threat Reduction of the Russian Biological Weapons Legacy – Conversion, Biodefence and the Role of Biopreparat*, FOI-R--0841--SE (FOI: Umeå, 2003).

[57] Ibid.

An increased EU engagement to counter a possibly reduced U.S. commitment in the field of CTR, demands considerably more funding and a broader engagement, such as to initiate co-operation with Russia within BW and export control issues, where current EU engagement is very modest.

The information given by the Russian government up to 2004 on bioterrorism countermeasures is rather sketchy. There are always legitimate concerns leading to the withholding of information that can be used to e.g. identify weaknesses in anti-terrorism preparedness. In international fora, it is only possible to demand the least amount/lowest level of information that any state is willing to share. In recent years with growing concern over terrorist use of WMD, it is not surprising that few states are fully open about their preparedness against such acts.

Bioterrorism is decidedly a concern for Russia as shown by statements, adopted legislation, and measures to counter acts of bioterrorism. The CTR donor countries have identified the latter area as an area for constructive engagement and international co-operation.[58] However, this area has only begun to be exploited in 2004.[59] In view of the importance given to bioterrorism countermeasures in Russia, this area should be explored for the possibilities of future co-operation and dialogue, at the same time enhancing openness and transparency. Joint risk and threat assessments could be a starting point.

In this context the issue of whether or not to re-direct former BW scientists is also relevant. In 1999, an official representative described the American policy as primarily focused on engaging the BW scientists in their own fields of expertise, and then gradually re-directing them toward peaceful areas of research.[60] By 2004, there are a number of Russian BW scientists in research projects that are clearly of a dual-use character that have not been abandoned for peaceful areas of research.[61] Besides premeditated spread of diseases, there are several grave health concerns in Russia, some of which pose a threat to neighbouring countries in the EU. New cases of tuberculosis, for example, are twice as frequent in the Russian Federation as compared to the European average and the drug-resistant forms of the disease are especially worrisome. The HIV/AIDS situation is also a grave concern, together with other sexually transmitted diseases.

In this scenario of estrangement between Russia and the West, the withdrawal of support to threat reduction and non-proliferation efforts must be regarded as a further chilling of the relationship. Although it can be argued that Russian disarmament (in the present scenario) would not have progressed further if the CTR and similar support programmes had been in place, cancellation of aid would remove this question from the agenda in Russia, and maybe also in the West. This in turn would likely annihilate any chances of progress in the CBW

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58 'BIO 2004: Russian Scientists Help Combat Bioterrorism Through BioIndustry Initiative - BIO 2004 Annual Convention', *Businesswire.com*, URL <http://home.businesswire.com/portal/site/google/index.jsp?ndmViewId=news_view&newsId=20040526005647&newsLang=en>, 26 May 2004.

59 Hendrickson, D. 'Biomed Rounds: Medicine and innovation come together in CIMIT', *The Journal of New England Technology*, 17 November 2003.

60 Smithson, A.E. 'Toxic Archipelago: Preventing Proliferation from the Former Soviet Chemical and Biological Weapons Complexes', Henry L. Stimson Center, 1999, p.78.

61 For example, research on smallpox is carried out at Vector. Various haemorrhagic fevers are studied at several institutes in Russia, including facilities involved in the Soviet BW programme.

disarmament area. In contrast, the actual progress made in the CW destruction until 2004, and the tangible results of constructive co-operation with other FSU states show that much can be accomplished if both parties perceive the end result as desirable.[62]

Russia has taken far-reaching measures to improve its preparedness to bioterrorism. As part of these measures the biosecurity of biological research institutes has been improved. The efforts have lead to a reduced risk for terrorists to get hold of dangerous bacterial and viral strains. The process had been initiated in the early years of the new millennium and financially supported by the West. It continued throughout the scenario period, though no foreign financing was obtained. The measures include a strengthened physical protection of selected institutes as well as the introduction of regulating acts and rules. The use of genetically modified organisms is included in these rules and regulations. Taken together, the measures seem to be important bioterrorism countermeasures which should efficiently prevent that any organisms from the strain collections of former BW research institutes are released. This is, of course, a positive side of the non-proliferation ambitions. However, it also results in a reduced transparency concerning BW strains.

The proliferation of technology from Russia to actors in Asia and the Middle East is another question of concern. The Soviets made significant efforts in biotechnology R&D, but the efforts did not generate agricultural or pharmaceutical products to any reasonable extent. In the present scenario we describe the exploitation of biotechnology in the biopharming field. This is performed in co-operation with Chinese scientists, which are in the research front of this area. The joint effort of these two states is described as successful. Another state whose scientists have been publishing in the biopharming area is Iran and it could, thus, also be an attractive collaborator. According to this scenario there is an obvious risk for proliferation of weapon-related technology from Russia to states in Asia and the Middle East in a situation when Russia is turning away from the West. To avoid such a development it is important to continue and also enhance the support for conversion of former BW and CW research institutes into fields that generate commercial products, which are of great demand. The conversion process should be transparent to avoid further accusations of continued work on BW and CW programmes. It should include information of the BW strain collections which are retained at several research institutes. Moreover, foreign collaborators should be actively involved in the research performed within the conversion programmes.

In the present scenario the development of a Russian export control system is failing and the economical aspects have become the all-pervading focus for Russian exporters and responsible agencies outlook. The various support programmes from the West are withdrawn during this period which further aggravates the Russian efforts to implement and enforce the export control regulation. The debated obstacles behind the Russian implementation and enforcement of the export control regulations are numerous.

There are many references to Russian inability to implement an effective export control system as a result of the country’s poor economic state. A common impression is that

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[62] The U.S.-Kazakhstani co-operation for the dismantlement of the largest known bioweapons production facility in Stepnogorsk has, despite some hitches, been far more successful than similar projects in Russia. Dobbs, M. 'Soviet-Era Work On Bioweapons Still Worrisome', *Washington Post*, p. A01, 12 September 2000. Ben Ouagrham, S. and Vogel, K.M. 'Conversion at Stepnogorsk: What the future holds for former bioweapons facilities', Cornell University, Cornell University Peace Studies Program Occasional Papers, February 2003.

Russia's general priority to promote export activities as the only way to survive economically – the smaller companies' choice between "Money or life"- results in economical imperatives overshadowing the security threat and the proliferation concerns.[63, 64] In addition, the economic hardship constitutes an obstacle in developing an unambiguous and efficient system for the export control administration and enforcement, on both the exporters' and authorities' behalf. It is essential that the export control bureaucracy render the exporters as little time and economic burden as possible, in order to attain the vital commitment from the exporters in implementing the export control regulations in an efficient manner. Hence, the pressure and assistance from the West, with its experiences regarding these issues, are of outmost importance as the resources for the implementation and further development of the export control system in Russia will probably not materialize without it.

[63] Albright D. 'Nuclear Non-Proliferation Concerns and Export Controls in Russia', Testimony before the Governmental Affairs Subcommittee on International Security, 6 June, 2002.

[64] Khripunov I. 'Export Control Assistance to Russia and Other FSU States', *Protecting against the Spread of Nuclear, Biological and Chemical Weapons*, Volume 2, CSIS, January 2003.

Russian-Chinese Relations

Relations in 2004 - Emergence of a Close Friendship

In 2004 the American hegemony needed to be balanced, and both Moscow and Beijing realized that "no matter how strong they [became] individually, their strategic position and security environment [would] deteriorate greatly of they [could not] reach an accommodation or modus vivendi with each other."[65] Hence the expansion of Moscow and Beijing relations in the coming decade would become of imperative international concern since when militarily aligned, their combined strength of nuclear and conventional armament would be paramount. The connection that had emerged between Russia and China in 2004 was a new-style of state relationship, which can be described as "non-aligned, non-confrontational, and not aimed at any third country."[66] It conformed as a response to the unipolar system, and thereby set an example for nations in a confrontational and/or oppositional position to the U.S. Thus, in 2004 Moscow and Beijing had established a new security concept based on mutual trust, mutual benefit and core co-operation in various fields to counter U.S. hegemony and further influence in the Asia-Pacific, Central Asia and the Middle East region. The relationship rendered was based on foremost two important agreements signed in 2001, which opened the arena for intensified Russian-Chinese collaboration.

The expanded Russian-Chinese co-operation began on June 15, 2001 by the establishment of the political-military coalition, the Shanghai Cooperation Organisation (SCO), which would become crucial for future alignment. The SCO in 2004 consisted of Russia, China and four former Soviet Central Asian republics, and had a combined population of 1.5 billion, thousands of strategic and tactical nuclear weapons, and a combined conventional military force of 3.6 million.[67] The mutual collaboration included crucial points in regards to potential development; Russian acceptance of China's anti-U.S. views, Russian sale of advanced weaponry to China worth $30 billion to counter American forces presence in the Pacific, (money for the sales were used to modernize the Russian strategic nuclear forces), Chinese and Russian support and WMD proliferation to nations engaged in terrorist action[68] (Syria, Libya[69], Iran and North Korea), and joint action towards Taiwan. In 2004 this meant that the U.S. for the first time in 40 years

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65 Tang Shiping, *The Future of the Shanghai Cooperation Organization,* Institute of Defence and Strategic Studies URL <http://www.ntu.edu.sg/idss/Prespective/research_050223.htm>

66 *Renmin Ribao Hails 'New-style' Sino-Russian Relations,* Johnson's Russia List URL <http://www.cdi.org/russia/johnson/6589-17.cfm>

67 Constantine C. Menges, *The China-Russia Treaty: Implications of the U.S.,* The Hudson Institute URL <http://www.hudson.org/index.cfm?fuseaction=publication_details&id=915>

68 Ibid.

69 In late 2003 Libya abandoned its earlier foreign policy orientation and came in from the cold by renouncing its WMD programmes and letting international inspectors in to verify compliance.

faced the threat of joint international actions by Russia and China, enhanced by the fact that they were both permanent members of the United Nations Security Council.

In addition, the Treaty of Friendship and Cooperation between Russia and China was signed in July 2001 and was based on the "identical or similar positions [Russia and China shared] on all key international problems." Russia stated that their bilateral relations had "acquired a new quality" and had "no problems that would prove annoying to their relations." [70] The treaty spans over 20 years and focuses on "good neighbourly relations, friendship and co-operation."[71] With the signing of the treaty, the Russian/Chinese strategic alignment moved towards the level of mutual co-operation, and indicted Moscow's and Beijing's resentments of Washington's policies and their will to form a multi-polar world order. The treaty stated that neither party would interfere in each others internal affairs, and would not attack the other, including the use of nuclear weapons or target strategic missiles.[72] It also assured that the two states and their peoples would be "friends forever and never enemies."[73] The reason for the treaty was the Russian imperative to stabilize relations with China due to altered international circumstances, and the military-political objective was "to turn an enemy into a competitor, a competitor into a neutral party, a neutral party into a partner, and a partner into an ally."[74] The apparent progress in the Moscow-Beijing alignment could already be detected in May 2003 when President Putin stated that relations between China and Russia had reached their highest level ever. In November the same year China assessed "Chinese-Russian relations as being at the highest level in the history of bilateral relations."[75] As a consequence it paved the way for a bilateral relationship, which ten years later have grown into full-scale co-operation creating apparent concern for the international community.

