



PILOT PROJECT

**STRENGTHENING EUROPEAN ACTION ON
WMD NON-PROLIFERATION AND DISARMAMENT:
HOW CAN EUROPEAN COMMUNITY
INSTRUMENTS CONTRIBUTE?**

Interim report

Stockholm, November 2005

NOTE

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TABLE OF CONTENTS

	Page
Preface	iii
Executive summary	iv
The Pilot Project: Objectives and methodology	1
Pilot Project objectives	1
The European context for non-proliferation and disarmament assistance	2
International non-proliferation and disarmament assistance	4
The Community budget in regard to non-proliferation and disarmament assistance	4
Proposed changes to the financial instruments used to implement the budget	5
The use of the Community budget to support INDA programmes	7
The use of the Common Foreign and Security Policy budget to support the implementation of the WMD Strategy	7
The threat to the EU from proliferation of CBRN weapons and materials	8
A modern understanding of non-proliferation	10
The nature, availability and consequences of CBRN materials and technologies	10
Meeting the challenges to Europe from the proliferation of chemical, biological, radiological and nuclear weapons	14
The case for expanding European contributions to international non-proliferation and disarmament assistance	14
Setting priorities for the WMD Strategy	15
Recommendations	17
Criteria for selecting recommendations	18
Recommendations	
1. Significantly expand the European Union INDA programme	19
2. Recommendations in the field of nuclear security	19
Halting nuclear material production	19
Recommendation for a specific project: Support the closure of the plutonium production reactor at Zheleznogorsk in the Russian Federation by financing the provision of an alternative source of energy for the local community	20
Strengthening the physical security of HEU and plutonium	21
Recommendation for a specific project: Develop an integrated nuclear security assistance programme to improve nuclear material accountancy and control and to strengthen nuclear safeguards	22
Consolidating HEU and reducing stockpiles	22
Recommendation for a specific project to support HEU consolidation: Support the development of nuclear research ‘centres of excellence’	23
3. Recommendations in the field of radiological source security	23
Recommendation for a specific project: Establish a radiological source security programme	25

4. Recommendations in the field of biological weapons	26
Recommendation for a specific project: Define the concept of biological proliferation prevention	27
5. Recommendations in the field of chemical weapons	28
Destruction of chemical weapons in Russia	28
Recommendation for specific project: Contribute to the construction of a CWDF at Kizner in the Russian Federation	31
Assisting implementation of the Chemical Weapons Convention	31
Recommendation for a specific project: Assist the OPCW in the development of CWC national implementation measures	32
6. Recommendations in the field of export control and border management assistance	33
Recommendation for a specific programme: Establish an EU export control assistance programme	36
7. Recommendations in the field of international science centres	37
8. Recommendations in the field of peaceful use of scientific potential	39
Recommendation for a specific project: Support the implementation of UN Security Council Resolution 1540	41
Recommendation for a specific project: Initiate a dialogue on an ethical code of conduct for scientists and businessmen	42
Table 1. Summary of financial costs of a recommended programme to support the EU WMD strategy using Community instruments	ix
Table 2. Framework outline of types of CW destruction assistance project	30

PREFACE

This study was initiated in 2003 when the European Parliament asked the Commission to carry out a Pilot Project examining the issues of weapons of mass destruction (WMD) and small arms and light weapons (SALW), the latter including an analysis of issues related to explosive remnants of war (ERW). The Commission contracted the United Nations Institute for Disarmament Research (UNIDIR) to provide a comprehensive overview and research on these issues on 13 October 2004. On that basis, UNIDIR launched a research project in partnership with the Stockholm International Peace Research Institute (SIPRI) and the International Security Information Service (ISIS-Europe) to carry out both actions. This report presents the results of the research into the issues of WMD. Along with the report containing results of the research into the issues of small arms, light weapons and explosive remnants of war, it will be debated at a conference organized by ISIS-Europe in Brussels on 7–8 December 2005.

SIPRI is an independent international institute for research into problems of peace and conflict, especially those of arms control and disarmament. It was established in 1966 to commemorate Sweden's 150 years of unbroken peace. The Institute is financed mainly by annual grants from the Swedish Government, after approval by the Parliament.

SIPRI's organization comprises a Governing Board, Director, Deputy Director, Research Staff Collegium and support staff. An Advisory Committee serves as a consultative body to the Institute. The Governing Board takes decisions on important matters concerning the research agenda, activities, organization and financial administration of the Institute. Other matters are decided by the Director.

Research is conducted at SIPRI by an international staff of about 25 researchers and research assistants representing various academic disciplines. Located in Stockholm, Sweden, the Institute offers a unique platform for researchers from different countries to work in close cooperation. It also hosts guest researchers who work on issues related to the SIPRI research programme. Although SIPRI is not a teaching institute, it receives interns whose programmes of study can contribute to and benefit from SIPRI's research. Contacts are maintained with other research centres and individual researchers throughout the world. SIPRI cooperates closely with several intergovernmental organizations, notably the United Nations, and regularly receives parliamentary, scientific and government delegations as well as visiting researchers. Frequent contacts are maintained with diplomatic missions in Stockholm and with Swedish research centres.

Responsibility for the studies and the recommendations that are the outcome of the research lies solely with SIPRI, which implemented the project. SIPRI would, however, like to thank the organizations and individuals that contributed background papers to this research:

the Royal Institute for International Affairs (RIIA, Chatham House), the Norwegian Institute for International Affairs (NUPI), the Landau Network – Centro Volta, and FirstWatch International. The individuals that contributed to the project in their private capacity are Paul Cornish, Aline Dewaele and Roger Roffey.

SIPRI would also like to thank those advisers, reviewers, individuals from the European Commission, the European Council, officials from the European Union Member States, members of the European Parliament and officials from Canada, Japan and the United States for their time and useful comments.

SIPRI would like to give particular thanks to Marc Deffrennes, without whom this project would have been impossible. Marc presents the best face of the European Commission to the public through his diligence, knowledge, generosity and in particular a determination that the European Union serves its citizens best when it tries to solve important problems.

EXECUTIVE SUMMARY

In the early 1990s, there was a serious risk that the massive military capacity built up by the Soviet Union would spread in an uncontrolled manner to other states and to non-state actors. European leaders applied a variety of the instruments at their disposal in an innovative and flexible way to help address a critical threat to Europe.

The risk of proliferation is still seen as a security threat to Europe. While there was no European Union (EU) when the Soviet Union broke apart, today it is the EU that must drive the European response to this challenge. In decisions taken at the highest political level the EU has established that the fight against proliferation of weapons of mass destruction (WMD) is one of its highest foreign and security policy objectives.

In the space of eight months in 2003 the Council generated a considerable momentum behind an ambitious programme to combat the proliferation of WMD. Now, European leaders must show that they are no less flexible, creative and effective than their predecessors if this momentum is to be sustained.

The term ‘proliferation’ has been taken to mean the process by which the armed forces of states come into possession of or gain the ability to use chemical, biological, radiological or nuclear (CBRN) weapons. This understanding reflected concern about the use of such weapons in conflicts between states or between alliances of states.

In its documents the EU has taken a more modern and nuanced view of what proliferation is and how it needs to be fought. The EU not only takes into account the threat from weapons but underlines the risk associated with the acquisition of CBRN goods and materials by non-state actors intending to use them in acts of mass-impact terrorism. This modern definition must be reflected in the activities carried out to achieve EU non-proliferation objectives.

By making ‘effective multilateralism’ the main pillar in its Strategy against Proliferation of Weapons of Mass Destruction the EU has pointed to the need for a complex response to a complex problem. Multilateral treaties and conventions provide an essential normative framework for cooperation, but they need to be supplemented with a wide range of other instruments if their objectives are to be achieved.

After the end of the cold war many programmes have developed to provide financial, economic and technical assistance to states (in the first instance the Russian Federation) that lack the means to implement shared disarmament, non-proliferation and counter-terrorism objectives. Practical assistance measures have been jointly implemented on the territory of one state by a coalition of parties that may include states, international organizations, local and regional government, non-governmental organizations and the private sector.

International non-proliferation and disarmament assistance (INDA) differs from the traditional approach to arms control, which depends on each state that is party to a treaty or an agreement implementing in good faith and *at its own initiative and expense* obligations codified in that particular document.

The Pilot Project has carried out a comprehensive survey of international non-proliferation and disarmament assistance with a view to evaluating the European contribution to the overall global INDA activities, evaluating the effectiveness of past and current EU activities in this area and analysing the opportunities for future action.

The EU has the financial resources, project management skills and technical expertise to make a very significant contribution to international non-proliferation and disarmament assistance efforts.

The EU has used INDA as one element of its fight against proliferation but has not by any means fully exploited the possible applications of this approach in the light of its capacity to act. When it comes to addressing WMD issues the EU is a relative newcomer, and there is a strong case for a very significant expansion in European Union INDA activities. There is a need for the EU response to be well conceived, well coordinated and able to command adequate resources in this, as in other, parts of the overall implementation of the WMD Strategy.

The findings of this report suggest that the total cost of supporting the recommendations made here for an INDA programme would be roughly €930 million spread over the period 2007–13. The basis for this finding is discussed further below. Identifying the ways and means by which the individual activities that make up an expanded, integrated EU INDA programme will be financed must be one element of that programme. There is an urgent need to develop a mechanism by which all of the relevant instruments within the EU budget to finance all activities regarding WMD issues—irrespective of whether they fall within the Community or the Common Foreign and Security Policy framework—can be combined to combat the challenge of contemporary forms of WMD proliferation in an effective manner.

Some of the activities recommended are single, one-off actions. Others require planned and systematic multi-year implementation. By definition INDA activities involve working with partners. To be effective, the instruments that are used to implement the recommendations must accommodate the delivery of financing to the full range of partners that need to be engaged.

THE CONTRIBUTION THAT COMMUNITY INSTRUMENTS COULD MAKE TO SUPPORT THE EU WMD STRATEGY

STRENGTHEN NUCLEAR SECURITY

There is an urgent need to strengthen nuclear security in order to ensure that nuclear materials will neither contribute to nuclear weapon proliferation nor fall into the hands of non-state actors that could use them in an act of nuclear terrorism. In future a number of countries, in particular in Asia, will expand their civilian nuclear industries. Nuclear security will become a more pressing issue as the number of locations where proliferation-sensitive materials are located grows.

The European Union should play an important role in strengthening global nuclear security. The strategy for nuclear security building should include three pillars:

- Worldwide stocks of the most sensitive materials—highly enriched uranium (HEU) and plutonium—must be identified and made physically secure.
- Civil material stocks and military stocks no longer required for weapons should be put beyond use in nuclear weapons or nuclear explosive devices.
- The production of new HEU and plutonium should not contribute to any nuclear weapon stockpiles.

Nuclear material accountancy and control is a key part of identifying and securing nuclear material stocks. The EU has the knowledge and experience to assist regulators to develop an effective state system of accountancy and control, including the regulations on which the system is based and to help build the human capacities needed to implement regulations. The EU has experience of developing methodologies and equipment for nuclear material accountancy and control. Existing efforts in these areas should continue and the geographical scope of their application should be widened beyond the former Soviet Union (FSU).

A number of programmes have been launched to place nuclear materials beyond use in nuclear weapons or nuclear explosive devices. Programmes include ‘blending down’ HEU to levels of enrichment that make the material unusable in a nuclear weapon unless the expensive and technically challenging task of enrichment is undertaken. Closing down or converting reactors that use HEU fuel to use low enriched uranium fuel are an integral part of reducing the demand for

HEU. Equipment at research centres represent a significant part of the demand for HEU fuel, and many tonnes of HEU are stored at such facilities either as fresh fuel awaiting use or in spent fuel unloaded from research reactors as well as critical and sub-critical assemblies.

To contribute to putting nuclear materials beyond use the European Union should support the conversion and closure of reactors that use HEU as fuel. The International Atomic Energy Agency (IAEA) has underlined that the security of research reactors and their associated facilities is of increasing international concern. In the context of the IAEA's comprehensive approach to addressing nuclear security issues, the IAEA has developed an integrated plan for enhancing the security of research reactors and their associated facilities.

The plan includes risk reduction work related to fuel and decommissioning. The creation of nuclear research 'centres of excellence' can help consolidate research at a smaller number of more secure facilities in which modern techniques minimize the use of HEU. To the extent that nuclear research centres of excellence involve staff from different countries and provide support to international projects, they could form part of a wider tendency towards multinational control over sensitive parts of the nuclear fuel cycle.

While the IAEA is a critical element of the effort to strengthen nuclear security worldwide, there is not a secure financial basis for its work in this area. The Agency has established a Nuclear Security Fund to support its programme to strengthen nuclear security. This Fund receives donations from states and other donors and it is not possible to predict over the medium term how much money will be provided. The EU should put the Nuclear Security Fund on a secure financial footing by making a contribution of €100 million over the next budget cycle. This would allow the IAEA to carry out its programme in the most systematic and efficient manner.

Nuclear security programmes also include plans to manufacture plutonium into a 'mixed oxide' reactor fuel, meaning that it could not be put to weapons use without expensive and technically challenging chemical reprocessing to recover the plutonium from highly radioactive spent fuel. However, the future of these programmes is uncertain and no recommendation to provide financial support to them is included.

Three reactors in Russia that were built in order to produce plutonium for use in nuclear weapons continue to operate and produce 1.2 tonnes of plutonium each year. The Russian Government would like to shut down and decommission these reactors but has been unable to do so as they provide electricity to surrounding civilian populations. Together with the United States, the Russian Government has created a programme to build alternative sources of electricity, which would permit the shutting down of the reactors. The United States has agreed to pay the full costs of shutting two of them. The Netherlands and the United Kingdom (UK) have agreed to contribute to closing down the third and final reactor. However, this programme is not yet fully financed. The European Union should close the financial gap in the programme by contributing €150 million either by joining the programme or by supplementing financing already being provided by a Member State. This would guarantee an end to the production of large quantities of weapons-grade plutonium, which will otherwise have to be monitored and protected. The programme will directly reduce the nuclear weapons establishment of a nuclear weapons state, thereby supporting the Nuclear Non-Proliferation Treaty (NPT). The EU is working for a treaty prohibiting the production of fissile materials for use in nuclear weapons. Closing a facility that was built for the express purpose of producing such material would be a practical contribution paving the way for a fissile material cut-off treaty.

SUPPORT THE CHEMICAL WEAPONS CONVENTION (CWC)

The Chemical Weapons Convention is the only multilateral disarmament treaty with an extensive verification system and is a critical test of effective multilateralism. The success of the CWC would demonstrate that multilateral efforts can eliminate an entire class of weapons. The successful implementation of the CWC requires the destruction of existing chemical weapon (CW) stockpiles. It also requires all States Parties, including those that do not have chemical weapons,

to put in place the relevant national implementing measures. The success of the CWC will only be guaranteed when all states are parties to it.

Destroying chemical weapons

There is an opportunity to accelerate the destruction of the very large stockpile of chemical weapons in Russia. The Russian Government, which regards CW destruction as a high political priority, has almost put in place plans for a significant expansion in the destruction infrastructure.

At one site in Russia, at Kizner, there is a plan to build a CW destruction facility to destroy small munitions filled with organophosphorus nerve agents. The European Union should not miss the opportunity to eliminate small chemical munitions which, because of their size and the way in which they have been stored pending destruction, represent a significant proliferation threat. The UK has all the legal and administrative arrangements in place to facilitate CW destruction assistance to Russia and already supports a public outreach effort at Kizner to help inform the local population about the process of CW destruction. No other EU assistance has been earmarked to support this destruction plan.

The European Union should contribute €100 million to help finance infrastructure that is needed at Kizner. This support, which would not involve direct participation in the destruction process but would be a key element in carrying out the overall destruction as quickly as possible, could be provided using the UK as the implementing authority.

Supporting the implementation of the Chemical Weapons Convention

The CWC obliges States Parties that do not possess chemical weapons to ensure that they do not assist chemical weapon programmes in other states. Analyses by the Technical Secretariat of the Organisation for the Prohibition of Chemical Weapons (OPCW) have revealed that many countries have not taken adequate measures in this regard. The European Union has provided financial assistance to the OPCW to help it assist States Parties implement the CWC and to conduct outreach to non-States Parties in order to achieve universal participation. This support should be continued at the same level and put on a stable financial basis for the duration of the next Community budget cycle.

PREVENT THE PROLIFERATION OF BIOLOGICAL WEAPONS

Of all the functional areas under consideration, that related to biological weapons (BW) is the one in greatest need of re-evaluation and reconceptualization. By the time the Biological and Toxin Weapons Convention (BTWC) was opened for signature in 1972, most of the countries that had developed BW had already come to the judgement that these weapons offered too little by way of capability on the battlefield or in deterrence to justify their retention.

In 1992 Russia admitted a delay in BTWC implementation by the former USSR that has been called by analysts a 'gross' violation of the treaty over an extended period. In spite of the massive intelligence capability devoted to monitoring the Soviet Union this violation had not been confirmed until 1989. Other countries usually mentioned as actively seeking biological weapons at that time and since include Cuba, Iran, Israel, Libya, North Korea, Sudan and Syria. However, the information about these programmes is unconfirmed and, in cases, contradictory.

It has not been possible to achieve effective implementation of the BTWC and there is no list of countries agreed to be non-compliant. With the end of the activities in Iraq there are no ongoing BW disarmament efforts. The Russian Government refuses to discuss past Soviet programmes.

In the 1990s attention also began to focus on the threat from the deliberate use of disease by non-state actors (either groups or single individuals) to commit acts of mass-impact terrorism.

In this context discussions of ‘bioterrorism’ (including those in the EU) no longer talk of biological weapons but of biological agents that might be used in attacks. However, separating the discussion from weapons brings into question the meaning of non-proliferation, as traditionally defined, in this new context and there is no conceptual clarity about the scope of the problem of bioterrorism itself.

A number of ‘leading edge’ processes in the life sciences (such as gene manipulation) are being explored in order to improve life for people around the world. However, the same technologies that could allow new vaccines and medical nano-machines to be developed also carry a potential risk of misuse. There is currently no international framework for regulating security-related aspects of the biotechnology industry.

In the absence of reasonably clear answers to the questions ‘what is the contemporary definition of a biological weapon’ and ‘what is the proliferation of biological weapons in current conditions’, a coherent and comprehensive set of practical initiatives cannot be prepared in this functional area.

To address the potential risk of bioterrorism it is first necessary to understand the nature of contemporary biological proliferation concerns. Trying to implement practical measures in the absence of a clear understanding of the problem being addressed carries the risk that resources will be wasted. In the short term the European Union should try to clarify the security problems that need to be solved. This can be the basis for future actions.

STRENGTHEN EXPORT CONTROL AND BORDER SECURITY MANAGEMENT

Whereas most forms of arms control try to control or reduce arms that have already been built and deployed, an important feature of export controls is their preventive character. Effective export controls are an important barrier to the acquisition of the materials, equipment and technology that states need to acquire WMD and missile delivery systems for them. United Nations Security Council Resolution 1540 has created a mandatory requirement for states to put in place modern and effective export controls. However, information collected by the United Nations in the context of Resolution 1540 indicates that many countries must strengthen their export controls in order to make them effective.

The European Union, which has a common legal basis for dual-use export controls that was established in Council Regulation 1334/2000, has worked to strengthen the effectiveness of European export controls. This process is ongoing. Recently, European countries have conducted outreach in different countries and regions to try and persuade others to do the same.

The European Union should create an export control outreach and assistance capacity that would be sufficient to assist a wider range of countries strengthen their national export controls. The capacity should be sufficient to provide assistance in countries around the periphery of the enlarged EU and in countries that are further away but regarded as a high non-proliferation priority by the EU. This capacity should be a well-planned, integrated and adequately resourced programme conducted in close cooperation with the other main providers of export control assistance—the United States and Japan.

Border security management is an important element of non-proliferation. Border management should include a security assessment of outbound goods (as an element of strengthening export controls) and inbound goods (as an element of threat reduction).

The European Union has been providing assistance to states to strengthen their border management for a number of years and has a well-resourced and well-organized border management assistance programme. However, this programme does not have any component tailored to the threat of illicit trafficking in proliferation-sensitive items. The EU should create a module within its existing border management assistance programme dedicated to strengthening WMD-

related border security. This should be closely integrated with the export control assistance programme.

PREVENT THE MISAPPLICATION OF SCIENTIFIC KNOWLEDGE

The massive military infrastructure that the Soviet Union developed over several decades was built by a very large number of scientists and engineers. The exact number is not known but has been credibly estimated in the range of 250,000, of whom 30–70,000 were senior scientists and engineers. A subset (of unknown size) among these senior personnel would have worked on ways to develop and perfect nuclear, biological and chemical weapons. There is a non-proliferation imperative to know where these people are and what they are doing. In the 1990s international science centres were established in Moscow and Kyiv to help manage this legacy of the cold war. The European Union has made an important financial contribution to supporting these science centres and should continue to do so.

Around the world there are many scientists and engineers who have not been employed in programmes to develop WMD but nevertheless have knowledge and skills that could be applied in this way. This could happen deliberately, when what appear to be legitimate, civilian scientific activities are used as a cover for the development of agents for use in mass-impact terrorist attacks. However, given the rapid pace of technology development in certain fields of biology, chemistry and bio-chemistry, the misapplication of individual skills might also be unwitting if industry and the research community carry out work with too little information about the possible applications and about the activities and intentions of their customers.

The European Union should support a programme to engage this scientific community and sensitize it to the need to ensure that their skills are not misapplied.

Table 1. Summary of financial costs of a recommended programme to support the EU WMD strategy using Community instruments

Functional Area	Million euros
Nuclear security	
Support to closing plutonium production reactors	150
Support to the IAEA Nuclear Security Fund	100
Support the consolidation of nuclear materials and their elimination	14
Support nuclear material accountancy and control	70
Convene regular meetings to address the threat posed by high activity radiological sources	2
Biological weapon proliferation prevention	14
Strengthening the Chemical Weapons Convention	
Support to a chemical weapon destruction facility at Kizner	100
Support to the OPCW	14
Export control assistance and strengthening border security management	
Delivery of assistance	252
Training of EU programme staff	21
Support to international science centres	175
Preventing the misapplication of scientific knowledge	21
Total	933

THE PILOT PROJECT

On 12 December 2003 the European Council adopted its Strategy against Proliferation of Weapons of Mass Destruction (WMD) (hereafter ‘the WMD Strategy’). The WMD Strategy specifically mentions reinforcing cooperative threat reduction programmes with other countries by increasing funding in the light of the financial perspectives beyond 2006. The WMD Strategy indicates that a specific budget line for non-proliferation and disarmament of WMD should be envisaged as part of the general budget of the European Communities (hereafter Community budget).

At the end of 2003 the European Parliament proposed financing a Pilot Project to ‘investigate measures by which the EC instruments can support and reinforce CFSP actions against the proliferation of WMD’. The results from that study would inform future activities. As one part of the foundation for future action to foster the reduction of the threat of nuclear, biological and chemical (NBC) weapons, the Commission contracted UNIDIR to perform a Pilot Project to provide independent recommendations for possible Community funded programmes, to come in support to Common Foreign and Security Policy (CFSP) actions against the proliferation of weapons of mass destruction within the framework of the WMD Strategy. UNIDIR in turn subcontracted this task to SIPRI.

The work carried out by SIPRI has been guided by terms of reference that form part of the contract governing the project. The studies and recommendations that are the outcome of the research are intended to provide supporting material to future decisions in the Union framework. The main target of the findings is therefore the decision makers responsible for determining the size, contents and structure of the Community contribution to non-proliferation and disarmament assistance in the budget cycle 2007–13.

The main activities carried out during the project were the following:

- defining and evaluating threats;
- reviewing cooperative threat reduction programmes to establish a clear picture of what programmes already exist within the European Union (EU) (including Member States’ bilateral programmes, collective actions by Member States and activities carried out by or in cooperation with the Commission) and programmes undertaken by non-EU countries;
- evaluating areas of cooperation where an EU contribution might be made;
- determining the financial requirements for such contributions;
- proposing specific projects;
- organizing and convening meetings and workshops, as appropriate, to discuss the findings and proposals with officials, representatives of specialized agencies, and experts; and
- taking responsibility for the organization of a conference to present project results to experts of the Commission, the European Parliament and the Member States.

In addition, a practical field validation project will be performed during 2006 on strengthening dual-use export control in the Western Balkans.

PILOT PROJECT OBJECTIVES

- To support the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction by helping decision makers to make a well-informed judgement on whether to establish a dedicated programme and financing to support EU cooperative threat reduction.
- To help to provide the European Union with the capacity needed to take robust, timely action in view of the budget cycle timing.
- To investigate the potential for future development of Community actions based on identified gaps and priority areas that complement and strengthen Member States’ activities and actions under the CFSP.

THE EUROPEAN CONTEXT FOR NON-PROLIFERATION AND DISARMAMENT ASSISTANCE

In the course of the year 2003 the EU generated a considerable momentum behind an ambitious programme to combat the proliferation of WMD. In the space of eight months during that year the EU was able to forge a common policy in the field of non-proliferation of WMD that is multifaceted and holistic.

The adoption of this policy is proof that the EU and its Member States are capable of finding common ground on one of the most important issues of the contemporary security agenda. This was also a powerful signal to other states around the world that they can expect the EU to act in a coherent manner in regard to non-proliferation and to accord this issue its due place in the handling of both bilateral and regional relationships. The advent of a common policy generates greater expectations of the EU in the minds of non-members.

The EU gave a much higher political profile to the issue of non-proliferation of weapons of mass destruction after the then Swedish Minister for Foreign Affairs, Anna Lindh, called for a new strategy to combat WMD in April 2003, a proposal that was actively promoted by the Greek EU presidency and endorsed by the EU in April 2003.

The proposition advanced by Lindh was that the EU could take the lead in the global effort to reduce the threat of WMD by working with like-minded countries in other parts of the world on a practical agenda. The 14–15 April General Affairs and External Relations Council (GAERC) accepted this idea and tasked the Council Secretariat to produce a draft document outlining the EU's strategic aims in the field of non-proliferation of WMD.

In June 2003, the EU High Representative for the Common Foreign and Security Policy, Javier Solana, presented the elements of a European Security Strategy (ESS) in his document *A Secure Europe in a Better World*. In a final and revised version of that document, adopted in December 2003, the proliferation of WMD is described as 'potentially the greatest threat to our society'.

In June 2003 the Council Secretariat presented the Political and Security Committee (PSC) with two documents. The first was a set of Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction. The principles restated the commitment of the EU to strengthen existing multilateral arms control, non-proliferation and disarmament processes. In adopting the principles the PSC underlined that policies should be based on a common assessment on the EU level of global proliferation threats, and the EU Situation Centre was duly tasked to prepare a threat assessment 'using all available sources' that was to be maintained and continuously updated. Moreover, the intelligence services of the Member States were to be instructed to engage in this process.

The second document adopted in June was an Action Plan for the Implementation of the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction. The Action Plan describes measures to be undertaken by the EU, grouped into two categories: measures for immediate action and measures to be implemented over a longer time frame.

At the Thessaloniki European Council on 19–20 June a Declaration on Non-proliferation of Weapons of Mass Destruction was adopted. The Council declared that the EU members 'are committed to further elaborate before the end of the year a coherent EU strategy to address the threat of proliferation, and to continue to develop and implement the EU Action Plan as a matter of priority'. The WMD Strategy was adopted at the European Council meeting in Brussels on 9 December 2003.

The practical impact that the WMD Strategy will have will be closely tied to the effectiveness of its implementation. The fact that the WMD Strategy has a review mechanism linking it to the decision makers at the highest political level will maintain a certain momentum for as long as non-proliferation of WMD is close to the centre of public concern. To combat the contemporary proliferation challenge the EU will need to work as part of a complex and fast-moving non-proliferation effort worldwide and sustain that engagement over an extended period.

In October 2003, the EU High Representative appointed his Personal Representative on Non-Proliferation of WMD to coordinate, help implement and further develop the WMD Strategy, and to give sharper focus to these issues in dialogue with third countries. The Personal Representative and her office have provided a focal point within the EU and provided momentum to the implementation of the WMD Strategy.

The WMD Strategy addresses the root causes of proliferation as well as containing measures to tackle current programmes of concern. It lays emphasis on both the state and the non-state dimensions of the contemporary proliferation challenge. It is not confined by geography but is global in application.

The contemporary non-proliferation agenda encompasses actions targeted on different types of chemical, biological, radiological and nuclear (CBRN) weapon-related materials, equipment and expertise. These actions are not planned and implemented under the umbrella of a single international organization or body.

The WMD Strategy is guided by the collective EU belief that a multilateralist approach to security, including disarmament and non-proliferation, provides the best way to maintain international order. From this flows a commitment to uphold, implement and strengthen multilateral disarmament and non-proliferation treaties and agreements.

However, the European Union can never achieve the goals of the WMD Strategy through a traditional multilateralist approach limited to building and complying with formal international instruments. The armed forces of EU Member States hold no biological weapons, no radiological weapons and no chemical weapons. The number of nuclear weapons in the possession of EU Member States represents a very small share of the global nuclear weapons inventory.

The relevant treaties and conventions form one part—and a vital one—of the contemporary framework for non-proliferation action. However, in the recent past a significant number of other instruments have either been created or, in some cases, existing instruments have been reformed and revitalized. These include not only legal instruments but also political understandings that have come to play an increasingly important role in shaping ‘soft law’ in the area of arms control and non-proliferation.

The WMD Strategy makes clear that effective multilateralism is the cornerstone of the European strategy for combating proliferation of WMD and that this approach not only requires full implementation of treaties and conventions but also demands a strengthening and the further development of the full range of legal and political instruments that together create the international non-proliferation regime.

Under the umbrella of this regime a relatively large number of more specific and targeted programmes have been developed to tackle particular CBRN-related problems. Many of these programmes are, by nature, of a technical character, and their scale and complexity mean that implementation cannot be accomplished in a short period. For the most part these programmes have been developed under the initiative and leadership of the United States or, when pursued multilaterally, in the framework of the Group of Seven/Group of Eight industrialized countries (G7/G8). The WMD Strategy makes clear that close cooperation with key partners is crucial for the success of the global fight against proliferation.

The WMD Strategy points to a range of instruments that the EU has at its disposal to combat proliferation, including strengthening the system of multilateral treaties and verification mechanisms; applying national and internationally-coordinated export controls; carrying out cooperative threat reduction programmes; using political and economic levers (including trade and development policies); interdicting illegal procurement activities, and, as a last resort, applying coercive measures in accordance with the UN Charter.

Implementing the WMD Strategy therefore requires that the EU actually applies this full range of instruments to create a mix of incentives and pressure to shape the policies and behaviour of not only states but also international organizations and non-state actors.

INTERNATIONAL NON-PROLIFERATION AND DISARMAMENT ASSISTANCE

The EU WMD Strategy includes reinforcing EU cooperative threat reduction programmes with other countries as one of its elements. As one part of the effort to promote a stable international and regional environment the WMD Strategy notes that ‘the EU will expand cooperative threat reduction activities and assistance programmes’ and refers in this context to the ‘setting up of a programme of assistance to States in need of technical knowledge in order to ensure the security and control of sensitive material, facilities and expertise’. The WMD Strategy makes a specific note of the need to prolong the programme on disarmament and non-proliferation in the Russian Federation beyond June 2004.

The term ‘cooperative threat reduction’ is not defined in the WMD Strategy. Neither is there any internationally recognized definition to provide guidance about the activities and programmes that might be covered by the term. However, there are certain broad guidelines as to what types of measure the term includes.

As noted above, in those parts of the WMD Strategy where the term is used the language points to the need for measures aimed at ‘reinforcing the control of the non-proliferation of WMD-related expertise, science and technology’ and ensuring the security and control of ‘sensitive material, facilities and expertise’. In one country—the Russian Federation—the programme is also linked to support for disarmament.

In the USA the Cooperative Threat Reduction (CTR) Programme is the name of a programme managed by the Department of Defense that was established to reduce the risk of loss of control over the massive military establishment built up by the Soviet Union after the collapse of communism. Initially it was an emergency programme responding to the rapid collapse of the Soviet Union, but subsequent CTR projects have largely helped implement commitments contained in arms control agreements—the first bilateral US–Russian Strategic Arms Reduction Treaty (START-I) and the Chemical Weapons Convention (CWC). The 1991 legislation that established the CTR Programme (usually known as the Nunn–Lugar Act) was revised in 1997 and 2003. Further revisions are being made in 2005 to widen the scope of the activities captured by CTR so that virtually all geographical and functional restrictions on the use of funds will be lifted. The United States will then have a truly flexible instrument with global reach.

THE COMMUNITY BUDGET IN REGARD TO NON-PROLIFERATION AND DISARMAMENT ASSISTANCE

The WMD Strategy also points to the need to increase EU cooperative threat reduction funding in the light of financial perspectives beyond 2006. The document underlines that the creation of a specific Community budget line for non-proliferation and disarmament of WMD should be envisaged and also states that EU Member States should be encouraged to contribute on a national basis to achieve the overall objective.

PROPOSED CHANGES TO THE FINANCIAL INSTRUMENTS USED TO IMPLEMENT THE BUDGET

The general budget of the European Union is based on a medium-term financial framework that is agreed between the European Parliament, the Council of the European Union and the European Commission. The budget sets the amount of expenditure to be allocated to each policy area in which the EU is involved, including external action.

This research intended to inform future EU activities in the area of non-proliferation of WMD has been undertaken in conditions where neither the overall framework of the budget in the period 2007–13 nor the financial instruments to implement external action using that budget were yet fixed. The Commission has argued that changes that have taken place since the public finances of the EU were reformed in 1988 justify a new start and fresh thinking not only about policy, but also about the nature and number of instruments at its disposal to implement that policy.

The Commission is responsible for implementing the budget and the various directorates-general and services in the Commission each manage programmes in their respective areas. The Commission has argued that the form and structure of the existing financial instruments used to support external actions make it more difficult to use resources effectively to achieve the Union's policy goals. While the budget takes two years to prepare, and the medium-term financial framework covers a seven-year period, recent experience has demonstrated that developments cannot always be precisely predicted 10 years in advance.

In 2003 the Commission prepared a broad Communication called *Building our Common Future: Policy Challenges and Budgetary Means of the Enlarged Union 2007–2013*. This Communication addressed the need for budget reform. On 29 September 2004 this was followed by legislative proposals to establish a new catalogue of financial instruments better adapted to the current and future needs of the European Union.

The logic underpinning the proposals was that financial instruments should support the development of the European Union as a global partner that is able, inspired by its core values, to assume regional responsibilities, to promote sustainable development and to contribute to civilian and strategic security.

The data in the Draft General Budget for 2006 indicate that the overall budget for 2005 was €119,419 million. Of that total amount €5,119 million was provided to finance future commitments in the external action policy area.