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70 Toby Westerman, *China, Russia intensify relationship: Countries sign agreement to cement 'friendship and co-operation,'* The World Net Daily URL <http://www.worldnetdaily.com/news/printer-friendly.asp?ARTICLE_ID=22644>

71 Ibid.

72 For more information see Gunnar Arbman et al. '*Kärnvapenmakten Kina: Globala och regionala aspekter' ['China's Nuclear Weapons: Global and Regional Aspects'],* FOI-R-0976-SE, (FOI: Stockholm, 2003) (in Swedish)

73 *Moscow Joint Statement of the Heads of State of Russia and China,* Ministry of Foreign Affairs of the Russian Federation URL <http://www.In.mid.ru/Brp_4.nsf/arh/C971C4D151E7133543256A8D0051C0FC?Ope...>

74 Yu Bin, *At the Dawn of a Unipolar World,* Comparative Connections URL <http://www.csis.org/pacfor/cc/0301Qchina-rus.html>

75 Ibid.

Relations in 2014 - Military Alignment and Wide-Range Co-operation

In 2014 the relationship between Russia and China continues to flourish. Russia's relations with China constitute the most important factor in Russian foreign policy due to deteriorating relations with the West. During the past ten years Moscow and Beijing have established a strong military alignment, and the bilateral trade continues to expand in several domains thus showing that Russia and China supplement each other. The wide–range co-operation includes military technology, arms, energy, motive power, aviation and space technology. The rapid development of bilateral trade can be seen in the comparison of the 2004 and 2014 figures. In 2004 the bilateral trade accounted for $20 billion[76] a year, but in 2014 the amount is $60 billion. A large amount of trade is found within weapons exports, which in 2004 accounted for 55% of Russia's arms exports of nearly $5 billion.[77] In 2014 this figure is 70%, and the income of around $7 billion aids the still strained Russian economy. In addition China plans to invest $12 billion in Russia prior to the year 2020.[78] The investment will focus on infrastructure construction, energy development, and manufacturing and high-tech fields.[79] China also plans to build a large pulp mill in the Russian Far East and plans to invest around $36 million in the project.[80]

The Shanghai Cooperation Organisation (SCO) continues to thrive as a security alliance as a response to the Bush administration's interventionist policies in Central Asia and the Middle East. SCO's influence increased rapidly after 2008 when Iran, Mongolia, Turkmenistan, Pakistan and India joined the organization due to a more aggressive U.S. foreign policy. The alliance now includes 40% of the world population. The status of SCO in 2014 is elevated since Russia has coerced CIS nations into depended defence co-operation with the alliance as a result of further deteriorating relations with the West in 2011. This was related to past years' international alterations, which has made the Moscow-Beijing military axis increasingly powerful. Due to the 2007 rejection of Russian membership in the WTO, followed by its exclusion form the G8 in 2008, and the Council of Europe in 2009, Russia and China tested its cooperative strength in an aggressive political move on Taiwan in 2010, which led to Moscow leaving the NATO-Russia council, and thus all military co-operation with the West was terminated. The Russian support of China's move on Taiwan is related to Moscow's belief that "there is

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[76] *China to invest US$12b in Russia,* Business in China URL <http://english.china.com/zh_cn/business/investment/11021614/20041018/11918800.h...>

[77] Fred Weir, *Budding Allies: Russia and China,* The Christina Science Monitor URL <http://www.csmonitor.com/2003/0604/p06s01-woeu.htm>

[78] *China to invest US$12b in Russia,* Business in China http://english.china.com/zh_cn/business/investment/11021614/20041018/11918800.h...>

[79] Yan Yang, *Sino-Russian trade heads for new highs,* China Daily URL <http://www.chinadaily.com.cn/english/doc/2004-10/14/content_382305.htm>

[80] Ibid.

only one China, and that Taiwan is China's internal affair."[81] Likewise Beijing supports Russia's harsh tactics in the over decade long conflict in Chechnya, which is viewed by China as a domestic insurgence led by radical Islamic forces. The aggressive action towards Taiwan is also the result of the arms sales and military collaboration Russia and China have engaged in since 2004, thus boosting China's military potential, while Taiwan's strength has considerably weakened due to lessened support from Washington through the vast involvement of U.S. troops in a number of regional conflicts worldwide.

Since the establishment of SCO in 2001, Russia and China have actively exchanged engineers, scientists and military officers in mutual training programmes, had mutual military planning exercises, and additionally pooled technological resources in order to explore shared defensive threats, such as the U.S. stealth technology.[82] In 2014 Moscow's assistance to Beijing in modernizing its military arsenal in all fields continues. In addition the broad programme of exchange to train military cadets, scientists and engineers persists on growing, and the exchange of Russian weapons scientists to assist in the upgrading of the Chinese weapons systems has intensified since 2008. The focus has been, and still is, "on boosting China's missile forces and related space systems as well as air and naval force capabilities."[83] The transfer includes aviation, missile, naval and space technology crucial for China to upgrade its military potential. Consequently one can view the relationship between Russia and China in 2014 as symbiotic due to the following reasons:

China is acquiring capabilities to counter U.S. naval forces and air power in the Far East and intimidate neighbours like Taiwan. Russia is seeking to become a regional rival to the United States, maintaining its defence industrial base and using money form the arms sales to China and others to modernize its armed forces. [84]

However, the co-operation between Moscow and Beijing is not limited to military matters, but also includes collaboration in Central Asia and economic development. In 2014 Central Asia, the main issues of concern are Muslim radical movements, and the advancement of the Beijing-Moscow influence in the region, due to its immense natural resources, enhanced by the increased role of the SCO. The common effort by governments in Central Asia to block any U.S. advancement in the region has aided Russia's and China's strives to insert control over vast oil reserves in Xinjiang in northwest China and in Kazakhstan by their provision of military backing. Economically Russia and China are continuing to extend their ties. In 2010 China's water deficit became apparent, and in 2020 "it will not be able to supply itself with oil, iron, steel,

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81 Ariel Cohen, *The Russia-China Friendship and Cooperation Treaty: A Strategic Shift in Eurasia?* The Heritage Foundation Backgrounder, No. 1459, July 2001. p.3

82 Sean L. Yom, *The Future of the Shanghai Cooperation Organization,* Harvard Asia Quarterly URL <http://www.fas.harvard.edu/~asiactr/haq/200204/0204a003.htm>

83 Ariel Cohen, *The Russia-China Friendship and Cooperation Treaty: A Strategic Shift in Eurasia?* p.4

84 Ibid. 6

aluminium, sulphur and other minerals,"[85] thus making Moscow an important import partner of such items. Currently Russia exports 40 billion cubic meters of natural gas annually to China, as well as 20 billion kilowatts of electricity, and 40 million tons of oil from Siberia. In addition China is receiving oil by pipeline from Irkutsk, (produced in Kazakhstan), and 1.5 trillion kilowatts of electricity generated from the six Russian nuclear reactors constructed in China in the past decade. Economic co-operation is also aided by the ongoing development of railroads and pipelines in central Asia, which is being built to provide a pan-Asian transportation corridor "the Silk Road" from the Far East to Europe and the Middle East,[86] which will generate vast revenues for the two states. The Russian and Chinese collaboration in the construction of the world's longest pipeline from Western Kazakhstan to China, and the one from Angarsk in Russia to Daqing in China[87] also strengthens the bilateral partnership since Moscow and Beijing combined are increasing their control over oil reserves in respective countries and in Central Asia through the SCO.

Conclusion

The relationship found in 2014 between Russia and China is one based on military alignment and wide-range co-operation in various fields. A mutual trust has been established on the foundation that was laid in the beginning of the 21st century with the signing of the Treaty of Friendship and Cooperation. This friendship was deepened further through collaboration in Central Asia and by an extensive economic partnership in the last decade. Russia and China have emerged as a strong military coalition internationally, and have removed the United States as the sole superpower. Moscow and Beijing have established themselves as powerful players in the new multi-polar world order, and have managed to increase their authority in both nations' spheres of influence much due the SCO, and foremost their combined military strength that includes nuclear capabilities. The previous Bush administration expansionist and interventionist policies, which led to the end of Russian military co-operation with the West, brought states formerly leaning towards the U.S. closer to the Russian and Chinese security coalition. As a response, several nations joined the SCO and made it the leading security alliance in the world with 40 % of its population and vast military capabilities, including weapons of mass destruction, which will most evidently influence power politics in the years to come.

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85 Ibid. 7

86 Ibid. 7

87 See *In the pipeline,* The Economist URL <http://www.economist.com/world/asia/PriterFriendly.cfm?Story_ID=2633952

Appendix 1
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Russia's Security Doctrines and Concepts

Security doctrines are the main governing doctrines and strategy concepts elaborated by the Russian Security Council and officially endorsed by the president. Coupled to these doctrinal documents are a number of so-called federal target programmes relevant to security, which in a programmatic fashion outlines the concrete policy measures to be taken. This chapter takes a look at some of the doctrinal documents, federal target programmes and some other relevant documents, which are of relevance to Russia's defence posture and in particular CBW issues.

Background - The Situation in 2004

During the first decade after the dissolution of the Soviet Union a kind of bewilderment regarding national security and strategic issues reigned in Russia. Between 1991 and 1999 one military doctrine and a couple of national security concepts were drafted. These documents had a preliminary character.

In the year 2000 four official doctrines and concepts related to national security were published.[88] The first document was the national security concept.[89] It elaborates on security in a number of different spheres; military security, economic security, environmental security etc. This is the main doctrinal document. Three subsequent documents, each of them elaborating on one sphere have been published after that. The military doctrine is an elaboration in the sphere of military security.[90] The foreign policy concept is an elaboration of the foreign policy part of national security.[91] The last doctrinal document to be published was the information security doctrine.[92]

The doctrinal documents reflect the change that the Russian security thinking has undergone since 1991. As is the case in many other industrialized countries securitization has reached outside the military and foreign policy spheres, which traditionally were the two main spheres of security during the Cold War. New spheres of securitization are for

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88 A naval doctrine has also been published, but it does not have the same rank as the other doctrinal documents. Cf. the homepage of Security Council of the Russian Federation, URL <http://www.scrf.gov.ru>.

89 Security Council of the Russian Federation, *National Security Concept of the Russian Federation*, URL <http://www.scrf.gov.ru/Documents/Decree/2000/24-1.html>, 10 Jan. 2000 (in Russian).

90 Security Council of the Russian Federation, *Military Doctrine of the Russian Federation*, URL <http://www.scrf.gov.ru/Documents/Decree/2000/706-1.html>, 21 Apr. 2000 (in Russian).

91 Security Council of the Russian Federation, *Foreign Policy Concept of the Russian Federation*, URL <http://www.scrf.gov.ru/Documents/Decree/2000/07-10.html>, 7 July 2000 (in Russian).

92 Security Council of the Russian Federation, *Information Security Doctrine of the Russian Federation*, URL <http://www.scrf.gov.ru/Documents/Decree/2000/09-09.html>, 9 Sept. 2000 (in Russian).

example economy, energy, social issues, environment, health issues, demographic issues and information-related issues.

Up till 2004 a number of other doctrinal documents dealing with various aspects of Russian national security have been published.[93] Among them are a national strategy for economic security and an ecological doctrine. In addition, in 2003 a national energy strategy for the period up till 2020 was adopted.[94] It explicitly states that energy is seen as a lever for economic and political control over other states and actors. Russia's energy policy balances between gaining control over the domestic and international markets at the same time as it attempts to avoid becoming dependent itself.[95]

The Russian leadership clearly wants Russia to play a more important role on the international scene in the future than has been the case during the last decade. Russia's geostrategic position carry with it some "eternal" problems/demands related to security.

Therefore, Russia's grand strategy has been to avoid international isolation while at the same time safeguarding its national interests. Russia has pursued two different lines of policy to achieve its overall security objectives. From time to time Moscow has pursued a policy of multipolarity and equidistance to other great powers as a way of restricting U.S. hegemony. China and the EU have been the two main poles with which to interact in that respect. Russia has also attempted to play the role of the number two world power besides the U.S. A prerequisite for both policies is military power. Moscow can play the game only thanks to its WMD, especially its strategic nuclear arsenal. Seen from a realistic perspective there are strong motives for Russia to keep its relatively cheap WMD as a means to guarantee its national security, uphold its leverage in world affairs and international prestige.

At the same time all the doctrinal documents stress the importance of Russia and other countries working together to combat further proliferation of WMD. However, Russia's adherence to the CWC and the BTWC has been questioned repeatedly by western experts. In 2004, there is still some uncertainty as to the status of the legacy of the former Soviet BW and CW programmes.

Acting from a position of strategic weakness Russia has been forced to stress the importance of other means than military to boost its security, unlike the situation during the Cold War when military power was the number one guarantor of Soviet security.

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93 See the homepage of the Security Council of the Russian Federation, URL <http://www.scrf.gov.ru>.

94 Russian Ministry of Industry and Energy, *Energeticheskaia strategia Rossii na period do 2020 goda* [Russia's Energy Strategy for the Period up till the year 2020], URL<http://www.mte.gov.ru/docs/32/189.html>, Government decree nr 1234, 28 August 2003 (in Russian).

95 Leijonhielm, J and Larsson, R, *Russia's Strategic Commodities: Energy and Metals as Security Levers*, FOI-R—1346—SE, (FOI: Stockholm, 2004), p. 28.

There is an increased emphasis on economy in the doctrinal documents. However, being weak but wanting to be strong results in ambiguity or dichotomy with necessity.

This dichotomy is clearly displayed in the doctrinal documents. Hence, the foreign policy concepts states that Moscow wishes "a broad integration of Russia in the system of world economic ties", whereas it at the same time states that "Russia shall seek to minimize the risks relating to Russia's further integration in the world economy, bearing in mind the need to ensure the country's economic security".[96]

The national security concept states that military strength to guarantee national security remains necessary. At the same time the importance of non-military factors of national security increases (especially economic and information-related). "The revival of the country's military potential and its maintenance at a sufficiently high level" is listed among the basic tasks to ensure the national security.[97] The concept also states that economic, technical-scientifical and military-industrial self-sufficiency is the ultimate goal.

As far as security in the health sphere is concerned the national security concept states that "In the sphere of the protection and improvement of health of the people, public organisations and the bodies of state power of the Russian Federation should pay more attention to the development of the state (federal and municipal) insurance and private medicine, pursue a protectionist state policy with regard to the national medical and pharmaceutical industries, carry out federal programmes in the sphere of hygiene, epidemiology, children's health care, first and emergency medical aid, and medicine of catastrophes."[98]

As far as security in the national economic sphere is concerned the national security concept states that "The priority tasks include the ensurance of the priority development of competitive industries and enterprises, and the expansion of the market of science-intensive products. To fulfil these tasks, we should approve measures designed to encourage the transfer of novel military technologies to civilian production, introduce a mechanism of revealing and developing progressive technologies, whose use would ensure the competitiveness of Russian enterprises on the world market."[99]

On the other hand, the concept under the heading military security states that "The defence industries play a major part in ensuring the national interests of Russia. The restructuring and conversion of the defence industries should not come into conflict with the creation of new technologies and research-technical possibilities, the modernisation of

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96 Quotations in English taken from the translation of the Russian doctrines and concepts found on Federation of American Scientists, URL <http://fas.org/nuke/guide/russia/doctrine, unless otherwise indicated. *Foreign Policy Concept of the Russian Federation*, p. 6.

97 *National Security Concept of the Russian Federation*, p. 9.

98 Ibid., p. 11.

99 Ibid., p. 8.

weapons, military and specialised hardware, and the strengthening of positions of Russian producers on the world market of weapons."[100]

In conclusion, the national security concept states that diversification, i.e. partial conversion (which does not lead to complete disarmament) should be the policy.[101] This in turn means that Russia intends to uphold its military-technical and military-industrial capabilities. Furthermore, the overall thrust should be toward high-tech goods. And last, but not least, comes the important CBW-related conclusion that Russia intends to pursue a protectionist state policy with regard to the national medical and pharmaceutical industries.

According to aggregate Russian assessments, civilian biotechnology is an R&D area of relative weakness, whereas a sufficient capacity is said to exist as far as chemical technologies are concerned. Biological and chemical technologies are two of the prioritized areas in the so-called Federal Target Programme for the National Technological Base 2002-2006. The programme aims at concentrating resources on defence-related critical dual-use technologies and is to be financed outside the military budget. The R&D efforts in critical chemical technologies are substantial, whereas the R&D efforts in biological and biomedical technologies are noticeable but somewhat less substantial.[102]

In the 2002 document "Foundations for Russian Federation Policy for the Development of Science and Technology in the Period up till 2010 and Beyond" the biological and chemical areas are listed among the prioritized. They are found under the following headings: security and quality control of agricultural raw material and food-products, biological means of protecting plants and animals, gene diagnostics and gene therapy, production and reprocessing of agricultural raw materials, synthesis of pharmaceutical substances and food-additives, systems for life-support and protection of human beings, bioengineering technologies and technologies for immunocorrection.[103]

In December 2003 a policy document with the title *Foundations for the State's Policy Regarding the Biological and Chemical Security of the Russian Federation up till 2010*

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100 Ibid., p. 14.

101 For a theoretical discussion about conversion see Unge, W., *The Russian Military-Industrial Complex in the 1990s: Conversion and Privatization in a Structurally Militarized Economy*, FOA-R—00-01702-170—SE, (FOI: Stockholm, 2000).

102 Leijonhielm, J. *et al.*, *Russian Military-Technological Capacity – Russian R&D, Critical Technologies and Weapons Systems*, FOI-R--0618--SE (FOI: Stockholm, 2002), p. 99-101.

103 Security Council of the Russian Federation, *Osnovy politiki Rossiiskoi Federatsii v oblasti razvitia nauki i tekhnologii na period do 2010 i dalneishuyu perspektivu* [Foundations for RF Policy for the Development of Science and Technology in the Period up till 2010 and Beyond], URL <http://www.scrf.gov.ru/Documents/Decree/2002/30-03.html >, 30 Mar. 2002 (in Russian).

and Beyond was adopted.[104] In the preamble it is stated that measures to guarantee biological and chemical security and safety are regarded as one of the most important areas in order to strengthen the national security of the Russian Federation.

The overall objective of the state's policy within this area is to minimize the risk that biological and chemical substances in a harmful way affect the population, the social and industrial infrastructure and the ecological system. Hence, it is a very broad approach, which comprises everything from protection against epidemics, minimizing risks when transporting hazardous materials, protection against biological and chemical terrorism and compliance with Russia's international treaty obligations (BTWC and CWC).

The state policy should aim at developing, improving, producing and renewing stockpiles of biological and chemical protection equipment. But, apart from that it is also stated that a military capability to deter aggression from states and terrorists is regarded as an integral part of Russia's biological and chemical security.

The document says that a number of state scientific and production centres for the development of CBW protection equipment etc, where researchers and producers meet, should be set up. These centres should be awarded the status of federal centres of science and high technology. Financial, material and other resources should be concentrated to these centres in order for them to solve the tasks they have been given.

In early 2005 the Russian government presented a list of 58 organisations that will retain the status of State scientific Centres. Among those which will continue to benefit from enhanced state funding are certain facilities in microbiological, biological, chemical and biomedical research.[105]

The policy document of December 2003 also mentioned the creation of a commission on biological and chemical security. In early 2005 the Russian government decided to set up such a state commission for the coordination of the state's policy within the CBW security area. Health Minister Mikhail Zurabov was appointed the head of the commission. The commission's objective was reported by the press service of Prime Minister Mikhail Fradkov as being ”to make state regulation of biological and chemical security more effective”. The commission is also to draw up proposals ”to establish and refine the Russian Federation's systems of biological and chemical security”. It will also draw up proposals on international cooperation and oversee the timely provision of

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[104] Security Council of the Russian Federation, URL<http://www.scrf.gov.ru/Documents/Decree/2003/2194.html>.

[105] ”Russia Preserves Status of Bioscience State Scientific Centres”, *Russian BW Monitor*, URL<http://www.russianbwmonitor.co.uk>, 11 February 2005.

information on emergencies to citizens and the maintenance of protection systems for people, fauna and flora at the required standard.[106]

The future - The situation in 2014

The doctrinal documents should be seen as political signals to the surrounding world rather than binding directives for a decided development. The 2000 military doctrine clearly stated that it was "related to a period of transition when a democratic state was to be shaped, a new economy was to develop, the military organisation was to be transformed and the system of international relations was changing dynamically".[107]

In October 2003 a policy document of a doctrinal character outlining the views of the Ministry of Defence on the future development of the Armed Forces was published.[108] It stated explicitly that "if NATO is preserved as a military alliance with its present-day offensive doctrine, this will require cardinal amendment of Russia's military planning and the principles of developing the Russian Armed Forces, including changes in the nuclear strategy of the country".[109]

After the inauguration of the new Russian president in 2008 the Security Council and Ministry of Defence is tasked with the formulation of a national security concept and a new military doctrine respectively. They idea is that these new doctrines should better reflect the realities of the world surrounding Russia and its deteriorating international relations. Despite this Russia does not leave the NATO-Russia Council until 2011.

In 2014 Russia has a new national security concept and a new military doctrine, which are more explicitly anti-western than the 2000 doctrinal documents. The emphasis is on a continued strategic partnership with China. Local wars and the fight against international terrorism are assessed as being of secondary importance. Nevertheless, Russia remains a party to the BTWC and the CWC. In 2012 Russia finally meets the 100 per cent deadline for the destruction of its CW stockpiles under the CWC.