The lack of a clear budget line within the Community budget makes it difficult to calculate past and current expenditure on non-proliferation- and disarmament-related projects. To find this information it is necessary to look at each of the specific projects in the different parts of the external action programme and make a judgement about their non-proliferation relevance. Within the external action part of the Community budget the average annual commitment of funds to finance future projects that can be considered to be relevant to non-proliferation and disarmament was €31 million over the period 1994–2006.

These figures include money for projects to support nuclear submarine dismantlement and nuclear security in north-west Russia, projects to strengthen nuclear material accountancy and control in Russia and the former Soviet Union (FSU), projects carried out under the auspices of the international science centres in Moscow and Kyiv, projects to convert former Soviet chemical weapon production facilities to civilian use and projects to strengthen export control over dual-use items. The figures are derived from the information provided to the G8 by the European Union supplemented by additional information covering decisions taken in the period after the last report to the G8. The total aggregate value of these projects since they commenced in the 1990s is over €400 million.

The Council undertakes initiatives within the CFSP framework in the form of joint actions to address specific issues. A Joint Action may prescribe the resources to be made available for its implementation as well as defining objectives, procedures and conditions for its implementation. One part of the title for external action within the general budget is reserved to finance joint actions in the field of CFSP. The data in the Draft General Budget for 2006 indicate that the amount provided in the CFSP budget in 2004 to finance future commitments was €62.6 million and the same amount was provided in 2005.

Examining the data describing how the CFSP budget was allocated in 2004 and 2005, it can be seen that €14.845 million was allocated to support non-proliferation and disarmament in 2004 and €7.2 million was allocated for the same purpose in 2005. This money is intended to finance measures that contribute to the reduction of weapons of mass destruction as well as financing operations to combat the distribution of light arms and illicit arms trafficking.

Over time the size and complexity of the budget for financing external actions has outstripped the administrative capacity available to implement it. Three problems can be pointed to in particular. These are (a) unclear and divided responsibilities for relevant issue areas; (b) a chronic staff shortage in certain functional areas; and (c) excessively complex administrative procedures in conditions where there are at least 30 different geographical budget lines and around 50 different thematic budget lines.

Against this background the Commission has argued that existing financial instruments are too rigid to reflect broad policy goals and too numerous to be applied in a coherent manner. According to this view, the number of financial instruments should be reduced and those that remain should not be as constrained in their geographical scope and less tied to narrow areas of functional application. If these changes were made, it is claimed that they would bring significant improvements in the quality and efficiency of programme/project management, substantially reduce the time taken to implement projects (at present there can be a delay of up to three years before committed funds are disbursed), and improve the impact and visibility of EU assistance.

In September 2004 the European Commission proposed replacing all the geographical and thematic budget instruments that had grown up over the previous 16 years with six instruments. Of these six, two were existing instruments that would be retained without modification and four were entirely new. The CFSP budget will continue to exist alongside new instruments.

The two instruments to be retained under the Commission proposal were those for Humanitarian Aid and Development Assistance. The new instruments proposed were:

- (a) an instrument for Pre-Accession Assistance;
- (b) a European Neighbourhood and Partnership instrument;
- (c) a Development Cooperation and Economic Cooperation instrument; and
- (d) an instrument for stability (hereafter Stability Instrument).

One purpose of the Stability Instrument as proposed by the Commission was to deliver financial, economic and technical assistance in ways that help the EU combat the proliferation of WMD. As noted above and described in more detail below, the Community budget has been financing projects whose sole rationale is non-proliferation—such as the redirection of scientists formerly employed in WMD research and development—for more than a decade.

Against this background, in April 2005 the Council Legal Service provided a written opinion on the proposal to create an instrument for stability. While recognizing that the objective of combating proliferation is an important part of the CFSP, the opinion found that general support to this EU goal is insufficient to justify the initiation of specific actions by the Commission. Any such actions would need a clearer legal basis. Moreover, the legal opinion stated that the specific legal basis suggested in the Commission proposal measures as the basis for actions to fight the proliferation of WMD was not adequate because the treaties in which they are contained do not give the Community general competence to act in that field.

The Commission has begun a period of reflection, discussion and review of how best to respond to the pressing need for a revision of the existing financial instruments in the light of this legal opinion. This process was ongoing at the time of writing.

THE USE OF THE COMMUNITY BUDGET TO SUPPORT INDA PROGRAMMES

Activities that fall under the definition of international non-proliferation and disarmament assistance (INDA) have been undertaken using EU financing (excluding the financing provided by Member States directly) for a considerable period of time. Financing has been provided in a number of different ways.

Through its regular budget the Community has financed or is currently financing projects in the following functional areas of direct relevance to non-proliferation and disarmament:

- programmes to redirect scientists formerly employed by the Soviet Union in programmes to develop and produce WMD;
- projects to support the conversion or destruction of former Soviet chemical weapons production facilities to civilian use;
- projects to help create modern and effective regulations to govern nuclear material control and accountancy;
- projects to improve the quality of methodologies and techniques used to account for and control the fissile materials that are the essential element of nuclear weapons or of a nuclear explosive device;
- projects under the Northern Dimension of EU external actions to secure and store radiological waste and spent nuclear fuel that contain such fissile materials and that are located in north-western Russia; and
- projects to strengthen the national dual-use export control systems of countries whose exports could contribute to NBC programmes of concern.

The Community has also financed an extensive border management assistance programme in countries around the periphery of the European Union. However, the detailed survey made as part of the Pilot Project suggests that there is no element within this programme that is explicitly dedicated to non-proliferation and disarmament of WMD. Therefore border management assistance has only been included where a non-proliferation and disarmament-relevant component can be identified.

The Community has financed a very large nuclear safety programme in the former Soviet Union. Nuclear safety is a term describing the conditions and abilities of a nuclear installation and its operating staff to prevent uncontrollable development of fission reaction or to prevent unacceptable leaks of radioactive substances or ionizing radiation into the working or living environment, and to reduce the consequences of accidents and incidents. Nuclear security is defined by the International Atomic Energy Authority (IAEA) Advisory Group on Nuclear Security as ‘the prevention and detection of and response to theft, sabotage, unauthorized access, illegal transfer, and other malicious acts involving nuclear material, other radioactive substances, or their associated facilities.’ For the purposes of this list, which is confined to non-proliferation and disarmament-relevant projects, nuclear safety projects are excluded.

THE USE OF THE CFSP BUDGET TO SUPPORT THE IMPLEMENTATION OF THE WMD STRATEGY

The Council has used joint actions to define and finance a number of INDA activities and programmes. In particular attention can be drawn to:

- Council Joint Action of 17 December 1999: Establishing a European Cooperation Programme for Non-proliferation and Disarmament in the Russian Federation and a number of associated decisions;

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- Council Joint Action 2004/796/CFSP of 22 November 2004 for the support of the physical protection of a nuclear site in the Russian Federation;
 - Council Joint Action 2004/797/CFSP of 22 November 2004 on support for Organisation for the Prohibition of Chemical Weapons (OPCW) activities in the framework of the implementation of the EU WMD;
 - Council Joint Action 2004/495/CFSP of 17 May 2004 on support for IAEA activities under its Nuclear Security Programme and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction; and
 - Council Joint Action 2005/574/CFSP of 18 July 2005 on support for IAEA activities in the areas of nuclear security and verification and in the framework of the implementation of the EU Strategy against Proliferation of Weapons of Mass Destruction.

THE THREAT TO THE EU FROM THE PROLIFERATION OF CBRN WEAPONS AND MATERIALS

Perceptions of the CBRN threat have evolved considerably over the past decade. The end of the cold war in the early 1990s meant the abandonment of the dominant intellectual and political framework within which CBRN threats had been both conceived and contained. In the past concerns over CBRN had been a matter of how or whether such weapons might be used (or threatened) either in the strategic balance or on the battlefield between military forces. Suddenly, it was feared that the vast surpluses of cold war CBRN materials and weapons, often without adequate monitoring and security, could conceivably now find their way into the hands of states, terrorist organizations and criminals or even individual lunatics that would not feel restrained by traditional state-level deterrence. The terrorist attacks on the United States in September 2001, the attacks in Madrid in March 2004 and those in London in July 2005, and the considerable European involvement in military actions in Afghanistan and Iraq, have provided an increasingly concrete context for such concerns.

As well as the broadening base of potential users of CBRN weapons, issues such as chemical waste control, disease surveillance and treatment, and nuclear fuel cycle management—all previously peripheral to the central military/security concerns—now came increasingly to be seen as part of a widening, more diffuse ‘CBRN threat’.

Just as the features and demands of the post-cold war CBRN security problem were becoming steadily more clear, so the Member States and institutions of the EU were moving determinedly (albeit not without occasional disagreement) to establish the EU as an active presence in the field of security and defence. Thus, by 2005 there was a mounting sense that the EU—defined here to include the common institutions as well as their Member States—might be vulnerable to CBRN use by a broadening array of antagonists and that it had declared itself competent to assess and analyse CBRN threats in its own terms, and make policy accordingly.

The availability and effects of CBRN materials and weapons are reasonably knowable, as is the vulnerability of the EU to such use. What is much less knowable, at least to a similar level of detail, is who might wish to attack the EU in these ways, and for what motives. To borrow the language of traditional military threat assessments, where ‘CBRN threats’ are concerned, ‘capabilities’ are much more knowable than ‘intentions’. According to the traditional rules of threat assessment, the outcome of addressing ‘capabilities’ alone can only be an unbalanced worst-case analysis. Yet the increasingly diffuse nature of the CBRN problem suggests that an approach which concentrates on what is knowable (capabilities) rather than what is not (intentions), and seeks to gear EU policy for CBRN in a different way to the traditional approach, is appropriate.

For the EU, the notion of a CBRN threat—the sum of the capabilities and intentions of known or possible adversaries—should give way to an approach, based on ‘CBRN risk’ that makes an objective assessment of potential harm to the EU (as defined above) represented by CBRN,

based upon the characteristics and availability of the weapons, and the vulnerability of the EU to them.

According to its own analyses, the EU does not have any enemies of a traditional kind and therefore it would not be possible to identify the risks addressed in CBRN policy as arising from any single state or group of states. In the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction, adopted in June 2003, the Council endorsed the view that the proliferation of all WMD and means of delivery such as ballistic missiles constitutes a threat to international peace and security. In the words of that document, ‘these weapons are different from other weapons not only because of their capacity to cause death on a large scale but also because they could destabilise the international system’.

Only a relatively small subset of NBC weapons could reasonably be said to pose a threat to the international system in that small numbers of them would, if used, cause what could be genuinely described as mass destruction. However, the WMD Strategy notes that CBRN proliferation takes place outside the current control regime, with the implication that ‘threat’ is to be understood not only in the traditional sense of an antagonist’s intentions and capabilities, and our own vulnerability to the acquisition and misuse of CBRN by undesirable states and groups, but also more structurally, as an indication of the limitations of the established control and management regimes. The use of CBRN, and in particular the use of nuclear or biological weapons, would have a very significant impact on the way that states approach security and would compel changes in the way states approach the management of the international system. The further development and spread of CBRN weapons would corrode the set of multilateral rules put in place over many years to combat their proliferation and use.

At the 2003 meeting of the European Council in Thessaloniki, leaders used very direct language in their assessment of the threat to the EU when noting, in the Declaration on Non-Proliferation of Weapons of Mass Destruction, that WMD and missile proliferation ‘puts at risk the security of our states, our peoples and our interests around the world’.

In the WMD Strategy the nature of the CBRN threat to the EU is set out clearly in two paragraphs of the first chapter.

First, it is stated that a WMD attack on the EU’s territory would involve the risk of disruption on a massive scale, in addition to grave immediate consequences in terms of destruction and casualties. Second, it is stated that in areas of tension where there are WMD programmes, European interests are potentially under threat because expatriate communities, stationed and deployed troops (bases or external operations) and economic interests (natural resources, investments, export markets) can be affected by the use of the weapons whether or not they are specifically targeted.

In the Basic Principles for an EU Strategy against Proliferation of Weapons of Mass Destruction, the Council asserted that the acquisition of WMD or related materials by terrorists would represent an additional threat to the international system with potentially uncontrollable consequences.

As noted above, the EU has been attacked from within and by groups made up of individuals whose particular grievance was unsuspected before they mounted their assaults. The attacks have been mounted using traditional terrorist means. However, the risk that groups might be able to exploit the availability of CBRN with relative ease and with little evidence prior to the mounting of attacks is becoming the central concern of policy makers.

The EU has observed that, armed with weapons or materials of mass destruction, terrorists could inflict damage that in the past only states with large armies could achieve. Reducing the likelihood of such harm by seeking to limit the availability of CBRN weapons and technology must be one central strand of response.

A MODERN UNDERSTANDING OF NON-PROLIFERATION

The traditional understanding of non-proliferation has been linked to preventing the spread of weapons in militarily significant quantities to the armed forces of states. However, the documents of the European Union suggest that a more modern approach is being adopted in the light of the need to combat current security problems.

The EU non-proliferation agenda includes measures aimed to address problems of the traditional kind, notably by actions intended to strengthen regimes and export controls. However, the WMD Strategy, together with the statements and declarations which precede it, suggests that the CBRN proliferation threat to the EU is regarded as complex and multifaceted, with different aspects of the threat requiring different levels and styles of policy response. Based on an assessment of existing statements and documents, it can be argued that from the EU perspective, elements of the CBRN threat are as follows.

Global/general threat. At the most general level, the proliferation, illegitimate possession and use of CBRN can be understood to represent a latent or actual threat to international peace and security, with implications for the EU as a large and active element of the international political and economic system.

Threat to non-proliferation norms and regimes. Recent cases of CBRN proliferation underline the need to reinforce non-proliferation regimes. If regimes and norms cannot be reinforced, and if their value as a source of security becomes progressively more questionable, then at some point the norms against proliferation might be reversed, with states arguing that the norm for security in a world with CBRN is proliferation, rather than non-proliferation.

Neighbourhood/regional threat. CBRN proliferation, and associated concerns, could give rise to a threat to peace and stability in certain regions bordering or close to the EU, such as the Mediterranean littoral, inviting EU interest and involvement, certainly diplomatic and economic and perhaps also military.

Direct/physical threat. EU Member States could face a specific threat of CBRN use (or blackmail) from either state or non-state actors, as a result of past or present policies, current political loyalties and trading ties.

Remote/physical threat. EU representatives and personnel (civilian and military) deployed on mission could face the direct threat of low-level CBRN use against their facilities, installations and positions, or could be threatened indirectly by damage and pollution through unintended proximity to CBRN use.

Indirect threat to EU interests. The institutions and Member States of the EU have a range of political and economic interests around the world which could be disturbed or undermined by instability associated with CBRN proliferation.

Reputational threat. Having for several years had the goal of becoming a more coherent and effective actor in matters of foreign, security and defence policy, having described themselves as threatened by CBRN, and having committed themselves publicly, in documents and declarations, to countering that threat, the institutions and Member States of the EU run the risk of having their reputation and credibility as actors in the field of international security undermined.

Threat of accident. Unsafe storage and management of NBC facilities and material could represent a general hazard to which EU citizens might be exposed. Such accidents could occur during attempted terrorist attacks or as a result of efforts to steal or smuggle material.

THE NATURE, AVAILABILITY AND CONSEQUENCES OF CBRN MATERIALS AND TECHNOLOGIES

Nuclear-related

The information available in the public domain suggests that North Korea is the only country that does not possess a deployed nuclear arsenal that is actively seeking nuclear weapons.

Two countries, India and Pakistan, have recently deployed small nuclear arsenals and both countries are increasing their weapon stockpiles to the levels they believe they require for a minimum deterrent.

A larger number of states are believed to be holding open the technical option of a future nuclear weapons programme by developing a nuclear research capacity and an industrial base sufficient to acquire highly enriched uranium (HEU) or plutonium—the fissile materials that are the basic elements of all existing nuclear weapons.

While large commercial enrichment facilities are to be found in China, France, Germany, the Netherlands, the United Kingdom (UK), the USA and Russia, other countries with a uranium enrichment capacity include Argentina, Brazil, Iran, India, Israel, Japan and Pakistan. Moreover, other countries have carried out experiments and developed technologies and processes to the point where they can be said to have a working understanding of uranium enrichment: these are Australia, South Africa and South Korea. Taiwan almost certainly also falls into this category.

A number of countries also operate facilities at which the chemical separation of plutonium and HEU from other fission products contained in spent nuclear fuel takes place. All the states that have or are suspected to have nuclear weapons (including India, Israel, Pakistan and North Korea) have reprocessing facilities, as does Japan. Other countries that pursued nuclear weapons but subsequently abandoned their programmes (including Argentina, Brazil, Egypt, Iran and South Korea) have also researched and in some cases actively developed reprocessing technologies and processes.

The level of concern over the risk that non-state actors would use fissile materials to make an improvised nuclear explosive device that could be used in a nuclear terrorist attack has risen in recent years following the documentation of efforts by Islamic extremist groups, including al Qaeda, to acquire relevant knowledge and materials.

There is no comprehensive global inventory of fissile material and it is not known how much fissile material has been made in the past, who made it or where it is currently located. However, it is beyond dispute that very large quantities of the materials that would be needed to construct such a device, HEU or plutonium, exist. By far the largest stocks of HEU—roughly 90 per cent of world stockpiles—are contained in the military inventories of states with nuclear weapons. In the case of plutonium stockpiles the balance is probably reversed, with more than 90 per cent of the global inventory contained in civilian stockpiles. Concerns about the security of stocks of all fissile material (HEU, whether held by military or civilian users, weapons-grade plutonium and reactor-grade plutonium) have been expressed, and in a number of cases the level of concern about nuclear security has raised fears about the risks from nuclear terrorism.

While the use of a radiological dispersal device (RDD, or ‘dirty bomb’) by the armed forces of a state has been more or less discounted as a threat, there is also considerable concern about the risk that such devices could be used in terrorist incidents. A dirty bomb would not cause destruction through a nuclear explosion but rather would spread radioactive material, for example, by the combination of radioactive material with conventional explosives. This kind of device, which kills or injures either through the conventional explosive blast or by the effects of radiation and contamination, would not cause mass destruction but could have a very damaging economic and psychological impact. There are credible public reports that such devices were constructed by al Qaeda for experimental purposes in Afghanistan. There are also unconfirmed reports that efforts to mount attacks with these weapons in the United States and in Europe have been thwarted by security services.

Chemical weapon-related

Most of the information on chemical weapon (CW) arsenals has been contained in reports submitted to the OPCW by states that have joined the CWC. In all, 13 states have reported that they have had active CW programmes in the past. They are Albania, Bosnia and Herzegovina,

China, France, India, Iran, Japan, Libya, Russia, South Korea, the UK, the United States, and Serbia and Montenegro. Altogether, the 13 have identified roughly 65 facilities where CW were produced. In addition three states (China, Italy and Panama) have declared that there are usable stocks of CW on their territory that were abandoned by another state without permission. To this list can be added Iraq—not a member of the CWC—whose CW programme was uncovered and destroyed by the UN Special Commission on Iraq (UNSCOM) during the 1990s.

In addition, four states—Egypt, Israel, North Korea and Syria—that have not joined the CWC are very strongly suspected to have had or still to have undeclared CW arsenals. Israel has signed but not ratified the CWC. While it is often reported that Israel no longer maintains a CW stockpile ready for use, it is widely believed that the capability to restart production at relatively short notice has been retained.

The following countries that have signed and, in most cases, ratified the CWC are also alleged in open sources to have or to have had CW programmes: Algeria, Burma, Cuba, Ethiopia, Pakistan, Sudan and Viet Nam. Most of the allegations about them have originated in unclassified material published by the US Government.

It is known from information in the public domain that al Qaeda carried out experiments in Afghanistan with potassium cyanide, hydrocyanic acid and chlorine. The growing concern about mass-impact terrorism has also led to a number of analyses of potential threats from attacks with hazardous materials not normally considered to be weapons. The risk that toxic chemicals that are not considered chemical weapons could be used in acts of mass-impact terrorism has been considered. Exercises involving industrial chemicals such as ammonia, chlorine or sulphur dioxide suggest that under certain conditions attacks with hazardous materials could cause very high casualties and extreme disruption. However, the widespread availability and frequent peaceful use of these chemicals suggest that effective response to the threat of chemical terrorism cannot be based on traditional arms control approaches of elimination, limitation or denial.

Biological weapon-related

States are not prohibited from developing effective defences against attack by biological weapons (BW). The technologies on which effective defences are based (including those used for testing defensive equipment) are recognized to be similar to those that would also facilitate an illegal offensive BW programme. Therefore the proliferation risk associated with biodefence programmes could not be based on a technical assessment alone. Judging proliferation risk would also revolve around the degree to which a state intends to develop and use BW, and the extent to which states develop the doctrine, operational art and capability (consisting of trained forces in being and appropriate delivery systems) that would be needed for effective military use of BW. At present no country is known to have developed such a combination of doctrine, tactics, trained forces in being and delivery systems.

A small number of countries, including Canada, France, Iraq, the former Soviet Union, the UK and the United States, are known to have manufactured biological weapons in the past. While all these programmes are believed to have been eliminated, the lack of a verification system for the Biological and Toxin Weapons Convention (BTWC) makes it impossible to make a definitive statement to that effect. In the case of Iraq, the BW programme was uncovered and eliminated by UNSCOM. In the case of Russia, as the successor state to the former Soviet Union, there are still serious questions about when and how the illegal and clandestine BW programme, which continued until at least 1993, long after the Soviet Union signed and ratified the BTWC, was eliminated.

Two countries, Israel and North Korea, are often claimed in open sources to have biological weapons. However, for both countries the open source descriptions of the respective programmes are inconsistent and in some ways contradictory. In each case there is a broad consensus that specialized institutes have carried out research into biological warfare.

In the light of the new threats identified by states and by the European Union, increased attention has focused on the risk that a non-state actor would deliberately spread disease in order to carry out a mass-impact terrorist attack. If the objective of the attack was mass disruption, the attempt might include diseases that affect humans, plants or animals.

The risk of such attacks is real. It is known from information in the public domain that al Qaeda carried out experiments in Afghanistan with botox and ricin. Moreover, there have been a number of actual attacks by groups (such as the Aum Shinrikyo in Japan) and individuals in the United States and elsewhere. However, thus far there is no evidence that groups have succeeded in developing biological instruments that would cause mass destruction or mass disruption.

Delivery systems

Weapons are designed to cause injury or death to people or damage to material. They may include bombs and warheads, grenades, munitions, mines, depth charges or demolition charges. However, if weapons are to fulfil their purpose (whether that is their actual use or threatened use) it must be possible to deliver them to the target that the user intends to destroy.

Weapon delivery systems may be of different types. They may be guided and ballistic missiles, field artillery, mortars, rockets, guns, torpedoes, clusters and dispensers. Historically all of these systems have been developed by one or more countries to deliver nuclear, biological or chemical weapons. These delivery systems may in turn be carried by platforms of different kinds to a place where their designated targets are in range. Platforms may include manned or unmanned aircraft, land vehicles, ships or submarines.

In many contexts the possession of weapons, delivery systems and weapon platforms creates a potential security problem but not one that is connected to weapons of mass destruction. In the context of WMD the problem is created when the weapon delivery system is under the control of a user with access to NBC weapons. There may also be a WMD-related problem if a country that does not have but is suspected to be developing NBC weapons is also developing systems that might be used to deliver a future arsenal of weapons.

All the above delivery systems have widespread military applications other than the delivery of WMD. However, concern over one particular class of delivery system—medium- and long-range ballistic missiles—has been highlighted by the international community. These systems were the focus for bilateral arms control between the United States and the Soviet Union because of their particular connection with delivering nuclear weapons and because they were not seen as particularly cost-effective means of delivering other types of weapons. The extended ‘reach’ that medium- and long-range missile delivery systems offer their possessors, combined with the fact that there is no effective defence against many of them after they have been launched, has also heightened concern about their proliferation.

While missiles of different kinds are becoming a central element in the inventories of many armed forces, the list of countries that are known to be acquiring medium- and long-range ballistic missiles is rather short. In all cases the states acquiring ballistic missiles of this type are also identified as nuclear or chemical weapon proliferation countries of concern.

It is extremely unlikely that a long-range ballistic missile could ever be used by a non-state actor. Acquiring and using the other delivery means for NBC weapons that have been developed by states for their armed forces would also present major challenges to non-state groups. It is likely that a more unconventional form of delivery would be used to commit a terrorist act involving CBRN materials. The traditional state-centric objectives of non-proliferation and disarmament remain important. However, the threat assessment suggests that there is a need to supplement existing programmes with greater efforts to consolidate, secure and (in some cases) eliminate proliferation-sensitive materials. These efforts should become a more central element in threat reduction.

MEETING THE CHALLENGES TO EUROPE FROM THE PROLIFERATION OF CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR WEAPONS

THE CASE FOR EXPANDING EUROPEAN CONTRIBUTIONS TO INDA

It was noted above that the European Union has already made a contribution to international non-proliferation and disarmament assistance. This contribution has included activities financed directly from the Community budget as well as activities carried out within the framework of joint actions. There is a need for the EU to develop its thinking about the place of INDA as one element in a long-term (in all probability indefinite) set of integrated programmes and measures that are necessary to make good on the commitment in the WMD Strategy that the EU will make an important contribution to combat proliferation of WMD more effectively.

1. International non-proliferation and disarmament assistance can help to solve real-world problems in an area that has been identified at the highest levels of decision making to be critical to enhancing European security. This is the most important and compelling argument for an expanded programme.

A small number of countries are believed to be working in a systematic manner either to develop chemical or nuclear weapons or to increase the size and sophistication of existing arsenals. A number of other countries are working to ensure that they maintain a technology and industrial base that would allow them to develop such weapons in a reasonably short time frame if a political decision to do so were taken.

There is convincing evidence that a number of non-state groups and actors have been working to gain knowledge and skills related to CBRN materials and techniques that could later be applied in acts of mass-impact terrorism. There are significant barriers to this type of mass-impact terrorism, and the risk of such attacks, while not zero, is not considered to be imminent. However, the evidence suggests that these groups are sophisticated, well financed and dedicated. Over time the risk of such attacks will grow unless remedial measures are taken.

2. An expanded international non-proliferation and disarmament assistance programme would help develop relationships with key partners in building security.

The total volume of financing provided by the European Union (including by its Member States) to support non-proliferation and disarmament assistance over the past decade has been significantly less than the level of financing provided by the United States each year. An expanded INDA programme would enhance both political and economic burden-sharing, deepen the shared experience and confidence between the EU and key partners, help promote general goals of stabilization and transformation in those countries where projects are carried out, and strengthen the case for arguing that the EU can emerge as a partner in managing critical security problems.

3. An expanded INDA programme would strengthen the multilateral framework in three important ways.

First, it would provide tangible support for the implementation of a number of the existing multilateral treaties and conventions that form the overarching framework for arms control, disarmament and non-proliferation.

Preserving and strengthening the existing arms control *acquis* is an important element of the WMD Strategy. INDA projects can have direct relevance to the objectives of a number of important treaties including the CWC, the Non-Proliferation Treaty (NPT) and the BTWC.

Second, with Security Council Resolution 1540, adopted on 28 April 2004, the United Nations has produced an important innovation that now forms a part of the multilateral frame-

work for combating the proliferation of WMD. The resolution recognizes that some states may require assistance in implementing the provisions of this resolution within their territories. The UN has encouraged states lacking the legal and regulatory infrastructure, implementation experience and/or resources for fulfilling the provisions of Resolution 1540 to inform it of the areas where they require assistance. The UN has turned to bodies that it feels have relevant expertise and that are in a position to do so to offer assistance as appropriate in response to specific requests. The EU is tailor-made to respond to such requests as a competent partner of wide political acceptability.

Third, practical assistance can help implement a number of international conventions that were developed to contribute to environmental and public safety but are now coming also to be seen as an important part of the international security environment in the light of the need for international cooperation to combat terrorism. Examples include the Convention on the Physical Protection of Nuclear Materials, the Convention on Nuclear Terrorism and the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management.

Fourth, practical assistance can help support political cooperation arrangements that have become an important part of the overall fight against proliferation. These arrangements include the export control regimes (the Australia Group, the Nuclear Suppliers Group, the Missile Technology Control Regime and the Wassenaar Arrangement). Through intensive cooperation during the 1990s these arrangements have developed a clear view on the elements that are required in modern and effective export control legislation. The regimes are now intensifying their outreach to non-participating states to ensure that the greatest possible number of countries adopt and enforce national legislation that meets the highest international standards. Where outreach generates the political will to improve the quality of national export control legislation, practical assistance can accelerate the adoption and implementation of the necessary laws and regulations.

Such assistance may also prove beneficial in the context of the Proliferation Security Initiative (PSI), a global initiative aimed at stopping shipments of WMD, their delivery systems, and related materials worldwide. The PSI seeks to create a dynamic and proactive approach to preventing proliferation to or from states and non-state actors of proliferation concern. The PSI seeks to use existing national authorities to defeat proliferation, and its success depends on these authorities having adequate legal powers, technical skills, and human and financial resources.

4. An expanded INDA programme would raise the profile of the European Union as a coherent actor in a critical area of international affairs.

Building an EU system for implementing the WMD Strategy is a formidable challenge. Partners and the citizens of the EU would fully understand that this cannot be achieved in a very short time. However, early and deliberate action designed to show sustained political commitment and a coherent and systematic approach to the task would build credibility.

SETTING PRIORITIES FOR THE WMD STRATEGY

In December 2004 the UK and Luxembourg submitted their document entitled Operational Programme of the Council for 2005 submitted by the incoming Luxembourg and United Kingdom Presidencies, which noted a number of priorities in the area of non-proliferation.

In the section of the document addressing nuclear energy, the Presidencies indicated that they would continue efforts to give practical effect to the Conclusions on nuclear safety and the safe management of radioactive waste and spent fuel adopted by the Council on 28 June 2004. In addition, 'other aspects to be addressed in this field concern the shipments of radioactive waste, the EU–Russia Agreement and the issue of non-proliferation'.

The part of the document addressing key partnerships stated that a broad and intensive dialogue would continue with the United States. In particular, attention was drawn to the need to

follow up the June 2004 EU–US Summit declaration on non-proliferation of WMD, which contained a number of action points of direct relevance to INDA:

- While expressing support for UN Security Council Resolution 1540, the 2004 EU–US Summit declaration noted that the EU and the USA would meet their obligations under the resolution ‘and are prepared to assist States in doing the same’, including in the areas of physical protection of sensitive materials, export controls and border security management.
- Welcoming the efforts of the G8 against proliferation, the declaration pledged continued support to the important non-proliferation activities carried out under the Global Partnership against the Spread of Weapons and Materials of Mass Destruction. In the same context it noted the need for ‘concrete steps to expand and improve our capabilities to prevent and respond to bioterrorism’.
- Referring to the need to strengthen the NPT, the declaration stated that the EU and the USA would ‘provide the IAEA with the necessary political and financial support, in particular for the rigorous implementation of safeguards’.
- Concerned by the risks posed by the potential use of radioactive sources for terrorist purposes, the EU and the United States pledged to coordinate their assistance efforts in order to accelerate the implementation of the IAEA Code of Conduct on the Safety and Security of Radioactive Sources.

In addition to the priorities established by the Presidency in operational work programmes, the Council has also addressed the question of how to implement the WMD Strategy in the most effective manner. In December 2004 the Council reviewed and approved a list of priorities for a coherent implementation of the EU WMD Strategy put forward by the Personal Representative. The list is divided into two parts. The first part contains priorities that do not require additional financing, most of which refer to the need for EU Member States to adopt coherent positions on non-proliferation in a range of meetings and processes and in both collective and bilateral contacts with states, organizations and regional groups. Following the endorsement of the proposals in this part of the list of priorities, Member States and (where relevant) EU institutions should have taken them into account in planning their activities during 2005 and beyond.

The second part of the list contains priorities that require additional financing and that, in many cases, involve activities carried out in cooperation with non-EU partners. In most cases the priorities in this list are laid out to cover the period up to 2008. In certain cases the list names specific actions that have been agreed (and financed) during 2005.

A number of external actions required by the listed priorities remain to be taken as of end-2005. These are:

- provide assistance to and cooperate with certain named countries to implement effective export controls. In the list of priorities special emphasis is placed on the European Neighbourhood, and a number of actions are currently under way to deliver export control assistance to countries around the periphery of the EU. In 2005 a Pilot Project implemented by the Commission has been initiated that could lead to a possible longer-term EU cooperative assistance programme in the field of export control. However, China, India and Pakistan are mentioned as priority countries for export control assistance in different parts of the Council document, and in these countries action to provide assistance still needs to be taken—although in China a preliminary dialogue was opened in January 2005 through an export control workshop organized in China on the initiative of the Personal Representative;
- provide assistance to support ‘disarmament and dismantlement’ activities in the Russian Federation, in the NIS countries, and in North African and Middle Eastern countries;
- facilitate the conversion of WMD expertise. Study and examine setting up a scientific institute for the redirection of WMD scientists coming from regions other than the former Soviet Union. Create a mechanism to allocate critical expertise and skills to European public and private industries or research centres;

- develop the security volet of the Barcelona Process. The Personal Representative is currently pursuing efforts to organize an ad hoc meeting on WMD non-proliferation in this framework; and
- develop an approach to other regions. In this context two countries are also mentioned: India and Pakistan.
 - In regard to India, the Council document notes that ‘efforts could be undertaken in order to assist India to develop and introduce a state of the art system for nuclear material accountancy. Such a system would help notably to certify that their nuclear materials have not been diverted to third countries. The EU could, in close consultation with the IAEA, examine the provision of assistance in form of expertise, equipment and training in the area of nuclear material accountancy’.
 - In regard to Pakistan the Council notes the proposed EU–Pakistan Trade and Co-operation Agreement and the opportunity this creates for initiating a dialogue on countering WMD proliferation. The Council notes that ‘efforts could be undertaken in order to assist Pakistan to develop and introduce a state of the art system for nuclear material accountancy. Such a system would help notably to certify that their nuclear materials have not been diverted to third countries. The EU could, in close consultation with the IAEA, examine the provision of assistance in form of expertise, equipment and training in the area of nuclear material accountancy’.

RECOMMENDATIONS

The next section of this report summarizes the recommendations of the Pilot Project.

As the Council document referenced above makes clear, under any scenario the EU will have limited resources in relation to the problem being addressed. The document underlines the need to address the issue of how the WMD Strategy is implemented in procedural as well as substantive terms. It notes that ‘action is often taken on a case-by-case basis, without an overall approach and using a whole range of different diplomatic and financial resources (Diplomatic action within CFSP, Member States’ resources, CFSP budget, FED, Community programmes)’. Moreover, ‘a new dimension has been added through the “New Neighbourhood” and the “Strategic Partnership for the Middle East” and related Action Plans’.

The ratification of the Treaty establishing a Constitution for Europe would have provided the solution to many procedural and institutional issues related to implementing the WMD Strategy. In the absence of a treaty, there is still a need for the consolidation of some activities into specific programmes, as well as coordination between activities. The development and delivery of international non-proliferation and disarmament assistance is one area where consolidation would not only facilitate coordination but, by making activities larger and more visible, but would also raise the overall profile of EU INDA activities.