In the October 2003 document a call was made for a revitalisation of the technical-scientific complex. The recommendation was to make an in-depth analysis of existing

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106 "Russia Sets up Commission to Fight Biological Threat", *Moscow News*, URL<http://www.mosnews.com/news/2005/02/14/biodefense.shtml>, 14 February 2005. See also Parlamentskaja gazeta, No. 194, URL<http://www.logistics.ru/9/23/i20_19050p0.htm>, 18 October 2004, p. 4.

107 *Military Doctrine of the Russian Federation*, URL <http://www.scrf.gov.ru /Documents/Decree/2000/706-1.html>, p. 1.

108 Ministry of Defence of the Russian Federation, *Aktualnyie zadachi razvityia Vooruzhonnykh Sil RF* [The Priority Tasks of the Development of the Armed Forces of the Russian Federation], URL <http://www.mil.ru>, Oct. 2003.

109 Ibid, p.34.

and future R&DE plans and to operationalise them into long-rang planning. At the time this was published it evoked little attention. It should later become evident that this cryptic paragraph concealed renewed efforts in the sphere of CBW. Earlier suspicions that some biodefence programme activities may be hiding offensive research are later to be justified (cf appendix 4).[110]

[110] Roffey, R. et al., *Support to Threat Reduction of the Russian Biological Weapons Legacy – Conversion, Biodefence and the Role of Biopreparat*, FOI-R--0841--SE (FOI: Umeå, 2003), pp. 25-28.

Appendix 2
FOI-R--1561--SE

Chechnya

Background 2004 - The two wars

A full out declaration of independence from Russia in 1994 led to a civil war of low intensity in Chechnya.[111] Pitted against each other were the anti-Russian Dudayev government and several Chechen groups opposed to this regime. The initial Russian strategy of supporting anti Dudayev clan groupings failed. This failure seemingly forced a reluctant Russia to intervene militarily.[112] The Russian campaign was a disaster and suffered from bad planning, mission inconsistencies, lack of sufficient troop numbers and slack control of media and information flow.[113] High civilian casualties as well as staunch anti-Russian nationalism combined to turn most Chechen fighting groups against the Russians. The first war ended in a humiliating Russian retreat after Grozny was retaken by Chechen troops in August 1996.

The second war was formally started in response to several Chechen incursions into Dagestan and bombings of Russian apartment buildings in the autumn of 1999.[114] These circumstances gave Putin a way to raise his own and the government's popularity. By late August public opinion had shifted in favour of renewed operations in Chechnya.

In late spring 2000 Russia declared 'victory over terrorism'. Since then sabotage, ambushes and armed assaults (labelled terrorism by Moscow) have increased. The Russian characterization of the Chechen operation as "an anti-terrorist campaign" could not hide the fact that according to all accepted definitions in international law it was an armed, internal conflict.[115]

The societal structures that evolved in the wake of the two Chechen wars were ruinous. Widespread corruption and organised crime by all parties including federal troops have since been common.[116]

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[111] Blank, S., J.: *Russias Invasion of Chechnya: A Preliminary Assessment*, (Carlisle: US Army War College, SSI, 1995), p. v

[112] Lieven, A.: "Lessons of War in Chechnya, 1994-1996", (ed.)Desch, M., C.: *Soldiers in Cities: Military Operations on Urban Terrain*, (Carlisle: Strategic Studies Institute, 2001), p. 57.

[113] Lieven, A.: "Lessons of War in Chechnya, 1994-1996", (ed.)Desch, M., C.: *Soldiers in Cities: Military Operations on Urban Terrain*, (Carlisle: Strategic Studies Institute, 2001), pp. 60-63.

[114] Thomas, T.: *The Tale of Two Theaters: Russian Action in Chechnya in 1994 and 1999*, (Fort Leavenworth: FMSO, 2000), p. 1.

[115] Leijonhielm, J. et al: '*Rysk militär förmåga I ett tioårsperspektiv: en förnyad bedömning 2000'* [*'Russian Military Capabilities in a Ten-Year Perspective - A Renewed Assessment 2000']*, (Stockholm: FOI, 2000), p. 122 (in Swedish)

[116] Trenin, D., V.: *The forgotten war: Chechnya and Russia's future*, (Moscow: Carnegi Endowment for International Peace, November 2003), p. 5

Allegations concerning the use of WMD related warfare agents were reported in the media during both the first and second war.[117] Accusations emerged both from Russian and Chechen sides. It should, however, be emphasised that as of 2004 no convincing evidences of such use has never been presented.

In March 2004 the rebel leader Shamil Basayev threatened to "bomb, blow up, poison, stage gas explosions and fires whenever possible on everything else on the territory of Russia" in response to an alleged Russian assassination of the former rebel leader in Qatar. Mr Basayev also stated that "[c]ombat chemical agents, toxins and different poisons are being used against us. Therefore we reserve the right to use chemical and toxic substances and the same poisons against Russia."[118] According to a spokesman for the Russian military however, there were no indications that Chechen rebels had access to or had ever used CW.[119] The exception being an incident when rebels blew up a cistern with chlorine during fighting in Grozny.[120]

However, several analysts expressed fears that CW could end up in the hands of Chechen rebels and then be transferred to extremist groups and used in chemical terror attacks outside Russia. It seems, however, that the Russian CW storage sites were quite well-guarded and as of 2004 few incidents had been reported.

Chechnya in 2014

By 2014 Chechnya is a disrupted society and a partly abandoned Russian special administrations region with huge political, environmental and social problems. The low intensity war has continued without interruption. The Putin era was characterised by a political hostage situation where several interest groups within power ministries and the military, known as the 'Chechen mafia', forced President Putin to continue the armed crackdown. The situation slowly deteriorated as stubborn resistance from separatists in Chechnya and rebel attacks inside Russian cities led to even more brutal counterattacks by federal forces. The following anti-western Russian administration had nothing to loose by adopting President Putin's Chechen policy. In fact, the low intensity conflict in Chechnya became an even more important tool in the administration's domestic and international propaganda. As the civilians, to a great extent, have fled Chechnya escalation is even more likely. Opportunities to profit on the civilian population dwindle and thus incentives for racket co-operation between separatists and federal forces. Fewer witnesses to brutalities and violations of human rights also contribute to the deteriorating

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[117] Lindblad, A., Sundqvist, R. and Westerdahl K. S., '*Massförstörelsevapen i Tjetjenien'*, ['*Weapons of Mass Destruction in Chechnya'*] FOA NBC-skydd, *BC-bulletinen* nr 2, December 1999, URL http://www.foi.se/raw/documents/24572_BC-bulletinennr2dec1999.pdf (in Swedish)

[118] Page, J.: "Chechen leader threatens to kill Russians abroad", *The Times*, 1 April 2004.

[119] Chechen rebels have no chemical arms – Russian military, *Interfax*, 12 April 2004.

[120] Ibid.

development. International critique from human rights groups, NGO's and Western countries is frequent and severe.

The CW development linked to the Chechen situation is alarming. The 2006 CW attack on the G8 summit led to mounted international pressure for accelerated CW destruction. Amidst enormous pressure, Russia consented to an accelerating CW destruction process allowing more international involvement. This was done despite growing anti-western sentiments.

Despite genuine political commitment to destruction of old CW stores Russia has started to use non-lethal CW in the Chechen operations in 2006. This use was politically sponsored and was a part of a larger effort to develop functional non-lethal weapons of several kinds. The successful but in casualties' costly operation at the Dubrovka theatre in 2002 spurred a push to refine and further operationalise such weapons. As Russia had continued to characterise Chechnya as a police operation this use did not break formal international law on the use of non-lethal CW.

However, it did break taboos and was at the time very controversial. It was to be shown that the Russian decision in fact led to a slow escalation of the use of CW in Chechnya. Resentment among separatists soared and ever more frequent attacks using industrial chemicals against federal installations outside of Chechnya were made. This trend reached its climax with the 2009 attack on an international football match in Moscow. A trailer filled with ammonia was run into the arena killing hundreds and injuring thousands. Another such attack in 2012, using a chemical 'dirty bomb' in the vicinity of the Kremlin, clearly highlights Russia's continued vulnerability and inability to deal with the problem.

In 2009 a regional commander, in charge of one of the Russian CW storage sites, together with some local criminals, managed to steal five VX loaded aerial bombs, still deemed functioning, from the storage site.

This group has ended up as an arms dealing mafia fraction running, smuggling operations across the Russian border and in the southern mountains. Fiercely hunted by Federal Forces, their contacts inside Russia and their infiltration potential make them valuable "allies" to the separatists as well as groups smuggling BW and CW equipment to the Middle East.

In 2012 these renegades sell a portion of their CW stock to a separatist group who conduct an attack with VX against a federal military base. Although not totally successful in military terms, this attack leads to demands of retaliation in kind among several federal commanders. As this is not authorised, local commanders have recently decided to use lethal CW anyway to finally 'eradicate' separatists and the treacherous band of renegades. However as there is a lack of CW agent on both sides and local federal commanders need to show great discretion not to arouse suspicion the use remains scarce.

The environmental and health situations in Chechnya are also severe. The advertent and inadvertent spread of radioactive material from former storage facilities has made parts of

Chechnya uninhabitable. Oil-contamination, a side effect of the ongoing conflict, has damaged some parts of the arable land and severely restricted farming activities in those areas. Fresh water is locally in great demand since some primary sources of water also have been affected by contamination.

Coupled with this is the catastrophic state of medical care. There is a constant spread of diseases and frequent eruptions of epidemics among which *Tuberculosis*, *HIV*, *Hepatitis*, *Shigella dysenteriae* and in later years *Plague* and *SARS* are the most prominent and concerning. This makes for a very poor state of health amongst Chechen civilians as well as government personnel and separatist groupings. Local and UN sponsored medical centres have neither sufficient capacity nor the access needed to fully curb outbreaks and cure patients, let alone work pre-emptively with vaccination programmes etc.

In 2014 the situation in Chechnya is serious. Both non-lethal and lethal chemical agents are used by several sides in the conflict, although not frequently. The non-lethal use is supposedly authorised by the Russian government but the lethal use is covert and locally decided upon. Separatist use is mostly confined to chemical attacks inside Russia but some CW operations have been conducted in Chechnya. Both sides, for different reasons, lack substantial and reliable supplies of CW. The Chechen society is also severely affected. Huge health and environmental problems coupled with a declining population make insight into the situation even more difficult than in 2004. Verification of human rights abuses as well as use of illegal methods of warfare is almost impossible. The frequent eruption of epidemics leads to allegations of the use of BW and pressure on Russia to fully comply with its undertakings under the BTWC. However, transparency remains insufficient. Chechnya has also become an important transfer point for the illegal sales of WMD related equipment to the Middle East.

Russian bioterrorism counter-measures

Threat assessment and preparedness in early 2004

The anthrax-containing letters mailed in the U.S. in late 2001, fuelled the debate in the world, and also in Russia, on how to counter bioterrorism. Prior to the anthrax letters, some discussion had taken place in Russia on this topic, but an overwhelming majority of those raising the subject had some connection to the Soviet offensive BW programme. In the renewed discussions, representatives of a range of official organisations, with no obvious ties to the military and the BW complex participated. The types of incidents discussed are no longer limited to only criminal and terrorist acts using biological materials but also accidents, catastrophes, large-scale epidemics, especially involving ”exotic” (non-endemic) pathogens. Much space in the public discussion is given to views on the pathogens that could possibly be used by terrorists.

One of the more frequent participants in the discussion on bioterrorism is Gennadiy Onishchenko, in his capacity of Sanitary Surgeon General of the Russian Federation and First Deputy Minister of Health. Onishchenko was also to head the Interagency Board of Directors of the federal biodefence programme “Zashchita”[121]. However, he also has ties to the offensive BW programme of the Soviet Union. He was in the Russian delegation negotiating the opening up of BW programmes in Russia, Great Britain and U.S., the trilateral process agreed on in September 1992[122]. It can be assumed that he is well informed about the former offensive BW programme. In May 2000, he was appointed to the new board of directors for Biopreparat, the civilian cover organization that ran the offensive BW programme 1973-1991.[123]

Since the Federal Antiterrorist Committee (FAK) was formed in 1997, Russia has continued taking new measures against terrorism, including bioterrorism, by adopting legislation, and developing and implementing various counter-measures. These measures appear to have been intensified after the autumn of 2001. In May 2002, Onishchenko describes the Russian measures against bioterrorism thus:[124]

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[121] Rimmington, A. ‘From Offence to Defence? Russia’s Reform of its Biological Weapons Complex and the Implications for Western Security’, *The Journal of Slavic Military Studies,* vol. 16, No. 1 (March 2003), pp. 1-43.

[122] ‘Press Briefing of Deputy Foreign Minister Grigory Berdennikov’, *Official Kremlin International News Broadcast*, 14 September 1992.

[123] Primakov, E. ‘Decree of 8 May 1999 on Appointing Government Representatives on the Boards of Directors of Open Share Enterprises [OAO] in the Medical Industry’, *Rossiyskaya Gazeta*, 8 May 1999.

[124] Onishchenko, G.G. ‘Bioterrorism Counteractions: The Strategy of the National Health Care’, *Vaktsinatsia*, vol. 21, No. 3 (May-June 2002).

- 16 Feb. 1999, FAK developed and refined a Concept of Antiterrorist Activities of Federal Organs in the area of Protecting the Environment and the Health of the Population;
- an interdepartmental working group for questions on the protection of the population, agricultural animals and plants against possible use by terrorists of biological, chemical and other means of mass destruction, was formed;
- a Federal Interdepartmental Centre was created for training of specialists, evaluating methods of identification, etc., at Volgograd Antiplague institute, and a Centre for Special Laboratory Diagnostics for Especially Dangerous and Exotic Infections on the basis of the Virological Centre of the Military Institute of Microbiology [at Sergiev Posad]; and
- to promote growth of the scientific-biotechnological potential the programme ”Zashchita” was adopted in 1999.

A year later, Valentin Yevstigneyev [125] lists the above measures and also adds:[126]

- A policy was developed regarding co-operation among the Russian Federation Ministry of Health, Russian Federation Ministry of Internal Affairs, and Russian Federation Federal Security Service in monitoring the status of public health and epidemic control in densely populated areas and in actions during emergencies caused by terrorist acts.

There appear to be very few who publicly express doubts as to the likelihood of a bioterrorist attack. Valeriy Spirande, the deputy director at the Russian Agency for Munitions, in spring 2003 said that the greatest risk would be to the criminal who steals micro-organisms, and that it was not possible to produce BW in a kitchen.[127] Colonel Maksimov, head of both Centre for Special Laboratory Diagnostics for Especially Dangerous and Exotic Infections on the basis of the Virological Centre of the Military Institute of Microbiology agrees, saying that “BW are rather complicated, and it is highly

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[125] Yevstigneyev is a candidate of medical sciences, lieutenant general of the medical service (retired), and first the deputy general director of the open-type joint stock company Biopreparat. Previously, he headed the directorate of biological defence in the Armed Forces. He headed this directorate also in the last years of the Soviet Union, when it was reponsible for the USSR offensive BW programme. Primakov, E. 'Decree of 8 May 1999 on appointing government representatives on the boards of directors of open share enterprises [OAO] in the medical industry', Rossiyskaya Gazeta, 8 May 1999. Rimmington, A. 'From Offence to Defence? Russia's Reform of its Biological Weapons Complex and the Implications for Western Security', *The Journal of Slavic Military Studies*, vol. 16, No. 1 (March 2003), pp.1-43.

[126] Yevstigneev, V.I. 'Biological Weapons and Problems of Ensuring Biological Security', Paper presented at the Moscow Institute of Physics and Technology, 25 March 2003.

[127] Poroskov, N. ‘We were not going to use biological weapons’, *Vremya Online*, 24 April 2003.

unlikely that they can be made in cottage industry conditions".[128] In contrast, Onishchenko emphasises the ease of procuring and using pathogens for bioterrorism: "Bioweapons are accessible, more readily made, convenient to store and transport."[129]

According to Onishchenko (2003), "a considerable part of the scientific and organizational measures to counter bioterrorism are conducted in Russia within the framework of the existing system of measures against infectious diseases."[130] An interdepartmental working group for questions on the protection of the population, agricultural animals and plants against possible use by terrorists of biological, chemical and other means of mass destruction has been formed sometime before May 2002.[131]

In summary, the Russian preparedness against bioterrorism at the beginning of 2004 appeared to be thorough, ranging from the health care sector to decision-shaping discussions in joint agency bodies and legislation. There are two centres responsible for training of health care specialists, development and implementation of diagnostics and other necessary biomedical analyses, as well as data collection on possible bioterrorism incidents. No confirmed incidents had so far occurred on Russian territory.

Opaqueness 2014

In the past decade, bioterrorism is continued to be perceived as a threat. In response to the (unsubstantiated) rumours of Russian BW use in Chechnya, Russian officials often mention Chechen bioterrorist attacks as a significant threat. However, no incidents of verified bioterrorism are known to have occurred on Russian territory. Russia continues to improve and strengthen its measures against bioterrorism. These include investing in and expanding research on human pathogens of "especially dangerous diseases". Laboratories of the highest biocontainment level (BSL-4) are expanded at the two centres in Sergiev Posad and Volgograd. In addition to the perceived threat, much of the efforts are officially motivated by a desire to technically stay abreast with the U.S. in this area.

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[128] Udmantsev, V. 'Voennaya Mikrobiologiya Rossii – virusologicheskomu tsentry ministerstva oborony ispolnilos 50 let' [Russian military microbiology – the Virological Centre of the Ministry of Defence turned 50] *Voenno-promyshlennyj kurer*, No. 16 (28 April–11 May 2004), URL <http://www.vpk-news.ru/article.asp?pr_sign=archive.2004.33.articles.rostrum_01>, partially translated in 'Russian military warn of bioweapons attacks', *BBC Monitoring International Reports*, 29 April, 2004.

[129] Onishchenko, G.G. 'The reality of bioterrorism', *Rossiyskaya Gazeta*, 29 January 2004. Onischenko, G.G. et al. 'Bioterrorism: A national and global threat', *Vestnik Rossiyskoy Akademii Nauk*, vol. 73, No. 3 (March 2003), pp. 195-204. Onishchenko, G.G. 'Bioterrorism counteractions: The strategy of the national health care', *Vaktsinatsia*, vol. 21, No. 3 (May-June 2002).

[130] Onischenko, G.G. et al. 'Bioterrorism: A national and global threat', *Vestnik Rossiyskoy Akademii Nauk*, vol. 73, No. 3 (March 2003), pp. 195-204.

[131] Onishchenko, G.G. 'Bioterrorism counteractions: The strategy of the national health care', *Vaktsinatsia*, vol. 21, No. 3 (May-June 2002).

Well-known representatives of the former Soviet BW complex retire, but new lead figures appear. A significant number of scientists are recruited from the Centre of Virology of the Military Institute of Microbiology in Sergiev Posad. Onishchenko is still the Sanitary Surgeon General and continues to comment on bioterrorism, supporting the notion that this is a real threat to Russia, advocating that the counter-measures should be maintained high or reinforced.

The transparency on anti-bioterrorism efforts remains very low. For example, no foreign experts are allowed to visit the two centres. In contrast to the well-established co-operation and exchange in both the military sphere and in biomedical research between China and Russia, not even Chinese experts are known to have visited these two centres. The sequestering of press freedom that occurred around the millennium shift has by now petrified the Russian media. The reports on Russian views of and measures against bioterrorism are now more propagandistic than informative, contributing to the very low transparency.

In 2013, the two Centres are still included in the plans to improve biological security with help of foreign financing and expertise. Foreign experts had hope for increased transparency, e.g. access to the centres, but in 2013 they discover that inclusion of these two centres in the plans are just the usual Russian rhetoric to deflect criticism over the low transparency.

Misuse of dual-use technologies, materials (pathogens) and equipment for BW programmes is as hot a topic as ever. In Russia, a carefully guarded secret is that a clandestine offensive programme is prepared to be launched under the legitimate cover of the anti-bioterrorism efforts. This programme includes:

- Research – on various highly dangerous pathogens and it is noticeable how newly discovered pathogens quickly become incorporated in the research.
- Development – the pathogens mentioned above are used to test means of protection, treatment and decontamination. This includes vaccine and antibiotics development with parallel tests of how this protection and treatment can be circumvented.
- Production – Vaccines are put into production at two or three facilities. The volumes are small compared to the capacities of the Soviet offensive programme. The facilities are surrounded by high security and low transparency – allegedly for the purpose of preventing bioterrorist attacks against them (sic!) and theft of proprietary information (i.e. the vaccine strains and production technology).
- Integration with the military biodefence programme is indicated by the location of activities, recruitment of scientists from Sergiev Posad and joint research.

The programme is designed as a mobilisation programme, i.e. expertise in key areas, equipment and facilities are available to launch a concerted effort to rapidly develop and weaponise a few selected pathogens, when the need arises. The research and scientists are at the forefront on international level, and equipment and facilities are modern and maintained in good shape at all times.

The design of the programme as a mobilisation programme has a distinct advantage to a more traditional, continuously running, programme in that international inspections, e.g. by the Blix Commission, would not find anything that could be conclusively interpreted as a breach of international treaties. Since measures to counter terrorism, including bioterrorism, by a majority of countries is considered as law enforcement, this area is excluded from the transparency mechanisms of the BTWC.

Appendix 4
FOI-R--1561--SE

Russia and proliferation

Despite sincere political commitments to the international fight against proliferation, the Russian government has utterly failed to implement an effective export control system. The poor state of the Russian economy, wide spread corruption, and the increasingly divergent trend between Russia's and the Western countries' security policy outlook, serves as incentives for an increasing trend of transaction of WMD related technology and materials to other countries, foremost in the Middle East.