If such a consolidation is to take place, it would need to reflect the following aspects:

1. The geographical aspect. In which countries and regions are INDA programmes and activities already being undertaken? Are these the areas of primary and most urgent need and, if not, which areas need to be covered as a matter of priority?
2. The institutional aspect. Which are the main organizations under whose auspices INDA programmes are planned and executed?
3. The functional aspect. What is the nature of most of the INDA programmes and activities? Do they cover the weapons, materials and technologies of greatest concern from an EU viewpoint? If not, what kinds of weapons, materials and technologies are not covered adequately or at all?

The following sections of this report are intended to provide food for thought about one part of this overall INDA element in the WMD Strategy: programmes and projects that could be supported by increased EU financing.

CRITERIA FOR SELECTING RECOMMENDATIONS

As noted above, existing EU documents provide guidance about which functional programme areas have a high priority. However, while INDA projects could help to solve urgent problems needing immediate measures, they should also be envisaged as precautionary and threat reduction efforts. Therefore, it must be possible to translate the general needs identified into a wide range of programmes and projects of different kinds.

In making a determination about how an INDA programme should be constructed there are fewer guidelines available and nothing that could be regarded as a set of rules. Therefore, in considering recommendations this paper has used the following set of questions and criteria in order to select projects that are considered particularly ‘ripe’ for support by the EU.

1. The project must fit into an existing framework for implementation. The European Commission is not in a position where it can initiate the creation of new frameworks for INDA projects—an enterprise of a more political and diplomatic nature that can only be undertaken in the context of decision making for the CFSP.

2. Where such a framework exists the prospects for successful implementation must be good. Given that there will not be resources to do everything that needs to be done, future programme activities should focus on actions that are most likely to be executed successfully and in a resource-efficient way.

The framework for success includes a political element. Any INDA action must be acceptable to both the parties providing assistance and those receiving it if it is to have a chance to succeed. The Commission is unlikely to be able to develop this permissive political environment for INDA actions independently. This would require outreach and engagement at a high political level.

The framework for success also includes a legal element. Past experience has demonstrated that INDA programmes and projects can only be carried through to a successful conclusion if the appropriate agreements are in place to clarify issues such as access to sites and information, procedures for financial management, and procedures to establish liability for losses (human and material) incurred as a result of project activities (which often by definition involve the handling of very dangerous materials and many of which have been carried out in harsh physical environments).

The framework also includes a technical element. The INDA projects must be agreed to be technically feasible. This criterion needs to be qualified slightly because in some cases the INDA activity might consist of developing a new concept or a new technology to enhance security or facilitate the destruction of CBRN weapons and materials. There are precedents for such research projects, including a number involving increased EU financing.

3. There should be resources available that can be used to support the INDA activity. This criterion needs to be qualified in that the EU is in the process of rethinking the financial instruments that will be available in the next budget cycle. The financial instruments need to be crafted in ways that take account of the need for properly prioritized, smooth and timely execution of INDA project activities.

4. The activity should contribute to the further development of the EU profile as an important and effective partner in the global fight against proliferation and thereby further strengthen the prospects for success in the WMD Strategy over the longer term.

RECOMMENDATIONS

1. SIGNIFICANTLY EXPAND THE EUROPEAN UNION INDA PROGRAMME

There is a strong case for a very significant expansion in the European Union INDA programme, and a need to develop a process by which priorities in this area can be translated into an integrated programme.

Identifying the ways and means by which the individual activities that make up the programme will be financed must be one element of that integrated programme. There is an urgent need to develop a mechanism by which all of the resources available within the budget to finance all activities relevant to WMD—irrespective of whether they fall within the Community or the CFSP framework—can be combined to combat the challenge of contemporary forms of WMD proliferation in an effective manner. A *Report on Non-Proliferation of Weapons of Mass Destruction: A Role for the European Parliament* has been prepared for the Committee on Foreign Affairs by Mr. Ģirts Valdis Kristovskis. In the light of that report, the Council, the Commission and the Personal Representative should sit down now to establish a new, integrated approach to financing to be activated during 2007–2013. The need to find a way to increase the CFSP budget for 2006 could also form part of these discussions.

2. RECOMMENDATIONS IN THE FIELD OF NUCLEAR SECURITY

Given the evidence that both states and non-state actors are seeking to build up their nuclear knowledge and capacities, there is a very strong case for strengthening nuclear security on a global basis. Three areas in particular stand out as strong candidates for further action.

- There is an urgent need to stop producing certain nuclear materials (HEU and certain types of plutonium which are the basic ingredients needed to make a nuclear weapon or nuclear explosive device) in order to avoid contributing further to the already very large global stockpiles of these materials.
- There is an urgent need to strengthen the physical security of two nuclear materials, HEU and plutonium.
- There is an urgent need to put HEU and plutonium beyond the possibility of being used in nuclear weapons in ways that would be expensive and technically difficult to reverse.

Halting nuclear material production

The closure of Russian reactors that were built to produce plutonium for nuclear weapons should be actively pursued and the EU should contribute to that closure programme.

During the cold war the Soviet Union built 13 graphite-moderated reactors to produce plutonium for nuclear weapons. By the time the Soviet Union broke up an enormous amount of plutonium had been produced, and in the light of the decision to reduce the number of nuclear weapons deployed by the Russian armed forces no further production is needed.

The link between closing down these particular production reactors, which were designed to produce weapons-grade plutonium, and achieving the objectives of the WMD Strategy could not be more clear.

By 1992 Russia had shut down 10 of the 13 existing plutonium-producing reactors. The three remaining reactors, the ADE-4 and ADE-5 reactors in Seversk and the ADE-2 reactor in Zheleznogorsk, were not shut down because they not only produce plutonium but also generate heat and electricity for adjacent areas. Seversk and Zheleznogorsk are located in a part of Siberia with a harsh climate. These three reactors currently produce over 1 metric tonne of weapons-grade plutonium every year and the sooner they are closed the less weapons-grade plutonium will be added to the global stockpile.

Following a Russian request for assistance, the United States initiated the Elimination of Weapons-grade Plutonium Production Program (EWGPP) in 1992. Between 1997 and 2003 all the necessary legal agreements were concluded by the United States and Russia to shut down the three remaining production reactors. The Department of Energy (DOE), which is the US implementing agency, asked for and received permission from the US Congress to integrate foreign contributions into the EWGPP.

The decision has been made to replace the reactors with fossil fuel plants. In Seversk an existing power plant will be fully refurbished and modernized. In Zheleznogorsk a new power plant needs to be constructed. The Reactor Shutdown Survey is a detailed programme that creates a schedule and milestones for the shutdown of the three plutonium production reactors. The EWGPP Programme has worked with the Russian Federation to identify the logistical and regulatory requirements for the permanent shutdown of ADE-4, 5 and 2. Detailed costings have been made for the projects to be carried out at the two sites.

The United States has guaranteed sufficient funds to finance the activities needed to shut the two reactors in Seversk. However, financing for the Zheleznogorsk project is not fully secured.

The EWGPP represents a unique opportunity because it provides a convenient framework for donors to place their financial contributions within the framework of G8 Global Partnership and fully exploit the concept of ‘piggybacking’. All necessary implementing agreements, contracts and access arrangements have been set up by the United States. The EWGPP enjoys a full package of CTR agreement-type arrangements covering liability protection, tax exemption and other implementation issues. Donors may reach agreement with the US DOE directing the use of their money to specific projects, and the DOE has agreed that there will be no overhead charge—all of the money will flow directly to contractors. The DOE is actively soliciting international support for the EWGPP programme and complementary projects.

Recommendation for a specific project: Support the closure of the plutonium production reactor at Zheleznogorsk in the Russian Federation by financing the provision of an alternative source of energy for the local community

The production of plutonium at the Mining and Chemical Combine (MCC) in Zheleznogorsk took place in the reactors AD, ADE-1, and ADE-2, which were brought into operation in the period 1958–64. The first two reactors were shut down in 1992. The ADE-2 reactor is still in operation and produces heat and electricity for people living in the neighbourhood. It currently produces about 0.4 metric tonnes of weapons-grade plutonium per year. Spent nuclear fuel from the reactor is currently being processed, and the plutonium separated and stored in the oxide form. The ADE-2 reactor represents a high nuclear safety risk, having been designed in the 1950s (its design predates that of the reactor at Chernobyl in Ukraine).

Financing for the construction of the Thermal Heat and Electricity Plant to substitute for the electricity currently generated by the nuclear reactor is needed if the shutdown of the Zheleznogorsk reactor is to go ahead. It is agreed that the replacement electricity will only supply the civilian needs of the city of Zheleznogorsk. The EWGPP currently anticipates that the project to complete the shutdown of the reactor will be completed by December 2010 (the base-line performance schedule for the project was anticipated in September 2005). All the contractors have been selected to conduct the project, the conceptual design has been completed, site preparation has started and initial equipment to be ordered has been proved.

The US DOE currently has funds to cover US\$328.9 million of the estimated total construction cost of \$570.5 million. During 2005 three countries (Canada, the Netherlands and the UK) pledged a total of over \$28 million to support the project. Contributions from other possible national donors are unlikely to be sufficient to cover the shortfall in financing. The Department of Energy believes that a commitment to provide some additional financing from the US budget

has been secured. However, there is likely to be a shortfall of \$150 million in 2007–2008 that would be needed to ensure that the project timetable can be maintained.

The EU should ensure the financial viability of the project by joining as a contributor and providing an amount equivalent to US\$150 million to the EWGPP, thereby securing the financial perspective for this project. The project will bring important nuclear safety as well as security benefits, and failure to complete its financing now would mean additional weapons-grade plutonium production, significant delays (because of the effect of the seasonal construction cycle in the harsh climate of Siberia), and a higher total project cost because of the effect of inflation.

Strengthening the physical security of HEU and plutonium

The EU recognizes that nuclear material accountancy and control is an essential element of physical security. In describing the process of strengthening the physical protection of nuclear materials in use, storage and transport and of nuclear facilities, the EU Joint Action on support for IAEA activities in the areas of nuclear security and verification states that ‘the materials used or stored at nuclear facilities and locations must be adequately accounted for and protected in order to prevent theft or sabotage. An effective regulatory system should identify those elements requiring implementation at the level of the State and of the operator respectively’.

The European Commission’s Joint Research Centre (JRC) has more than 10 years’ experience in implementing assistance in Russia of the type normally associated with nuclear safeguards. The methodology for cooperation that has been developed has three main elements: (a) a focus on training in safeguards methodology for experts, operators and inspectors; (b) improving nuclear analytical capabilities serving nuclear material accountancy and control; and (c) developing instrumentation in cooperation with the industrial sector in the Russian Federation.

The JRC already plans to extend this programme to other countries on the territory of the FSU by establishing a Nuclear Material Control and Accountancy Network linking regulators and operators in different countries. This could in time extend a set of standards and procedures based on European experience across the FSU.

This rather extensive programme has been implemented in Russia partly because of the great need for such assistance in the period after the break-up of the Soviet Union. However, its coverage has partly been determined by the fact that the programme has been financed under TACIS, which is geographically confined in its scope. While the JRC has contributed expertise to training programmes for nuclear regulators and operators in Argentina and Brazil, this has been on a more limited and ad hoc basis.

In Russia a Community programme supported working-level cooperation between Russian nuclear regulators and the nuclear pole of DG Transport and Energy (TREN) for a number of years. This cooperation programme was highly valued by the Russian partners because of the opportunity it offered to exchange experiences, views and ideas on issues related to safeguards and nuclear material control and accountancy. TREN’s experience of working with European nuclear operators provided useful insights that could then be applied in Russia to develop a more effective system of control and accountancy. The contacts between DG TREN and what was then MINATOM were ended for reasons related to the internal reorganization within the Commission and not because of a lack of demand for cooperation from the Russian partners or a lack of financing. *Re-establishing this cooperation should be seen as a matter of priority.*

Domestic nuclear supervision should be based on modern legislation and carried out by effective, independent regulators in order to sustain long-term nuclear security. The state holding nuclear material has sole responsibility for its security. There is hence a need to support national licensing authorities. Measures in this direction involve international competence and information sharing with relevant domestic authorities, assistance in the further development of the

legislative basis and requirements, and technical and financial support. This could contribute to the development of the needed nuclear security cultures, and hence sustained nuclear security.

In a sound nuclear security culture, all personnel at all levels are aware of and committed to widely understood security requirements. Not only are equipment and technology made available and affordable, but measures are put in place to ensure that such equipment is put to use, kept in good working condition and improved. In such a culture, security regulations and procedures are implemented, and personnel are motivated to carry out their security-related tasks and respond accordingly to any emergencies. All this means that nuclear security rests not only on technical innovation but also on the cultivation of knowledgeable, skilled and motivated personnel trained to use modern equipment and adhere to best practices.

Such approaches tend to be much less ‘visible’ and harder to measure than quick technical fixes. However, supporting investment in projects whose pay-off may not be immediately apparent may be the most effective form of nuclear security.

Recommendations for a specific project: Develop an integrated nuclear security assistance programme to improve nuclear material accountancy and control, and to strengthen nuclear safeguards

The EU should, as a matter of urgency, establish a nuclear security programme.

The programme should not be confined to the former Soviet Union, although FSU countries would be the first to benefit from it. The programme should form part of the overall package of instruments available to support the WMD Strategy, and the Council should determine the countries and regions where such instruments might be offered, while working with those countries and regions to create a favourable political environment to facilitate the implementation of the programme.

Consolidating and reducing HEU stockpiles

There are many reactors that use HEU in their fuel and they include reactors, critical assemblies and subcritical assemblies at nuclear research installations. From the non-proliferation point of view it is important that such reactors use HEU in equipment that operates at such low power that the fuel does not accumulate a significant inventory of plutonium. Critical and subcritical assemblies operate at such low power that their fuel does not accumulate significant inventory of fission products in general, which means that their spent fuel is only slightly radioactive and below the threshold beneath which the IAEA considers reactor fuel ‘self-protecting’.

There is no comprehensive information about the location and type of nuclear research installations in the world. Even for Russia the available information is slightly contradictory, although it is clear that many such installations exist in the country. It is believed that Russia has between 50 and 60 operational research reactors and assemblies. Research reactors are likely to have between 1 and 10 kilogrammes (kg) of uranium 235 in their cores, but can have large on-site inventories of HEU in fresh and spent fuel. As of December 2002, Russia was estimated to have almost 94 metric tonnes of research reactor spent fuel stored on sites with almost 17 metric tonnes of uranium-235 in it.

The IAEA has underlined that the security of research reactors and their associated facilities is of increasing international concern. In the context of its comprehensive approach to addressing nuclear security issues, the IAEA has developed an integrated plan for enhancing the security of research reactors and their associated facilities.

Recommendation for a specific project to support HEU consolidation: Support the development of nuclear research ‘centres of excellence’

To help downsize the nuclear establishment the number of locations where experiments with nuclear materials are conducted should be reduced in two ways.

First, modern computer simulations allow for the decommissioning of equipment at many facilities because the code needed to model reactor-core behaviour is sufficient to replace the facilities. The Argonne National Laboratory’s ZPPR critical facility in the USA was shut down in 1997 for this reason. The upgrading of computing and information technology at nuclear research establishments should be undertaken to reduce the need for reactors, critical assemblies and subcritical assemblies in nuclear research.

Second, there is an oversupply of research reactors. While the precise number is unknown, there are roughly 300 research reactors of different kinds in the world. The IAEA’s Crosscutting Co-ordinator for Research Reactors has estimated that one decade from now there will be a demand for no more than 30–40.

To reduce the capacity in line with demand, the Director General of the JRC has proposed planning future research around a movement towards establishing ‘centres of excellence’. Groups of countries could have a single location (a ‘regional centre of excellence’) in which one sophisticated facility would meet the nuclear research and isotope production needs of all of them. Bigger states could consolidate their national nuclear research in one centre. This tendency would promote the optimum use of research resources while enhancing security and promoting non-proliferation through the concentration of proliferation-sensitive human and material resources at fewer, more easily secured and monitored sites.

The Russian Federation, where most research reactors are located, has not undertaken any concerted consolidation of research within its territory. However, the Central Research Institute of Management, Economics and Information has received a US\$60,000 grant from the Nuclear Threat Initiative (NTI) to carry out a Russian Research Reactors Scoping Study, in order to initiate planning for the removal of HEU fuel from research facilities in Russia to more secure locations in the country. This may be a first step in the direction of consolidation of nuclear research in Russia.

The European Union has a long history of working with Russia’s civilian nuclear research community, including the provision of significant financing for research centres in Obninsk and Moscow. *The Commission should open a dialogue on the issue of consolidating nuclear research into fewer centres of excellence in Russia.* The dialogue should include the questions of financial support for the upgrading and refurbishment of such facilities, as well as the potential for participation by other FSU countries in nuclear research. The development of centres would be in parallel with the safe and secure decommissioning of existing research reactors and the movement of HEU to secure locations.

Elsewhere, the US-led Global Threat Reduction Initiative (GTRI) has as one of its elements activities to convert reactors using HEU in their fuel to run on low-enriched uranium (LEU). As one step in this process the USA is conducting a comprehensive survey of world nuclear research installations to identify HEU-fuelled reactors, critical assemblies and subcritical assemblies. *The Commission should work closely with the GTRI in order to help complete this inventory* and should use the information gathered to investigate the prospects for further regional and national nuclear research centres of excellence.