Background - The situation in 2004

In early 2000, the Soviet Union legacy of WMD, inherited by Russia, was viewed by the West as a vast proliferation concern. Thus, Russia has been the beneficiary of multi-billion-dollar CTR programmes, foremost financed by the U.S., G8 and EU. The aim of the CTR programmes was to secure material, technology and know-how relevant for WMD programmes, from leaking to actors with illegal intent. However, in 2004, the CTR have had little effect. The Russian export control agencies were lacking resources to perform their duties and enforcement authorities were hampered by lack of knowledge, staff and administrative routines, necessary for an effective enforcement of the export control regulations. A deeply rooted distrust between the U.S. and Russia existed despite the publicly expressed declarations of an alliance between the two countries in fighting terrorism and preventing proliferation of WMD. The critique against the lack of progress within the CTR programmes started to mount amongst the Western countries.[132] By 2004 only a fraction of the pledged $20 billion funding for the CTR had materialized and the distrust against the Russian commitment to secure its WMD related technology and know-how was predominant.

A persistent thorn in Russian-American ties was represented by Russia's nuclear technology co-operation with Iran, which was not only based on an rapidly expanding trade relation with Teheran, but also a component in Moscow's measures to keep Teheran from aggravating Russia's escalating struggle against militant Islamic groups, foremost in the Caucasus. For Russian exporters, countries in the Middle East constituted, by tradition, a vital export market for defence related material, technology and know-how, a trade relation not easily constrained due to U.S. demands. Russia boosted its trade with the countries in the Middle East in early 2000, with Iran as the major trading partner in the region.[133]

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[132] Filipov, D. and Dolgov, A. 'Push to guard arms in Russia at risk', The Boston Globe, 26 April, 2004.

[133] 'Iranian Ambassador: Trade between Russia and Iran Increases by 50% over Last 5 Years', Rosbalt, December, 2003.

Appendix 5
FOI-R--1561--SE

During a historic visit by the Saudi Arabian Crown Prince Abdullah in Russia, in September 2003, the two countries signed an oil co-operation accord, officially aimed at stabilizing the oil price. The combined weight of the two largest oil exporters in the world enabled them to exercise a predominant influence on global oil prices.[134] Other issues of common grounds between the two countries were the opposition towards U.S. policy in Middle East and nuclear technology, which would later become an international concern.

Russian interests in Iraq, following Saddam Hussein's downfall in 2003, were focused on two issues: the reimbursement of Iraq's Soviet era debts ($7-12 billion), and the Russian oil company's dominant position regarding leases of several Iraqi oilfields.[135] U.S. rejected the press from Russian officials to extract guarantees regarding the Saddam regime's contracts, thereby fuelling the Russian and Arab suspicions that the regime change was only a cover for an U.S. strategy to gain control over the Iraqi oil and gas reserves. Russia made considerable economical gains as the war in Iraq created higher prices on the oil market, an increase of about $5 per barrel between summer 2002 and spring 2003. A main concern in Russia was the risk of a considerable price crash on the oil market, following a stable situation in Iraq and the reappearance of Iraqi crude oil on the world market.

The divergence between U.S. and Russian security outlook constituted a large obstacle between the two countries regarding counter-proliferation activities. This was especially true regarding the U.S.-led Proliferation Security Initiative (PSI). PSI constituted a new operative strategy in combating proliferation by the interdiction of international land, sea and air transports, reasonably suspected to carry WMD-related material. PSI represents the U.S. foremost tool to halt the spread of WMD-related technology and know-how. In order to render PSI more effective and to extend its global outreach, the initiative needed Russian and Chinese support. Russia and China were outmost reluctant to support the initiative due to U.S. focus on states of concern, such as North Korea and Iran, during the launch of the PSI in May 2003.[136] However, as the U.S. and Russian joint declarations concerning the fight against proliferation came to be more linked towards the non-state aspect together with U.S. hints of a possible future business deal with Russia regarding storage of U.S. nuclear waste in Krasnoyarsk, the Russian attitude towards PSI changed and became more positive.[137] In late 2004 Russia joined PSI.

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134 'Saudi leader's visit to Russia brings key oil accord, closer ties', AFP, 4 September 2003.

135 David, V. and Nadejda, V. 'Axis of Oil?', Foreign Affairs, March/April 2003

136 Kerin, J. 'Russia Spurns Weapons Hunt Plan', The Australian, 14 October 2003.

137 'Russian Defence Minister Praises US Nonproliferation Initiative', Interfax-AVN, 7 April 2004.

Russia 2014 - The proliferators' goldmine

The situation in Russia 2014 resembles that of the mid 1990's when illegal trafficking of sensitive material was common across the Russian border. As blueprints of nuclear warheads and synthesis routes for chemical agents are easy to find for actors with WMD ambitions, the main element of proliferation activities from Russia are related to nuclear and missile technology and chemical precursors.

Eight years have passed since the assistance from West through the CTR programmes, on which Russian implementation of a comprehensive and effective export control system depended upon, was officially cancelled. The existing enforcement of export control in Russia is nothing but a bureaucratic façade, with no real implications for the exporters. Russian business entities in general are struggling under economic hardship to survive. This fact has resulted in several alleged transfers of illegal technology in the nuclear and missile field, where the Russian co-operation with Iran, Syria and Saudi Arabia have been criticized as fundamental breaches of the spirit of international treaties.

Despite Russian shortcomings in co-operating with the West through the CTR, Russia continued its political rhetoric in support of the international struggle against terrorism and proliferation of WMD. This was, however, viewed by the West as pure window dressing, realizing that the political commitment had no requirements to become implemented and enforced. Russian efforts to extract an invitation to become a member of the export control regime Australia Group were decisively discarded due to the Western countries' distrust towards Russia's apparent lack of control.

Russia's support of the U.S.-led PSI took an abrupt end in 2006 when large amounts of a precursor chemical for VX, bound for Tartus in Syria, were interdicted and confiscated by U.S. and Spanish Navy vessels in the Mediterranean. The incident sparked a political scandal on highest level, as the Russian Government alleged that the end-user represented a legitimate industry in Syria and demanded the U.S. to return the goods to its rightful owner in Syria.

The relations between the U.S. and Russia hit an all time low, since the end of the Cold War, when advanced Russian-made man portable air defence systems and laser guided anti-tank missiles were apprehended by U.S. forces after a raid against Sunni Muslim resistance fighters in the oil-rich areas of Iraq. The security situation in Iraq had improved, but terror attacks against oil and gas infrastructure in the North and the South continued and were frequently launched by well armed and co-ordinated insurgent groups. The U.S. accused Moscow for actively supporting these attacks in an effort to obstruct the introduction of Iraqi oil and gas on the international market, in response to U.S. annulment of the Russian oil company's exploration contracts with the former Iraqi government. Russian officials ridiculed the charges and Russian Ministry of Defence stated that it does not comment on crazy allegations.

Appendix 5
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The Iranian Bushehr nuclear power plant went operational in 2010, despite Israeli threats to target Bushehr with air strikes as it did against the Iraqi Osiraq reactor in 1981. Russian supply of nuclear fuel to Iran was made possible through an agreement between Iran, Russia and the International Atomic Energy Agency (IAEA), where IAEA monitors and administrates the exchange of spent Iranian fuel in exchange of new Russian fuel rods. There have been several unconfirmed intelligence reports of Iranian manipulation of the IAEA accounting which have led CIA, through Israeli support, to assess that Iran will have a nuclear warhead ready for deployment before 2015. The EU is divided concerning the American concern of the Bushehr issue. Since no substantive evidence can confirm the allegations of Iranian manipulation, the EU distances itself from the American threat assessments and supports IAEA.

Russia is emphasizing its right to conduct business in the nuclear area with any country with the means to finance the deal, and who have signed the Nuclear Proliferation Treaty and committed itself to IAEA's safe guard arrangements. The head of the Russian Federal Atomic Energy Agency officially committed Russia to sell a nuclear reactor to Syria, should Syria decide to make such an investment.

Through the U.S.-led investigation of the Pakistani Khan Research Laboratory's nuclear technology supply to Iran, Libya and North Korea, information regarding far-reaching negotiations, during 1999 through 2001, of nuclear technology transfers to Saudi Arabia were discovered. However, no actual transactions could be proved. Later the Saudi interest for nuclear technology would become apparent. After the monarchy in Saudi Arabia went in exile due to a massive revolt, led by a radical Islamist opposition leader in 2010, the new self-appointed government launched an increased investment of strategic weapon platforms through Russian and Chinese assistance. Saudi Arabia's new foreign policy has become more hostile towards the West and the Saudi relations with the Russian-Chinese axis have been enhanced. The oil prices have soared to new record levels, and a new oil crisis for the Western world is looming. Military parades in Saudi during 2013 reveal a large arsenal of middle and long range missiles, and German intelligence reports, based on Saudi refugees witnesses, reveal several illegal transfers of highly enriched uranium from Russia.

Biosecurity and proliferation

Background 2004

Deficiencies in the biosecurity area concerning biological agents has been discussed in Russia since about 1997, when it was declared that ”domestic sources of terrorism largely depend on the availability of relevant material” and “Russia will pose a serious threat both domestically and globally”.[138] Addressing the U.N. Assembly in September 2003, President Putin said that the possibility of terrorists getting hold of WMD is the most dangerous challenge of our time.[139] He recommended all the nations to take legal steps to prevent individuals from illegally obtaining, possessing, developing and using the weapons, means of their delivery, and attendant material for terrorist purpose. Russia also prepared a draft resolution for the Security Council in order to prevent WMD to fall into the hands of people liable to use them for terrorist purposes. The Russian draft resolution contained a set of concrete steps at national level, including effective border and export control, strict accounting and scoring procedures. Russias Deputy Foreign Minister later said in an interview with Itar-Tass that Russia and the U.S. have common strategic objectives in terms of non-proliferation regime.[140] He stressed that the “goals of non-proliferation have changed, and new types of reactions [to the new threats] are essential”.

The CTR-supported process to secure the former BW sites from intrusion and theft has been delayed due to the limited information on the location and security of sites that house collections of dangerous pathogens in Russia.[141] The security has been reviewed at a few sites and two former BW facilities, The State Research Centers for Virology and Biotechnology (Koltsovo) and Applied Microbiology (Obolensk), which harbour large strain collections, have been provided with fences, sensors, video surveillance systems and computerized inventory control systems. The U.S. intention has been to support the process to collect bacterial and viral strains at sites where the security has been improved.[142]

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[138] Katsva, M. 1997. Threat of chemical and biological terrorism in Russia. The Monitor 3, pp. 14-16.

[139] Kikilo, V. Russian step to prevent terrorists from getting MDW. ITAR-TASS News Agency ,23 October 2003.

[140] Pshenichikova, M. Russian diplomat says Russia, US sharing nonproliferation tasks. ITAR-TASS News Agency, 18 October 2003.