3. RECOMMENDATIONS IN THE FIELD OF RADIOLOGICAL SOURCE SECURITY

The effects of an attack using radiological materials (often called a ‘dirty bomb’) can vary considerably depending on the type of material used, the type of attack, and the environmental conditions prevalent at the time of the attack. However, it is generally accepted that a radio-

logical attack would produce relatively few fatalities. Although the number of terrorist incidents (attempted or actual) involving radiological devices has declined, governments and the international community as a whole are right to focus attention on the risk of misuse and proliferation of dangerous radiological sources and materials.

The proliferation threat arises in no small part from states that are unable to control their radiological sources and materials adequately, leaving them vulnerable to diversion, theft or sabotage and attacks. An effective state system for accountancy and control (SSAC) is an essential element of nuclear and radiological source security.

There are hundreds of thousands of radiological sources currently in use in scientific and commercial activities worldwide, ranging from nuclear medicine and pharmaceuticals to geological activities. These sources pose varying degrees of proliferation risk according to their level of radioactivity and their relative sizes. The vast majority of civilian-use radioactive sources are controlled by their users in line with government regulations and reach the end of their working lives without incident. At that point they are subject to safe and secure disposal. However, reports by the IAEA express deep concern over the number of states in different regions worldwide that do not have proper control over their sources, and the potential for proliferation this creates.

The majority of high-activity sources left unsecured seem to be in and around the European Union, in particular in the states of the former Soviet Union and the Central and East European countries. These 'orphan' sources may never have been subject to regulatory control or were lost, abandoned, misplaced, diverted or removed without authorization. It is these orphan sources that are the main area of concern. Fears persist that they may fall into the hands of those who would use them in a malign manner, particularly high-activity sources, which pose the greatest threat.

In recognition of the threat, efforts are being made to reduce the risk at international, regional and national level, first and foremost by denying unauthorized access to high-activity radiological material. By and large, they focus on securing radiological sources that are vulnerable to attack, theft and misuse both in storage and in transit. This is achieved by legal and political agreements implemented nationally through domestic laws and regulations, and by establishing a national infrastructure for the recovery and storage of orphan high-activity sources.

There is a strong case for a European Union radiological source safety and security initiative. A radiological threat reduction task force, drawing on individuals from the Council, the European Commission and the Member States, could be established to give coherence to such an initiative within the EU and in dialogue with critical partners in the United States, the IAEA and countries where activities are to be financed and carried out. The objective would be to develop and implement a programme to help identify, secure and store on an interim basis high-risk radiological materials that could be used in an RDD, both in the EU and overseas. There is a need for a three-pronged initiative:

- first, by reducing the availability of high-activity radiological sources in the EU itself through the rapid implementation of recent EU law in this functional area. The EU should first ensure that its own house is in order so as both to set a good example to other countries and to reduce the risk of high-activity radiological source misuse;
- second, by helping to prevent the diversion, theft and smuggling of sources, as well as establishing coordinated efforts for the recovery of orphan sources in close proximity to the EU. This should be achieved by providing the resources to implement recommendations based on the series of national needs assessment carried out by the IAEA and financed by the Joint Action of May 2004. The 2005 Joint Action in support of the IAEA noted above goes some way to achieve this objective; and
- third, through enhanced support for and engagement in IAEA programmes and initiatives, as well as ensuring the implementation of IAEA standards, regulations and guidelines in national systems for regulation and control. In addition to risks stemming from European 'near neighbours' there is a great need for expanded programmes beyond Russia and the FSU. The IAEA has identified the Middle East and Africa as regions where there is known

to be a radiological source security problem. However, neither the magnitude of the problem nor an effective response has been elaborated in either case.

The European Union is improving its own legal base in the field of radiological security within its Member States in line with Council Directive 2003/122/EURATOM of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources. EU law should therefore ensure that the requirements set down in the Directive are implemented, using sanctions if necessary.

On a global level, by working to help states to update and enforce their radiological safety and security systems, the EU can help work towards an international radiological source security culture. Through supporting the development of expanded programmes in regions such as the Middle East and Africa, the EU can help to secure 'lost' sources. Finally, by keeping radiological safety and security high on its own agenda, the EU can help maintain the international awareness and interest which is vital for sustained efforts to improve security and mitigate the dangers attendant on international terrorism and the relative availability of high-activity radiological sources and materials.

Recommendation for a specific project: Establish a radiological source security programme

The elements of a radiological source security programme span a wide range of different types of activity. A European Union radiological threat reduction task force should be established to give coherence to such a programme. The objective would be to develop and implement a programme to help identify, secure and store on an interim basis high-risk radiological materials that could be used in an RDD, both within the EU and overseas.

The establishment of an International Catalogue of Sealed Radioactive Sources and Devices has been under way within the IAEA since 1999, prompted by the Action Plan on Safety of Radiation Sources and Security of Radioactive Materials approved by Board of Governors and endorsed by the General Conference of that year, which directed that the IAEA 'develop a repository of information on the characteristics of sources and of devices containing sources, including transport containers, and to disseminate the information, with consideration of the advisability of dissemination through the Internet'. The repository provides information on industrially manufactured radioactive sources and devices in terms of the characteristics and appearance of sources, the devices in which they are used and their transport containers. A primary purpose of this repository is to facilitate the identification of sources and devices that have been lost from control, and this information thereby assists in handling any sources 'found' safely.

During the 1990s the European Commission financed a number of reports that surveyed the national situation in Central and East European countries in regard to spent sealed radiological sources. These studies, which were used to underpin projects financed within the framework of PHARE and to prepare activities to be financed under the TACIS framework, emphasized the public safety and environmental consequences of inadequately secured radiological sources. They included a 1996 study of the management of sealed radioactive sources produced and sold in the Russian Federation, a 2001 study of the management of spent sealed radioactive sources in Central and Eastern Europe, and a 2003 study on the management of spent sealed radioactive sources in Bulgaria, Latvia, Lithuania, Romania and Slovakia. The studies included information on national inventories of sources.

The EU could continue to support transparency by updating existing reports and, as necessary, expanding the geographical coverage of reporting, ensuring that the information collected is compatible with the IAEA catalogue, is recorded in a separate database or as one part of an EU central database of such information, and is then made available to the IAEA.

A second catalogue that should be compiled is one at the EU level that records active and disused radiological sources, their locations, manufacturers, suppliers, users, characteristics and so

on. This catalogue is needed to monitor implementation of EU Council directives by tracking radiological sources from creation to disposal, thereby making it possible to identify whether they have been disposed of safely and to identify sources that have been lost or stolen. In the latter case a catalogue would make it easier to identify the place where a given source was stolen, and the theft would also give some insight as to what types of radiological sources are attractive to potential thieves.

Information from which a comprehensive EU catalogue could be compiled is being collected nationally. Under Council Directive 2003/122, each Member State is obliged to exchange information and cooperate 'with other relevant Member States or third countries and with relevant international organisations as regards loss, removal, theft or discovery of sources and as regards related follow-up or investigations, without prejudice to relevant confidentiality requirements and relevant national regulations'. Over time this system should be evaluated regularly to monitor harmonized implementation of the Directive and to ensure that relevant information is actually provided among Member States.

The scale of the task of creating an effective international radiological source security regime requires a systematic programme implemented over an extended period of time. The IAEA should be consulted to pinpoint existing areas for increased participation, areas for which there is already adequate provision and areas where it sees an important need to initiate new actions to ensure not only that needs can be identified but that there is then a plan for how to meet the identified needs.

While the role of the IAEA as the international body responsible for regulating the peaceful use of nuclear and radiological sources remains uncontested, it deals primarily with the activity of states. As one part of a radiological source security programme measures directed at sub-national groups have to engage law enforcement and intelligence-based bodies and processes.

Institutions for intelligence-gathering and -sharing, as well as law enforcement, already exist in the EU and are being further developed. One element of the radiological source security programme should focus on law enforcement, including the use of Europol (the European Law Enforcement Organisation) for dedicated intelligence gathering and exchanges between the EU Member States and Eurojust to facilitate the effective prosecution of suspected violations of regulations.

There are a plethora of forums, projects, programmes and initiatives to address the threat posed by high-activity radiological sources. However, their memberships differ even if most of them include many different EU Member States. If efforts are to be harmonized, consolidated and integrated to create an efficient 'whole' which is more substantive than the sum of its parts, it would be necessary to consistently review and assess the efficiency of all the pertinent activities undertaken (whether they be international, regional or national).

The EU should take responsibility for convening meetings at regular intervals to ensure that the issues discussed remain pertinent and that the mechanism is flexible enough to keep pace with real-world developments. The Community budget should finance one meeting every two years to identify the needs for the safety and security of nuclear and radiological materials and at the same time review activities designed to meet these needs. The budget should also finance a regular calendar of meetings in different regions to facilitate an assessment of the comprehensiveness of existing arrangements and to identify the areas that have the potential for further improvement.

4. RECOMMENDATIONS IN THE FIELD OF BIOLOGICAL WEAPONS

Of all the functional areas under consideration, that related to biological weapons is the one in greatest need of re-evaluation and reconceptualization. Concerns about BW during the cold war focused on the use of biological agents in munitions that would be used by the armed forces of states. But, by the time the BTWC was opened for signature in 1972, most of the countries that

had developed BW had already come to the judgement that these weapons offered too little by way of capability on the battlefield or in deterrence to justify their retention.

By the end of the 1980s it was believed that, the BTWC notwithstanding, roughly half a dozen countries had decided to develop biological weapons. In 1992 Russia admitted a delay in BTWC implementation by the former USSR that has been called by analysts 'gross' violation of the treaty over an extended period. In spite of the massive intelligence capability devoted to monitoring the Soviet Union this violation had not been confirmed until 1989. Other countries usually mentioned as actively seeking BW at that time and since include Cuba, Iran, Israel, Libya, North Korea, Sudan and Syria.

It has not been possible to achieve effective implementation of the BTWC and there is no list of countries agreed to be non-compliant. With the end of the activities in Iraq there are no ongoing BW disarmament efforts. The Russian Government refuses to discuss past Soviet programmes.

During the 1990s attention also began to focus on the threat from the deliberate use of disease by non-state actors (either groups or single individuals) to commit acts of mass-impact terrorism. In this context discussions of 'bioterrorism' (including those in the EU) no longer talk of biological weapons but of biological agents that might be used in attacks. However, separating the discussion from weapons brings into question the meaning of non-proliferation, as traditionally defined, in this new context and there is no conceptual clarity about the scope of the problem of bioterrorism itself.

A number of 'leading edge' processes in the life sciences (such as gene manipulation) are being explored in order to improve life for people around the world. However, the same technologies that could allow new vaccines and medical nano-machines to be developed also carry a potential risk of misuse. There is currently no international framework for regulating security-related aspects of the biotechnology industry.

In the absence of reasonably clear answers to the questions 'What is the contemporary definition of a biological weapon?' and 'What is the proliferation of biological weapons in current conditions?', a coherent and comprehensive set of practical initiatives cannot be prepared in this functional area.

The most difficult question regarding the nature of work carried out by a state's biological defence establishment is whether the work is part of an offensive, and therefore prohibited, programme or part of a defensive programme under which BW would not be developed in any circumstances. Short of the development of dissemination methods, weapons and large-scale production and stockpiling of BW, most, if not all, research and testing might be justified on the grounds that such work is necessary in order to more properly and fully evaluate possible BW threats. This argument can be justified partly on the grounds that other states are either known or thought to be undertaking similar work. Such activities may also be justified through a stated desire to more fully understand the potential BW threat posed by non-state actors.

The EU has committed itself to reinforcing the BTWC and this could be done, inter alia, by introducing measures designed to address both unresolved questions about the BW-related activities of states and the potential risk of bioterrorism. However, in order to define such measures it is first necessary to understand the nature of the contemporary biological proliferation concerns. Trying to implement practical measures in the absence of a clear understanding of the problem being addressed carries the risk that resources will be wasted.

Recommendation for a specific project: Define the concept of biological proliferation prevention

In the short term the main effort needs to be to bring clarity to the question what security problems need to be solved. The European Union should try to help establish this conceptual clarity, which can be the basis for future actions aimed both at reinforcing the EU's position as a

model of consistent best practice and at spreading such practices to neighbours and partners. The concepts of ‘biosafety’ and ‘biosecurity’ and the difference between them also need to be elaborated.

Initiate a study on the possible creation of a centre of excellence on collaboration on biosecurity and biosecurity training, as well as supporting epidemiological surveillance training. This centre should be affiliated to the European Centre for Disease Prevention and Control (ECDC) which has already been set up, and might be part of that Centre.

The first tasks for such a centre of excellence should be:

- to compile an inventory in EU Member States of the number of laboratories, institutes or commercial enterprises with culture collections with high-risk pathogens or toxins and/or that work with such agents, including their level of biosafety/biosecurity. There is a need for each identified user to keep detailed records on each individual transaction or movement involving the specified agents that includes internal movements within a facility, transfers within the country where the user is located, and transfers that cross borders;
- to conduct a worldwide study together with the authorities in other states and the World Health Organization (WHO) on facilities that have or work with dangerous pathogens or toxins, including level of biosafety/biosecurity in accordance with agreed guidelines and agreed select agent list;
- to develop guidelines on biosecurity that complement and take note of work that has already been done in this area by the WHO;
- to extend identified best practice concepts developed in other functional areas to the biosafety and biosecurity fields; and
- to support the definition and execution of EU policies and actions designed to achieve best practice in biosafety, biosecurity and bio-proliferation avoidance both within and beyond the Union’s own territory.

5. RECOMMENDATIONS IN THE FIELD OF CHEMICAL WEAPONS

There is a very strong case for the use of increased EU financing to facilitate non-proliferation and disarmament in the area of chemical weapons. Two areas in particular stand out as strong candidates for further action.

- There is an urgent need to provide the financing needed to support the destruction of Russian chemical weapon stockpiles within the timetable laid down by the CWC.
- There is a need to assist the OPCW to strengthen the national implementation of the CWC by states parties.

Destruction of chemical weapons in Russia

If Russia, the state with the largest declared CW stockpile, fails to destroy its arsenal of chemical weapons it will be a heavy blow to the CWC.

The political will to accomplish the task of chemical weapon destruction exists within the key decision-making bodies in both donor states and the Russian Federation. The Russian Government has identified the destruction of CW as one of its two highest priorities in the Global Partnership against the Spread of Weapons and Materials of Mass Destruction.

There are two separate but parallel tracks of CW destruction in Russia. One is the framework for donor assistance, while the other is the process of implementing the CWC. The two tracks are both necessary and should support one another.

Whether Russia will be able to meet its CWC destruction deadlines is partly a technical question. It may depend on whether parties will accept a single hydrolysis step as meeting the

CWC criterion that destruction should be 'essentially irreversible'. The question arises what, if any, effect this would have on the willingness of CW destruction donor states to provide assistance.

As long as Russia is implementing a destruction programme in a reasonably timely manner, the question of whether it meets the final destruction deadline is less concern. If, however, Russia does not meet its intermediate and final destruction deadlines and is unresponsive to the efforts to ensure that the CWC's provisions are fulfilled, this would result in concern that extends beyond the matter of CW destruction per se.

If Russia elected to disassociate itself from being obliged to implement the CWC according to current understandings (e.g., by being less responsive to requests for information or clarification from the OPCW) then such a development would have serious consequences for the regime generally because value lies in the parties' sense of obligation to respond to and adequately address the other parties' concerns that all provisions of the convention be fully implemented.

CW destruction assistance can therefore act as an 'insurance policy' helping to cement Russian engagement with the CWC as well as an instrument that helps ensure that the final CW destruction deadline is met.

In the past donor countries have been concerned about assistance implementation issues, including Russian responsiveness to information requests, and access, liability and taxation issues. Donor states have felt that they have insufficient information about details of Russia's final CW destruction plan, including what specific assistance is desired. However, in 2005 there has been significant movement to resolve these issues.

In Russia the legal and administrative framework for CW destruction has been put in place and has stabilized. In spite of some initial concerns, there is now evidence that the reorganization of the Russian Government carried out in 2004 has made the Russian engagement in CW destruction more effective. Russia has also considerably increased the level of its own financial contribution to CW destruction, in line with the political priority allocated by the government, including in the G8 context. Taken together, these are strong signals that Russia is prepared to engage very seriously on questions of CW destruction during its G8 presidency in 2006. The perspective for CW destruction assistance programme implementation could be very positive after 2007.

There is an existing framework for organizing the delivery of external assistance. Periodic and systematic coordination is already being organized among donors and between the donors and Russia, albeit informally, in meetings of officials convened and hosted by the government of the Netherlands.

At the June 2005 meeting of CW destruction assistance donors in The Hague, the Russian delegation provided a list of project titles and a rough estimate of their costs. This was needed in order for donor countries to focus more specifically on where their contributions can best be made. There are continuing uncertainties about how the priorities for CW destruction assistance are to be determined and agreed, and there is no clear picture of how specific projects are selected and agreed. Russia needs to indicate which projects it will fund on its own and which projects it would like to receive assistance for. Additional information needs to be provided at the working level, but momentum appears to be developing to move this issue forward. There will be a continuing need to clarify in a systematic manner the question of how project needs are identified and funded to avoid confusion among donor states about the nature and type of assistance offered. However, the current mechanisms appear to allow for this.

For the reasons stated, there is currently an environment where the pace of CW destruction in Russia could be accelerated.

For Russian CW destruction, the priority for funding should generally be allocated among sites according to (a) which are the next facilities scheduled to be constructed within the currently agreed programme; and (b) which sites hold munitions that represent the greatest proliferation risk. Small munitions filled with organophosphorus nerve agents are stored at the storage facility at Kizner in Russia. The size and technical characteristics of these munitions make them a significant proliferation risk.