[141] U.S. General Accounting Office, March 2003. Weapons of Mass Destruction. Additional Russian Cooperation Needed to Facilitate U.S. Efforts to Improve Security at Russian Sites. URL <http://www.gao.gov/cgi-bin/getrpt?GAO-03-482>.

[142] Häggström, B., Å. Forsberg, and L. Norlander.. *Conversion of a Former Biological Weapon establishment. The State Research Center of Applied Microbiology in Obolensk*. FOI-R--1316--SE (FOI: Umeå, 2004)

Russia has improved the security concerning dangerous organisms and also genetically modified organisms (GMOs) by adjusting to global norms. Moreover, extraordinary efforts have been made in order to strengthen the national regulations concerning biosecurity and biosafety in Russia. These two words are common in the context of non-proliferation measures and measures for preventing bioterrorism. They differ fundamentally by definition, but are often used interchangeably. Biosecurity measures are introduced in order to prevent attempts to acquire BW capabilities, i.e. to limit the access to equipment, technologies and information concerning the development of CBW. Biosafety measures are aimed at reducing the risk for accidental infections or release of dangerous organisms. In Russia, the term biological security is used not only synonymously with biosecurity and biosafety, but also in discussions concerning deficiencies in the protection against bioterrorism, i.e. vaccines and means of identification.

Biosafety measures were introduced in 1997 when the Inter-Agency Committee on Problems of Genetic Engineering Activity was formed. The committee is permanent and has, as the Inter-Agency Committee on Biotechnology (formed in 2002), coordinating and recommendatory functions. The Ministry of Industry, Science and Technologies (MoIST) is responsible for biosafety problems including GMOs and their registration since 2001.[143] After the government restructuring in April 2004 this is the responsibility of the Ministry of Industry and Energy (MIE).

V.I. Yevstigneyev, former head of the medical services and first deputy general director of the joint stock company Biopreparat, reflects in a lecture 2003 the problems of ensuring biological security.[144] He refers to the fact that the Russian MoIST has recently worked jointly with the Russian Academies of Sciences and Medical Sciences, and other interested ministries and department to develop the Blueprint for Biological Security of Russia. The blueprint, which specifies the main directions of state policy on issues of concern, was reviewed and approved in the Biotechnology Committee. In December 2003 a policy document with the title *Foundations for the State's Policy Regarding the Biological and Chemical Security of the Russian Federation up till 2010 and Beyond* was adopted.[145] In the preamble it is stated that measures to guarantee biological and chemical security and safety are regarded as one of the most important areas in order to strengthen the national security of the Russian Federation.

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[143] URL<http://www.oecd.org/document/30/0,2340,en_26493_2509342_1_1_1_1,00.html>, 24 October 2003

[144] Lecture held in the course Regimen for Nonproliferation and Reduction of Weapons of Mass Destruction and Nationeal Security at the Center for the Study of Problems of Disarmament, Power Engineering, and Ecology of the Moscow Institute of Physics and Technology, March and April 2003

[145] Security Council of the Russian Federation, URL<http://www.scrf.gov.ru/Documents/Decree/2003/2194.html>.

Biotechnology and related technologies, such as gene technology, have been prioritised in various research fields. As part of the federal priority, the government decided in 2001 on regulations of the MoIST, subsequently MIE, on registration of GMOs.[146] These regulations are in agreement with those of other states.

In 2002 President Putin called for modernization of agriculture.[147] Russia was late in adopting the potential of the scientific achievements concerning gene modification in agriculture. The first genetically modified products were registered in Russia in November 2002.[148] This has been a drawback for Russia, which has great problems with low harvests of for instance potatoes due to attacks by the Colorado beetle. Genetically modified potatoes, i.e. resistant to the beetle, may resolve the problem. In 2003 Russia and the U.S. signed a special memorandum on co-operation in agriculture in which questions on biotechnologies, especially bioengineering, were discussed.[149] Bioengineering is also one part of a vast co-operation between Russia and China.[150] A Sino-Russian Science and Technology Center in the Liaoning province in northeast China is planned to be completed in 2005. The center plans to set up a Russian-Chinese science park in Russia in purpose to introduce Chinese high technology, practical technology and products to Russia.

Issues concerning safety of novel foods and their state registration are since the year 2000 handled by the Ministry of Health and the Ministry of Agriculture (MoA) has the responsibility for safety of novel feeds and their registration since 2002. The Advisory Council on Biosafety (under MoA) is responsible for risk assessments of novel feeds.

2014 - Future efforts for non-proliferation in Russia

In spite of the in 2006 withdrawn support from CTR, the security of the former BW sites is considerably improved in 2014. The Research Institute of Phytopathology (Golitsino) and the Pokrov Biologics Plant (Pokrov),[151] which previously were identified as security risks, are provided with fences, sensors, video surveillance systems and computerized inventory control systems similar to the institutes in Obolensk and Koltsovo. In 2010 the

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146 URL <http://www.oecd.org/document/30/0,2340,en_26493_2509342_1_1_1_1,00.html>, 24 October 2003

147 Putin calls for modernization of agriculture. BBC Monitoring Former Soviet Union. Russian Public TV, Moscow, 12 October 2002.

148 First genetically modified products registered in Russia. RosBusiness Consulting Database, 22 November 2002.

149 Ivanonva, V. Russia should not lag behind in plant biotechnology. ITAR-TASS News Agency 18 May 2003.

150 China, Russia launch new science co-operation project. Asia Pulse, Shenyang, 6 August 2003.

151 Warrick, J. Russia´s Poorly Guarded Past. Security Lacking at Facilities Used for Soviet Bioweapons Research. Washington Post, 17 June 2002.

sites are claimed to fulfil the requirements of biosecurity and the Russian president invites Western inspectors to these sites as well as to the formerly reviewed establishments to demonstrate the current high security. The measures are explained to be important parts of the on-going improvement of anti-terrorism protection. Plans for further measures on ensuring biological security at other Russian sites are presented and the invited experts notice with satisfaction that the Federal Interdepartemental Centres at Volgograd and Sergiev Posad are included. The activities at these two Ministry of Defence establishments are almost completely unknown and current Russian plans are interpreted to reflect a new and positive trend.

Colonel Vladmimir Maksimov, director of the Microbiology Research Institute in Sergiev Posad, is confident with the high security at the facilities subordinate to the Russian Defence Ministry.[152] He stresses that the systems of monitoring biological substances rules out the potential threat of BW being made by terrorist organisations: "Our institutes have enough means to rebuff any attempts to steal biological materials". In fact, as a consequence of the measures to secure sites harbouring dangerous pathogens the risk for proliferation of biological agents from strain libraries is later assessed to be lower in Russia than in the U.S. and in many of the Western European countries. The U.S. takes the main credit for the improved situation which is greatly acknowledged by the international community. The physical security is high at these sites and the information about the strain collections is limited to a small group of scientists with access rights. Unfortunately, there is also a very limited transparency of the fate of the viral and bacterial strains which were developed for use as BW. This includes the genetically engineered strains, for instance the bacterial strains harbouring multiple antibiotic resistance and strains modified in order to circumvent the immune response developed after vaccination. These strains are not included in any of the obligatory declarations to the federal organ responsible for registration of GMOs.

The development in biotechnology at Russian institutes and universities has further improved and the governmental support for the enhanced use of biotechnology in various areas continues. The Sino-Russian co-operation in technology which started in 2005 greatly improved the Russian scientific level in biotechnology and pharmacological industry. The introduction of biotechnology in the agricultural field was a successful step. Russia was late in introducing genetic engineering in agriculture and has now with satisfaction noticed increased harvests of crops and potatoes. The vast experience of the Chinese scientists promoted this development. The attitude to GMOs has successively changed in the Russian community and genetically modified foods are completely accepted in Russia in 2014.

In parallel to the successful development of various gene-modified plants in agriculture, the technology is used also in biopharming.[153] This is a research area, which has been

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[152] ITAR-TASS New Agency, Moscow 2004-04-29. Russian virologist on risks of using germs in terrorist acts.

[153] Biopharming is the production of drugs in genetic modified plants and animals.

massively supported by the Russian Ministry of Health. With reference to the commercial interest, there is no international co-operation in this field. In a Japanese international evaluation of biopharming made in 2012, Russia is placed as number two after the U.S.. The Russian pharmaceutical industry is reported to produce almost 12 % of their products in plants. The former kolkhozes appear to be splendid for large scale production of medical substances and they are even bought by international pharmacy industries, which prefer the cheap labour in Russia. Large deserted farmer areas are, however, excepted for sale by the Russian Ministry of Agriculture. International experts have indicated concern about the biopharming being a covered production capacity also for BW and CW substances. These accusations are repudiated by a spokesman for the Russian government, who claims that all issues concerning GMOs are openly discussed and formally handled in the Inter-Agency Committee on Biotechnology or the Inter-Agency Committee on Genetic Engineering Activity. Furthermore, all new GMOs are registered according to state regulations.

The new rules of certification of medicines which were introduced in 2002,[154] have been fully adopted. Russian drugs now have a quality comparable with the pharmacological products of the West and they are competitive and cheap alternatives for the international community. In 2013, Russia has a steadily increasing export of drugs to Asian countries. Due to the stretched relations between Russia and the West, the export of drugs to Western countries is limited.

In conclusion, Russia has further strengthened the controlling laws and rules in order to eliminate the risk for proliferation of technology or of agents that might be used as terrorist agents or BW agents. It is apparent that these biosecurity measures had a high priority and that the united efforts of various ministries and authorities have had a positive result. In spite of the discontinued international support, the security at several former BW sites has been improved. The process has, however, been slow and several sites are still of concern for Western analysts as the transparency is not complete. The two anti-terrorist centres, located in Sergiev Posad and at the Volgograd Antiplague institute, have not been included in the security measures ten years later as interpreted by the official records.

Various federal laws and regulations on GMO have been introduced and implemented. In parallel to the federal attempts to improve the control of activities including GMO, the use of trans-gene plants has increased and genetically modified products have been accepted by the Russian consumers. In 2014 Russia has, in spite of its slow implementation of biotechnology in agriculture, reached a leading position as one of the large producers in biopharming.

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[154] Bazhenova, A. Russia introduces new rules of certification of medicines. ITAR-TASS News Agency 2002-09-01.

Appendix 6
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Chemical weapons in Russia

Background 2004

The Russian Federation declared approximately 40 000 metric tons of "Category 1" chemical warfare agents to OPCW[155], the organisation responsible for the implementation of The Chemical Weapons Convention (CWC). This is the largest amount of CW declared by any of the six state parties (Russia, U.S., India, Albania, Libya and another state party) that have declared possession of modern CW.

To date, seven years after the entry into force of the CWC, only approximately 1,5% of the Russian stockpiles has been destroyed. The Russian efforts to demilitarise the stockpiles have been characterised by foot-dragging, under-financing and severe problems in the co-operation with foreign donors.