Decisions on aid to construct the next set of CW destruction facilities need to be taken as soon as possible to ensure that the donor programmes can be implemented in an effective and timely manner, in the light of the current timetable.

In broad terms, the areas of CW destruction assistance can be divided into (a) chemical weapon destruction facility (CWDF) assistance (i.e., assistance that is to be a part of the CWDF itself), (b) CWDF-related infrastructure (i.e., assistance that is less directly connected to the planning, construction and operation of a CWDF, such as the construction of a railway for transporting chemical munitions), (c) environmental and human health-related projects, and (d) broader or more general social support projects (e.g., the construction of schools).

Table 2 outlines in more specific terms the types of assistance needed within each of these broad categories.

Table 2. Framework outline of types of CW destruction assistance project

CWDF assistance

‘Hot zone’ equipment

Sampling and analysis (on equipment)

Decontaminant and other emergency treatment material and equipment

Contaminant detection system

Physical protection system and equipment

Transport

CWDF infrastructure

Transport system (e.g., railway, road)

Power (i.e., gas and electricity) generation and distribution system

Water supply

Housing

Laboratory

– quality control assurance

Central information management and control centre

Transport

– supply of emergency equipment

– removal of materials and personnel

– transfer of CW agents and associated material and equipment

Environmental and human health

Environmental and human health monitoring system and associated equipment

Mobile air, soil and water sampling and analysis (both on- and off-site) equipment

Medical diagnostic and treatment centre

Social support

Construction (e.g., schools, housing)

Recreation facilities

Water and wastewater treatment and distribution systems

Of the four types of assistance, only one involves work that is located in or close to the ‘hot zone’ of the facility (i.e. that part where the chemical weapons themselves are stored and where the process of destruction takes place). However, all four types of assistance are essential to the overall project implementation.

Projects outside the hot zone can be among the more expensive components of the overall programme to construct and operate the CWDF in that they represent significant public works projects. However, this kind of project assistance does not involve any direct engagement with weapons or weapon technology. Therefore there are many areas of the overall CW destruction process where a contribution from the Community budget could be particularly useful.

Recommendation for a specific project: Contribute to the construction of a CWDF at Kizner in the Russian Federation

Approximately 5,745 metric tonnes of sarin, soman and V-gas are stored in c. 2 million artillery shells and rockets at Kizner. These munitions are small and this, along with their technical characteristics and the way in which they have been maintained, make them a potential proliferation risk.

The current schedule for CW destruction envisages that the CWDF at Kizner will become operational in 2009. However, little or no foreign direct destruction assistance has been provided for the construction of the facility to date. Two countries, Canada and the UK, provide funds to Green Cross Russia's public outreach office near Kizner. The UK has a bilateral legal framework with Russia that would allow the 'piggybacking' of financial assistance being contributed to specific projects. The UK is already working in Russia using 'piggybacking' arrangements. The different donors who have provided the UK with funds have different national requirements for the administration of their national funds. However, according to the experience of the UK thus far, the current system that has been put in place to administer the funds provided by other donors has proved efficient.

There is a strong case for an increase in European Union funding for the construction of a CWDF at Kizner, as it has received comparatively little attention to date. The EU would exert maximum effect if it took a collective decision to take the main responsibility for assisting with the establishment of one CWDF. The combination of financing needed to support the EU assistance effort could be provided through a programme managed and coordinated by the UK using the legal and administrative arrangements that have already been accepted by Russia.

As one part of this overall EU contribution, the Community budget could earmark a sum of €100 million to support projects that are outside the 'hot zone' but that are essential for the construction of this facility. Detailed costing studies should now be carried out to compare such considerations with specific, detailed Russian requests.

Assisting implementation of the Chemical Weapons Convention

Since the end of 2003 the States Parties to the CWC have been carrying out an Action Plan regarding the implementation of Article VII of the convention. Article VII contains the commitment by states to introduce the necessary measures to ensure the national implementation measures that are essential if the CWC is to be effective. Although states themselves decide how to meet their commitments under Article VII, there are certain elements of national implementation that are recognized as essential. These include the criminalization of acts by individuals if those acts would be prohibited when performed by a State Party itself, the setting up of a designated national authority responsible for implementing the treaty at national level, a system for monitoring the international transfers of chemicals identified in the schedules attached to the CWC, and a legal basis to control imports and exports of scheduled chemicals.

The OPCW has a Technical Secretariat (TS) that is tasked with offering technical assistance to help states implement the Action Plan. The resources available to the OPCW do not permit a very extensive assistance programme to be carried out through the organization itself. The TS carried out a needs assessment using information provided by the States Parties to the CWC, and concluded that a large number of States Parties have inadequate national implementing

legislation. Since by no means all States Parties provided the information requested from them, it cannot be excluded that there are additional lacunae.

In the Action Plan, States Parties to the CWC that are able to provide assistance of any kind towards national implementation in other States Parties are asked to make that fact known to the OPCW Secretariat. The Action Plan also encourages the Secretariat to identify and engage with regional, sub-regional and other relevant groups of states parties to advance implementation efforts. The Secretariat concluded in its progress report that it would be useful to approach the EU.

In November 2004 the EU adopted a Joint Action on support for OPCW activities in the framework of the implementation of the WMD Strategy. The Joint Action was intended, among other things, to help the OPCW in its efforts to provide 'sustained technical support to States Parties that request it for the establishment and effective functioning of National Authorities and the enactment of national implementation measures as foreseen in the CWC'. The value of this element of the Joint Action (Project 2) was €489,000 which was to be used for three activities.

- Assistance visits on legal and technical aspects to respond to specific needs of requesting States Parties which are yet to fulfil their Article VII obligations. Such assistance was to be provided by experts/resources from the OPCW staff with the inclusion of EU experts, as necessary. The duration of each visit was to be about five days and the visits were to comprise no more than three experts for each visit.
- To finance participation by national authorities responsible for the implementation of the CWC and other concerned agencies in a technical meeting on the transfers provisions of the CWC. This was to facilitate wider dissemination of information about these provisions as well as an appreciation of EU export control regulations.
- To finance the participation of customs officials in a meeting related to export control regulations related to the CWC. A critical component for ensuring that transfers of chemicals take place for intended purposes is the proper sensitization of customs officials to the provisions of the CWC. This meeting was to involve table-top exercises, discussions on scenarios and sharing of experiences by experts from the EU and other participating Member States.

The Action Plan that is intended to strengthen the CWC has an important synergy with the implementation of UN Security Council Resolution 1540 of 28 April 2004. As part of that resolution UN Member States are required, among other things:

- to adopt and enforce appropriate effective laws which prohibit any non-state actor to manufacture, acquire, possess, develop, transport, transfer or use chemical weapons, in particular for terrorist purposes, as well as attempts to engage in any of these activities, participate in them as an accomplice, assist or finance them;
- to take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery, including by establishing appropriate controls over related materials; and
- to establish, develop, review and maintain appropriate effective national export and transshipment controls over CW-related items, and to establish and enforce appropriate criminal or civil penalties for violations of such export control laws and regulations.

Recommendation for a specific project: Assist the OPCW in the development of CWC national implementation measures

The activities financed through the EU Joint Action represent a valuable contribution to the implementation of the Action Plan that is intended to make the CWC more effective. However, the EU contribution notwithstanding, the Action Plan is not going to be implemented within the agreed timetable and is not, as currently conceived, going to achieve the desired result of full national implementation of the CWC. Instead, it should be seen as an incomplete process.

The way in which the Action Plan is formulated makes it very compatible with INDA programmes in that, while it recognizes that the current level of CWC implementation is unacceptable, it prescribes a proactive and cooperative approach to be the most appropriate solution to this problem. However, to achieve the objectives of the Action Plan there is a need for a much wider set of assistance activities to be sustained over an extended period.

The OPCW Technical Secretariat is the appropriate body to manage and coordinate the activities to strengthen the national implementation of the CWC. However, it is unlikely that the OPCW itself will be able to finance the necessary activities using its own resources. *The EU should ensure that the OPCW has a secure financial basis to conduct the following programme:*

- Prepare and distribute a fully developed national implementation manual that includes: model legislation and regulations, and ‘lessons learned’ from past national implementation experience of states. The manual should be available in paper form and electronically and should be distributed both via the Internet and using other electronic media. Through work carried out by the United States and Romania, the elements needed to carry out this task have largely been prepared.
- Conduct a systematic programme of outreach to raise awareness of the existence of the manual and encourage its use. This outreach should be conducted in cooperation with European Union programmes where there are synergies (for example, elements of the OPCW programme should be carried out in cooperation with an expanded and strengthened EU export control assistance programme).
- Carry out a schedule of country visits according to a well-structured and systematic timetable. The visits should be prepared far enough in advance to ensure that all relevant officials are part of the programme in the country visited. The visits should be carried out by teams organized and selected by the OPCW TS but drawn from a register of experts competent in the different relevant fields. The timetable should be organized to facilitate the creation of teams with stable membership and the full range of necessary expertise (at a minimum a team should include legal, administrative and technical experts). This stable composition and range of expertise are essential to develop effective cooperation among the members of a team. The teams will probably include representatives from industry and the private sector (who have a critical role in national implementation) as well as experts from government and international organizations.

6. RECOMMENDATIONS IN THE FIELD OF EXPORT CONTROL AND BORDER MANAGEMENT ASSISTANCE

Export controls have an important place within the overall spectrum of measures that can be used to promote non-proliferation. The basic principle of export control is that controlled items should not leave the jurisdiction of the exporting state without authorization. The decision whether or not to grant this authorization is based on an assessment of the potential end-use of the item (in essence a technical evaluation of what it might be used for) and an assessment of the end-user. Therefore, export controls have certain features that are well tuned to the current security environment. First, whereas many arms control measures address existing arsenals, export controls are a preventive measure. Second, the end-users that are assessed are often non-governmental actors such as industrial companies or specialized research institutions. Export control laws and regulations create binding obligations for non-state actors that are linked to sanctions and their implementation has also generated mechanisms for dialogue with industry.

There is a compelling case for a comprehensive EU export control assistance programme. An export control-related assistance programme has the potential to contribute to all the functional/threat-oriented/issue-oriented and geographical CFSP priorities mentioned in the Perspectives for Future Action. A programme would enhance the coherence and credibility of the WMD strategy and help to introduce a degree of balance in EU WMD non-proliferation efforts vis-à-vis those of the USA and other countries. This balance will help to strengthen coordination and cooperation with key partners in implementing the WMD Strategy. Furthermore, it is in the

special interest of the EU to help future members develop effective national systems and thereby meet one of the requirements contained in the EU *acquis*.

Proving the Union's 'commitment to use all instruments at its disposal to counter the threat of proliferation of WMD and their means of delivery' and living up to commitments made in the WMD Strategy requires a programme that is supported at the appropriate level financially, politically and through staff resources. In the area of export control assistance, such a programme will have to be built and implemented in a systematic manner over an extended period. Therefore, the undertaking will require long-term, predictable financing.

Under the Joint Programme of Work on the Nonproliferation of Weapons of Mass Destruction, agreed in Washington on 20 June 2005, the USA and the EU agreed to 'work together to respond, where possible, to requests from States seeking to implement the requirement set by the Security Council Resolution 1540 and in particular, to put in place national legal regulatory, and enforcement measures against proliferation'. Export control assistance provides a prime opportunity for transatlantic cooperation to prevent WMD proliferation.

The internationalization of industry means that cross-border transfers between different parts of the same company now account for roughly half of international trade. By working to help states to develop modern and effective controls the EU would not only support non-proliferation objectives but also create a safer environment for investment by European industry.

Since export controls are only as strong as their weakest link, raising the effectiveness of export control systems across the EU are critical to security. Therefore inward-looking capacity-building (primarily through the peer review process), and work with accession countries as well as aspiring countries in the immediate neighbourhood must go hand in hand. The need to treat others as peers and the expectation that the EU will learn something from them that will in turn help to strengthen its own system paves the way for real cooperation, which is essential to combat WMD proliferation.

In the recent past the EU has taken steps to deliver export control assistance. In November 2002 Russian experts gave an overview of the state of play of their efforts to modernize their export control system at an Russia–EU Round Table meeting in Moscow. As a result of that meeting, an initial proposal for a cooperation project was drafted and discussed with the EU Member States and the Russian counterpart. Contacts were also established with the US Export Control and Related Border Security Assistance (EXBS) programme to ensure that the EU proposal was not duplicating already ongoing projects.

A TACIS project worth €3 million has been finalized to support a project to be implemented by the German national licensing authority, the Bundesausfuhramt (Federal Export Office, BAFA), with the support of experts of other EU Member States as appropriate. The project will focus on the legal and regulatory framework, on the support for capacity building, on implementation practices (licensing and enforcement), including at local level in Russia, and on government–industry relations. The method will mainly use exchange seminars for EU–Russian official experts, the drafting of a Reference Guidebook for export control implementation, the setting up of an Internet Information Centre, training seminars for Russian licensing and enforcement officers, and seminars and workshops for industry specialists. Training needs assessments will be done in detail at the beginning of the project, which will allow further fine-tuning to the Russian needs and take account of other existing cooperation programmes.

The Field Validation Exercise supported by the Pilot Project being carried out by SIPRI will be held in the course of 2006 in the Western Balkans, with a particular focus on Croatia, Bosnia Herzegovina, and Serbia and Montenegro. Seminars and exchange visits will be organized to help implement current export control legislation and to define possible future actions.

A second Pilot Project (worth €1.5 million) was assigned to the Commission at the end of 2004. While the precise scope is still being determined, the decision has been taken to focus on

export control cooperation. The project will be defined taking into account the need for an EU cooperation programme that can complement long-standing US and Japanese efforts. The project takes into account the importance of the EU neighbourhood and the next round of accession, as well as the political dialogue with some key partners (including China and India, and countries in the Middle East and North Africa).

The terms of reference for the second Pilot Project are in their final stage of preparation and the intention is to select three to four countries or regions for cooperation. The exact selection will be made at the start of the inception phase, and the scope of actions will be determined according to the needs of the selected counterparts.

This project will be implemented by BAFA and Germany is co-financing this Pilot Project. However, BAFA will call upon experts of other EU Member States as required. While the Pilot Project has a value per se, it may also serve as a testing ground for one model that could be applied over the longer term to deliver cooperation and assistance by the EU in the field of export control.

Future EU export control-related assistance should complement existing efforts, build on existing programmes, and expand or adapt them following an in-depth lessons-learned exercise, and build on lessons learned by other actors, both donor and beneficiary countries. Activities would be multi-layered, multi-country and multi-institutional, but would need to be well coordinated and backed up by a coherent strategy in order to be effective and efficient, and will require substantial resources both from the Community budget and at Member State level. They would include both a political dialogue/outreach element and the delivery of technical assistance.

Whatever the model chosen and the political priorities for future EU export control assistance, it is possible to draw on lessons learned in past programmes, and identify the essential elements of effective and efficient assistance.

Credibility and sustainability require long-term engagement in a partner country, and one-off events that cannot be followed up by consistent funding and coherent engagement are not likely to strengthen export controls. There could also be an element of conditionality through requesting a local contribution in terms of funds, priorities and staff. Knowledge transfer within the target country's institutions should be built in to any training programme.

Coordination between Member States, between Member States and the Commission, within the different fields of Commission activity, and between EU actors and non-EU actors would maximize synergies, optimize resource use, and thus achieve effectiveness, efficiency and credibility. This would reduce duplication of effort, contradictory messages, and hiatuses between phases of donor engagement.

Investing in lessons-learned and evaluation exercises, regarding both past EU experience (in particular the last round of enlargement) and that of other countries, would avoid reinventing the wheel and repeating mistakes. Information exchange about past and future bilateral outreach and assistance should take place among officials both in the EU and in the framework of regimes.

Activities must take into account both the individual country's needs and the advising/assisting country's expertise, for example, by matching countries which are comparable in size, export volume, licensing and enforcement capacity, and legal systems. The diverse membership of the EU is an advantage in that an EU approach could draw on the valuable, and sometimes more appropriate, expertise of smaller countries that do not have an independent bilateral assistance programme.

The model for current projects draws on the expertise of licensing and enforcement officers in Member States whose primary task is to control exports from their own jurisdiction. In a future programme providing export control assistance and cooperation must be part of performance plans and political objectives to create incentives at working level and high-level participation.

From a capacity point of view, incoming visits are easier to manage than outgoing visits, as staff can still continue their everyday work. In addition, broader expertise can be offered. However, visits need to be well prepared and targeted, considering the questions what specific technical questions need to be addressed. They also require follow-up engagement, including outward visits.

Effective delivery of assistance must address country-specific challenges to establishing and maintaining the necessary capacities for an effective export control system. These include the recruitment and retention of a sufficient number of qualified staff.

Sufficient funds for the interpretation and translation of materials are essential, as many participants may not speak English. It may be worthwhile to invest in specialized language training seminars for licensing officers. A translation budget for export control manuals, control lists, national legislation and regulations, and model forms would be very useful for countries seeking to adopt EU export control standards.

Industry is potentially an important partner in delivering export control assistance. Companies can effectively communicate the interest of industry in export controls and internal compliance systems, demonstrate that meeting those requirements is possible (e.g. through participation by industries from the recently acceded Member States), and demonstrate the tools that assist in achieving the required standards.

Recommendation for a specific programme: Establish an EU export control assistance programme

The European Union should establish an export control assistance programme. The EU needs to acknowledge that effective export controls are not cost-neutral but require both political decision and capacity. Any programme needs to be well-funded and strategically underpinned and supported by high-level political engagement.