A state party to CWC have certain declaration obligations, including declarations on CW possession, CW destruction and relevant chemical industry. The CWC entered into force in April 1997 and a state party that have declared possession of CW is obligated to destroy them within a timeframe of ten years, with an possible extension of five years. Intermediate destruction deadlines exist within this timeframe. Russia has been granted several extensions of the intermediate deadlines and in October 2003 they received an extension, to April 2007, of the deadline to destroy 20 % of its category 1 CW and an extension "in principle" for the following deadlines.

Russia's declaration concerning CW possession stated that the country had seven stockpile sites. At two of these sites (Kambarka and Gorny) the stockpiles consist of "first generation" chemical agents that dates back to World War I (mustard gas and Lewisite) stored in bulk containers. At the sites at Pochep, Leonidovka and Maradykovskiy the stockpiles mainly contain nerve agents (sarin, soman and VX) in the form of aerial bombs and in Shchuchye and Kizner nerve agents in artillery ammunition and warheads. In total, approximately 80 % of the chemical agents contained in the stockpiles are different kinds of nerve agents.

The security systems at the CW storage and reprocessing facilities has been upgraded several times and theft of CW or agents from the storage sites are unlikely today without the help from insiders.[156] There is however still worries from the West that material from the stockpiles could find its way out on the "black market" by bribery of the low paid guarding personnel. No indications of this have, however, emerged up to date.

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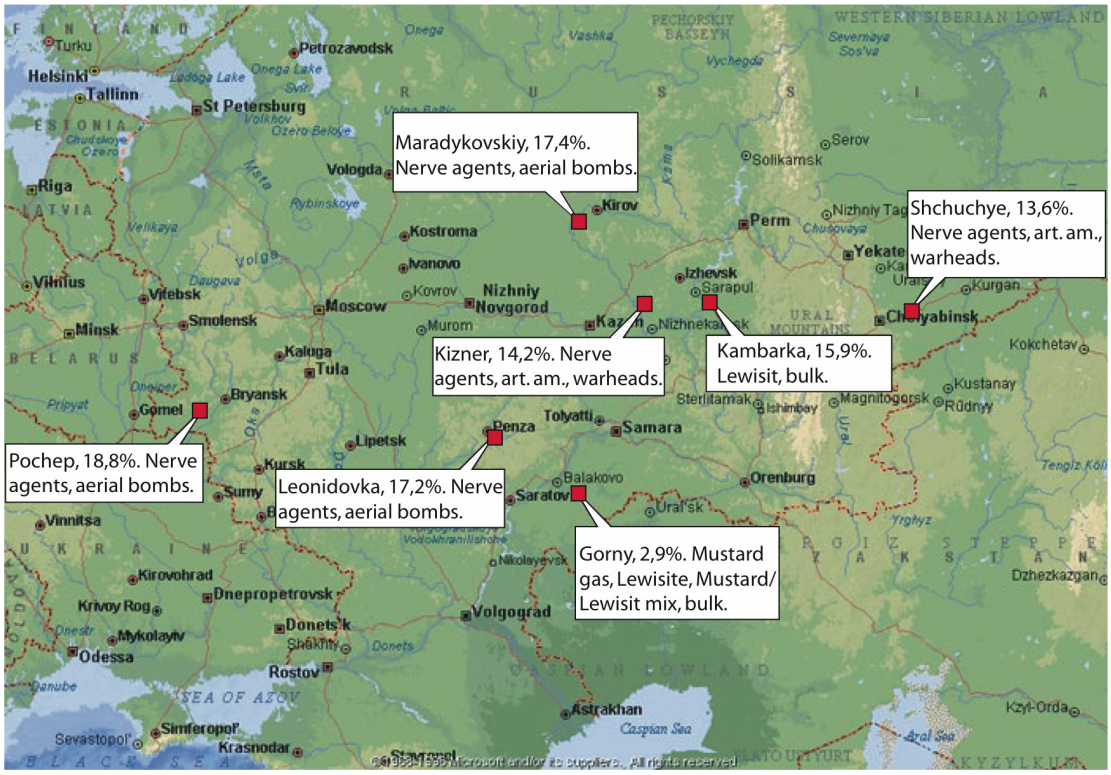
[155] The Organisation for Prohibition of Chemical Weapons, URL <http://www.opcw.org>

[156] Russian Chemical Weapons Secure From Theft – Official, *BBC Monitoring Former Soviet Union*, 26 April 2004, (Source: RIA news agency, Moscow, in Russian 1037 gmt 26 Apr 2004).



Picture 1. Overview map showing the seven Russian CW stockpile sites. As seen on the map, two stockpiles contain vesicant agents (mustard gas and Lewisite) while the remaining five contains nerve agents. Nerve agents make up approximately 80% of the stockpiles of total 40 000 tons.

Russia did originally plan for destruction of its CW at the respective storage sites. Due to the economic reality the plans have changed over time and today full-scale destruction facilities are planned at three sites (Gorny, Kambarka and Shchuchye), according to available information. The material stored in Kizner will be transported by train to Shchuchye for destruction. Finally, so called neutralization facilities will be built at the three remaining sites (Pochep, Leonidovka and Maradykovskiy). The output from these facilities, sometimes referred to as "reaction masses", can be described as a much less toxic, compared to nerve agents, intermediate destruction product that have to be further processed. Some controversy exists over the output from the neutralization facilities. Russia sometimes states that this output should be regarded as the "end point of destruction" and that the reaction masses should not be considered as CW agents. This position is strongly criticised from some other state parties to the CWC. It should be mentioned that the destruction plans have been changed several times and the plan described above can be subject to changes.

In the beginning of 2004 only one destruction facility, at Gorny, was fully functional and Russia had processed around 600 tons of chemical agents. Construction work was still going on, with foreign support, at the Kambarka and Shchuchye sites, both which was scheduled for operation in 2005. The three facilities Pochep, Leonidovka and Maradykovskiy were planned for operation in 2006 but, with the exception of Pochep, lacked strong foreign economical support.

In October 2002 Russian Special Forces dispersed chemical substance in a theatre in Moscow with the aim of freeing the some 800 hostages taken by well-armed Chechen rebels. Some of the rebels had wrapped themselves with explosives that they threatened to detonate and thereby killing the hostage. The drama ended with over 120 of the hostages dead, mainly from the action of the chemical substance. The chemical agent was later identified as an opiate derivate related to de medical substance fentanyl. The Russian authorities were criticised for not informing the rescue personnel which chemical substances that had been used and thereby hamper an effective treatment of the wounded.

The use of chemical agents in domestic police operations, such as the use of tear gas for riot control purposes, is not banned by the CWC and Russia did not receive any heavy international criticism for the use of incapacitants at the hostage incident. It is however not legal to use this kind of substances in war. The reawakened interest in some countries in the World of the development of "non-lethal" chemical agents, such as incapacitants, has in been met with worries from several experts.

Status 2014

The countries that donated money to the Russian destruction programme for CW showed an increasing irritation over the slow pace in the programme. The continuing Russian decision to channel large amount of the money into so called "infrastructural projects", not directly connected to the actual destruction process, was one of the major points of criticism, together with the unconstructive co-operation efforts from the responsible Russian authorities. The U.S. problems to fulfil the stipulated destruction timelines, mostly depending on a concerned domestic environmental movement but also some financial and structural obstacles, did buy the Russians some time and kept them somewhat away from international criticism.

The unwillingness by the international community to take a large overall responsibility for some of the destruction sites did also hamper the co-operation between Russia and the donors. The reorganisation of the Russian authorities, responsible for coordination of the destruction programme, did improve the situation and made Russia somewhat prepared for the immense pressure from the West, after the Chechen attack at the G8 summit 2006, to demilitarise the remaining stockpiles. Furthermore, the theft of five VX-filled aerial bombs from Leonidovka in 2009 further added to Russia's, and the international communities, willingness to complete the destruction process.[157] Russia finally managed to meet the 100% destruction deadline in February 2012.

Russia is still publishing research papers in the scientific areas close to nerve agents. Some experts around the world see this as a sign of a continuing Russian effort to develop new or refined traditional CW agents.

[157] See chapter 3.4, Chechnya, for further information on the incident.

A much more worrisome sign of a Russian continuing interest in CW has, however, emerged during recent years. The somewhat successful use of incapacitants in the hostage situation in Moscow back in 2002 spurred a domestic development of this kind of substances.

After further development and fine-tuning in choosing and using “non-lethal” agents, incapacitants were dispersed at several hostage situations in 2007 and 2009. Russia has also trained and coordinated specialised medical preparedness teams that follow the Special Forces in the situations where incapacitants are used.

The development efforts were further intensified after the Israeli decision to abandon its domestic research programme on “non-lethal” CW in 2010, a decision that was taken after the theft of 1,1 tons of a still unknown “non-lethal” chemical substance in the occupied West Bank. The use of this substance by Palestinian and Saudi extremists in Haifa later that year killed over 160 persons and left over 60 000 homeless after they had to abandon their contaminated homes for over two weeks.

As a consequence of this “incident” the section of the, in part, U.S.-sponsored Israeli non-lethal programme that dealt with chemical substances was secretly “outsourced” to a few specialised Russian research contractors. Backed by money from the U.S. and Israeli military sector, several new and very potent agents have been developed and tested in Russia. This development has made Russia the world leading authority on the use of incapacitants and other non-lethal chemical agents. Several, more or less confirmed, reports of alleged use of incapacitants have also emerged from the few NGOs that still try to conduct work in the Caucasus.

Unfortunately, even with the tightened security surrounding this kind of agents that was imposed after the release in Israel in 2010, some substances still have found there way into the “black market” and are used increasingly in criminal activity, foremost by the so called “Russian Mafia”. At the infamous “Chem Robbery” in Kiev in the spring of 2012, twelve Ukrainian robbers successfully emptied a newly established Japanese bank after the release of a combination of vomiting and incapacitating agents that left over forty bank employees to die by suffocation. The chemicals used were most likely stolen in Russia and not produced by the criminals themselves. Several governments have also voiced concerns over the possibility that Russian developed non-lethal chemical agent could fall in the hands of various terrorist organisations. Fortunately, no such case has yet emerged.

The two events described above, and several additional minor incidents, have led to the consequence that the international tolerance of “non-lethal” CW, even for domestic law enforcement purposes, has changed dramatically during the last two to three years.

Abbreviations

BW	Biological weapons
BTWC	The Biological Weapons and Toxin Convention
CBW	Chemical and biological weapons
CTR	Cooperative Threat Reduction
CW	Chemical weapons
CWC	The Chemical Weapons Convention
FSB	Federal security service
GMO	Genetically modified organism
G8	The group of eighth (UK, USA, Canada, France, Germany, Japan, Italy och Russia. The European commission is also represented in G8)
IAEA	International Atomic Energy Agency
ISTC	International Science and Technology Center
MIE	Ministry of Industry and Energy
MoIST	The Ministry of Industry, Science and Technologies
NGO	Non-governmental organisations
OPCW	Organisation for the Prohibition of Chemical Weapons
PSI	Proliferation Security Initiative
R&D	Research and development
WMD	Weapons of mass destruction