The EU export control assistance programme needs to have three components. First, a component that builds the necessary capacities. Second, a component that integrates and builds on past efforts and third, a mechanism for coordination.

There is a need to establish an EU pool of export control experts in the legislation, licensing and enforcement areas. There should be a pooling of resources for smaller Member States, building on the model of the peer review teams and on the established groups set up for the peer review. The assembly of this pool of experts could benefit from the lessons learned in civilian crisis management which draws on national police, judges and so on, for whom the same challenges apply: these are typically people who are not easily dispensable at the national level, especially the most experienced, who are those best qualified to conduct meaningful outreach, assistance and training.

At Member State level, Member States need to contribute their share by increasing numbers of staff at licensing authorities to enable competent, experienced officers to be available for assistance programmes. Outreach needs to be included in the core tasks of licensing and enforcement officers, rather than short-sightedly being perceived as distracting from their core task. There should be a dedicated travel and outreach budget for licensing authorities.

There is a need to establish a training capacity for licensing and enforcement officers in the EU, which would also be used to train incoming officials from future Member States and countries benefiting from EU export control assistance programmes.

A dual-use export control kit and ‘how to’ manual should shortly be available, which includes the materials necessary to prepare for (a) the integration of the dual-use *acquis* into national legislation and (b) its implementation. This resource could be built on to include materials collected at the national level and be put together jointly by two ‘old’ Member States (one small,

one big), one of the 'new Ten', and one candidate country. This would include models of relevant legislation, implementing regulations, rules of procedures, forms, models of national practice where different approaches prevail, and lessons learned from recently acceded Member States.

The programme will require a mechanism for intra-EU coordination, for example by establishing an outreach group drawing representatives from COARM, CODUN, CONOP and the dual-use working party, thus ensuring complementarity of Community and Member State approaches, and of conventional and dual-use outreach. A designated EU contact point for export control assistance should be one participant in that group. The participation in such a group would extend to experts in border management/customs/enforcement assistance. This group should work closely with the USA and Japan, and other actors where appropriate. It would discuss both past activities and coordinate planned activities among the different European actors and with other donor countries. A matrix and a database of past and future outreach and assistance efforts would serve as tools for coordination. There should also be in-country coordination. One option is to nominate an expert within the EC delegation or a Member State embassy as contact point for each of the countries with which the EU has an export control cooperation programme.

A mechanism for wider international coordination might be modelled on the Dublin Group which aims to coordinate donor action in the field of drug enforcement. Such a group should be not institutionalized but informal in character and could be coordinated by a smaller EU country that does not have extensive outreach capacities but has a strong commitment to outreach. This could also be a forum to exchange experiences between countries and learn from others' mistakes. The activities of export control regimes could be represented by the respective chairs.

At the national level, there is also a need for both intra- and inter-agency coordination on outreach. Member States need to coordinate closely between regional and functional desks. They also need to coordinate closely between regulation/licensing and enforcement outreach at both EU and national levels.

An annual reporting mechanism should be established on Member State, CFSP, and Community export control-related cooperative threat reduction. This report could be submitted not only to the EU Council but also to the 1540 Committee, should that body continue to exist beyond its present mandate period.

To finance this programme there will be a need to increase the number of officers available to deliver assistance effectively. The national authorities of Member States believe that a period of four or five years is needed to train an effective licensing or enforcement officer. Therefore, the expectation should be that an EU export control assistance programme with a wide geographical scope would commence in 2010–11. Prior to that date, there would be a need to support assistance activities at the level the present arrangements have already shown that they can support.

The EU should use as a base assumption the delivery of assistance in 12 countries during the next budget cycle. The working assumption, given the existing priorities that have been established by the Council, should be that some of these countries would be in the European neighbourhood while others would be further field. In addition, a sum should be allocated to establish and support the training of additional officers who are needed to deliver assistance effectively. The programme of activities recommended above would suggest the need for financing in the region of €300 million for the period 2007–13.

7. RECOMMENDATIONS IN THE FIELD OF THE INTERNATIONAL SCIENCE CENTRES

Support to the international science centres—located in Moscow (the International Science and Technology Centre (ISTC) and Kyiv (the Science and Technology Centre in Ukraine (STCU)—has been the most costly element of European support to INDA. Since 1994 the Community budget has committed €298 million to support the science centres. Moreover, European financing has been broadly stable, whereas the levels of US and Japanese support have

fluctuated significantly. Since 2000 the level of US funding has declined, meaning that the levels of EU and US support are now broadly comparable.

The task of the science centres is to reduce the risk that scientists who were trained to work in the former Soviet military research and development establishment but are no longer needed in this capacity do not apply their knowledge and skills in ways that lead to proliferation. Moreover, the science centres were tasked with doing this in a manner that enhanced and promoted transparency and confidence by linking scientists through cooperation. This is a finite group of individuals, although there is no accounting by Russia or other Soviet successor states of which individuals worked in former programmes and in what capacity. A range of assessments have found that the science centres have made a very significant contribution to non-proliferation through their work. However, these assessments also point to the need for a thorough reassessment of the rationale for and working practices of the science centres to see whether what can usefully be done using the instrument of the science centres has already been done.

Russia is no longer in a position where emergency assistance is needed, as it was in the crisis conditions that faced it in the early 1990s. Following the break-up of the Soviet military establishment, different newly independent states have consolidated their national military establishments. The Russian nuclear military establishment has re-absorbed many scientists and engineers who possess critical proliferation-relevant knowledge and skills. Russian scientists and engineers who worked on developing chemical weapons are using their skills to develop chemical weapon destruction technologies. Russian authorities have barred scientists and engineers that worked in the clandestine and illegal Soviet BW programme from participating in the work of the science centres.

The only compelling rationale for maintaining the science centres is to support non-proliferation. Proposals that science centres should be seen as instruments for channelling investment to support the commercial development of Russian science and technology have not demonstrated why this particular instrument should be more effective than others that are tailor-made for stimulating economic development and commercial success. The system for selecting projects for support by the science centres was not designed with commercialization in mind.

A study of the science centres carried out by SIPRI found, on the other hand, that the centres still have much to contribute to non-proliferation as such. First and foremost, the implementing agreements with Russia and Ukraine allow the science centres to offer a unique legal service in that they are able to contract directly with institutes, enterprises and scientists in the former Soviet Union, including those living in Russian 'closed cities' where delivery of assistance is not always easy and is sometimes impossible for external donors. This asset is unique and irreplaceable since the legal framework for the ISTC could not be recreated in other ways today. The centres have also built extensive and unique contacts with the scientific community in the former Soviet Union and have achieved a level of trust and acceptance that allows them to engage in a dialogue on sensitive issues. This aspect is valuable but not irreplaceable in that there are no insurmountable barriers to developing non-proliferation and disarmament assistance in non-Russian FSU countries today.

SIPRI's findings suggest that continued support to the science centres at current levels should be envisaged but should not be unconditional. Two key changes should be required before a decision to continue financing is taken.

One change is on the side of the Russian Federation. The current system for project selection depends on the Russian authorities screening scientists who will participate before project proposals reach donors for consideration. As presented, the proposals then do not give sufficient information to allow a proper evaluation of the non-proliferation significance of the work proposed. The Russian Presidency of the G8 in 2006 offers an opportunity to develop a procedure for evaluating the non-proliferation impact of science centre projects in the framework of the Global Partnership against the Spread of Weapons and Materials of Mass Destruction—where the redirection of former scientists is one of four functional areas selected as high priorities.

The second change is on the side of the European Commission. If Russia provides adequate information about the projects put forward for financing the donor community needs to be able to evaluate the non-proliferation significance of the proposals. The current system for evaluation is inadequate from a non-proliferation perspective. Moreover, the system is not transparent. The European Commission must develop a mechanism for incorporating a non-proliferation project assessment alongside the existing assessment of the scientific, methodological and financial aspects of the project proposals. This non-proliferation assessment must draw in a systematic way on the technical expertise of Member States.

Provided that greater clarity can be brought in these areas, the support from the Community budget for science centres should continue at present levels. One objective of the science centres is to move the focus of their project work away from a primary orientation towards nuclear issues and towards a more balanced functional approach that includes a greater number of projects in the chemical and biological fields. The Community needs to develop and sustain an implementation framework that allows it to make an effective technical evaluation of non-nuclear projects.

8. RECOMMENDATIONS IN THE FIELD OF THE PEACEFUL USE OF SCIENTIFIC POTENTIAL

The role of the international science centres located in Moscow and Kyiv is to help manage the legacy of the cold war. The massive military infrastructure that the Soviet Union developed over several decades was built by a very large number of scientists and engineers. The exact number is not known but has been credibly estimated in the range of 250,000, of whom between 30,000 and 70,000 were senior scientists and engineers. A subset (of unknown size) among these senior personnel would have worked on ways to develop and perfect NBC weapons. The non-proliferation imperative to know where these people are and what they are doing is obvious and is addressed through the science centres discussed above.

The only comparable community of scientists and engineers is located in the United States. However, around the world there are many other scientists and engineers who have not been employed on programmes to develop WMD but that nevertheless have knowledge and skills that could be applied. This could happen deliberately, when what appear to be legitimate, civilian scientific activities are used as a cover for the development of agents for use in mass-impact terrorist attacks. However, given the rapid pace of technology development in certain fields of biology, chemistry and biochemistry, the misapplication of individual skills might also be unwitting if industry and the research community carry out work with too little information about the possible applications and about the activities and intentions of their customers.

The proliferation potential of this wider scientific potential needs to be evaluated and safeguards need to be put in place against its misuse. At the same time, scientific potential is critical to solving many of the problems facing people around the world. Science and technology is central to economic development, improving public health and safeguarding the environment, to name but three critical areas. Barring science and technology development in different countries and regions would be contrary to the EU's broader objectives and is not the best way to approach the contemporary proliferation problem.

Initiatives to engage the scientific community in combating proliferation have been of three types.

First, adapting existing regulations at a national level and developing new regulations at the international level. In the recent past a number of instruments have been agreed at the international level that will create new obligations for the scientific community, whether based in industry or in the research community.

In this context special mention must be made of the provisions of Security Council Resolution 1540. This resolution requires all states to 'adopt and enforce appropriate effective

laws which prohibit any non-State actor to manufacture, acquire, possess, develop, transport, transfer or use nuclear, chemical or biological weapons and their means of delivery, in particular for terrorist purposes, as well as attempts to engage in any of the foregoing activities, participate in them as an accomplice, assist or finance them'. Furthermore, under the terms of the resolution all states are required 'to take and enforce effective measures to establish domestic controls to prevent the proliferation of nuclear, chemical, or biological weapons and their means of delivery, including by establishing appropriate controls over related materials'.

The national laws that are put in place to meet these obligations should bind the scientific community and industry in a legal framework that criminalizes any activities carried out by legal persons (whether companies, institutes, universities or individuals) that would contribute to proliferation, whether to states or non-state actors.

Second, there is discussion of the need for voluntary codes of conduct in the scientific community to create norms and rules that scientists and industry could apply to reduce proliferation and terrorism risks. These ethical codes would need to be developed within industrial and scientific professional societies. Industrial and non-governmental entities engaged in research have increasingly recognized that they have a broad responsibility to society, apart from their legal obligations, to ensure that they conform to a set of ethical standards. Respect for the norms of non-proliferation and anti-terrorism forms part of the ethical environment for research.

In addition to establishing ethical standards and making a commitment to abide by them, the scientific community has also recognized the potential need for what is sometimes called 'societal verification'—in other words, a responsibility to call to the attention of the public, or the appropriate public authorities, cases where research or other activities fail to conform to agreed ethical standards in the areas of non-proliferation and anti-terrorism.

Third, there has been a degree of institution building as new institutions have emerged to help address the issues of scientific responsibility for helping to build security.

In Jordan, government policy in this area has been shaped by the view that the future of the Middle East will bring unprecedented demands for regional cooperation on issues ranging from halting weapons proliferation to managing shared natural resources. The Cooperative Monitoring Center (CMC) was established in Jordan in 2002 at the Royal Scientific Society (RSS) in Amman. The CMC has developed its programme and activities in close partnership with the Sandia National Laboratories in the United States. It aims at building technical capabilities to support regional and international treaties and other strategic cooperative activities. The CMC is a forum for regional experts to jointly explore ways that technology can improve regional security.

The CMC, which is staffed by engineers and specialists responsible for enhancing technical applications, has the objective of becoming a main point of implementation in the Middle East to promote peace through technology, and providing a forum for regional officials in order to explore and adopt technology-related methods that can enhance cooperation in regional security issues. The CMC also benefits from access to the more than 700 employees employed by the RSS on an 'as needs' basis. In this way it seeks to engage the scientific community in Middle Eastern countries in practical activities and projects that apply their knowledge to constructive and peaceful purposes.

The CMC facilitates engagement by Arab scholars and scientists in training courses provided at the Sandia National Laboratories in the United States. It has a cadre of trained staff who conduct and host local as well as regional workshops and training courses on the linkages between technology and security in the Middle East.

Recommendation for a specific project: Support the implementation of UN Security Council Resolution 1540

The committee established at the UN Security Council to oversee the implementation of Resolution 1540 (the 1540 Committee) has focused on collecting, analysing and reporting on the national information that states were called upon to provide, describing the steps they have taken or intend to take to implement the resolution.

As of September 2005, 70 states had not submitted reports to the 1540 Committee. Of the 121 states that submitted reports (the European Union submitted a separate report in addition to reports by each of the Member States) a significant number have subsequently entered into a dialogue with the 1540 Committee on how to make those reports more comprehensive. The 1540 Committee hopes to be in a position to report to the Security Council on the current status of implementation before the end of its mandate in April 2006.

The experts who have compiled and analysed the data submitted by states have noted that the report will identify many gaps in implementing Resolution 1540. These gaps will be in all the functional areas covered by the resolution: criminalization of acts by legal persons that contribute to WMD terrorism, effective physical protection of sensitive CBRN materials and equipment, effective and comprehensive export controls, and comprehensive and effective border security management.

The UN does not have the mandate or the capacity to provide states with the assistance they need to close the gaps identified. However, in considering national reports, the 1540 Committee has identified both needs and offers of assistance. These needs and offers are stored in a database that has been established by the committee for the purpose. However, there are many steps that would need to be taken before the information collected could be translated into a programme to strengthen the implementation of Resolution 1540.

The 1540 Committee has appointed an assistance coordinator, but none of the countries that requested assistance has provided the coordinator with a point of contact that could be a point of entry for the countries offering assistance. Very few of the countries that offered assistance provided such point-of-contact information either. The UN itself has no procedures for identifying who would be the appropriate point of contact. Where potential assistance donors specified the assistance they could offer, they usually offered expertise that could be provided on a case-by-case basis. Few countries requested this kind of assistance. Countries requesting assistance sought financial assistance, training and equipment and infrastructure.

Although its mandate runs until April 2006, the 1540 Committee has already made it known that full implementation of Resolution 1540 by all states can only be seen as a long-term objective that will require continuous efforts at national, regional and international levels on capacity-building and assistance.

The European Union should immediately establish a point of contact that can act as the partner of the 1540 Committee coordinator. However, while the obligations established by Resolution 1540 are not time limited, there are many uncertainties surrounding the future of the 1540 Committee as such. Regardless of how the UN decides to proceed on implementing the resolution, *the EU should establish a system for providing assistance to states that need it in those functional areas where there is the necessary European capacity.*

The information about requests for assistance collected by the UN is public information and can be provided without difficulty to the EU. However, simply acquiring this information can accomplish little by itself. At the EU level there must be a procedure for evaluating the urgency of the request against non-proliferation criteria, a procedure for establishing the countries that will be offered assistance, a procedure for initiating dialogue with the identified countries, and a coordinating procedure to ensure that (non-EU) countries are not already meeting the need.

Given the long term-nature of the process of implementing the resolution, the EU should use the elements of Resolution 1540 as guidance in building its own capacities to deliver non-proliferation and counter-terrorism assistance during the next budget cycle. This paper has made clear that such capacities are needed to meet the needs of the EU, independent of the Security Council resolution. A future EU international non-proliferation and disarmament assistance programme should in any case contain the central functional elements of Resolution 1540.

The EU should not establish a dedicated Resolution 1540 assistance programme. However, *a Resolution 1540 Assistance Working Group would be a useful mechanism to coordinate EU assistance to countries that need it.* The Working Group could be established and convened by the EU but should be open to officials from the UN (a place should be offered to the 1540 Committee assistance coordinator if such a position remains), and non-European G8 partners with significant INDA programmes (in the first instance Canada, Japan and the United States). The group should be formed immediately but should meet regularly beginning in 2008 when the UN should have completed its assessment of assistance needs and strengthened EU capacities should be becoming available.

Recommendation for a specific project: Initiate a dialogue on an ethical code of conduct for scientists and businessmen

The Community budget should support a project conducted in the framework of the CMC to explore the development of an ethical code for corporate security responsibility with the business and scientific community in the Middle East.

The Middle East is one, but not the only, region where the wider community of scientists and businessmen have not so far been systematically engaged, nor supported by outside partners, in efforts to reduce the risks of proliferation.

The Community budget should support a trial project conducted in the framework of the CMC in Amman to explore the development of an ethical code for corporate security responsibility with the business and scientific community in the Middle East. Lessons learned could lead to the formation of similar initiatives in other regions where the need exists and which the EU has identified as priorities and fruitful partners for its security strategy.

This project would make an inventory of the business and research community in Middle Eastern countries whose participation can contribute to security building. A particular focus would be on the entities that hold and use proliferation-sensitive materials, equipment and technology.

The project would bring together representatives of European industry and research with representatives of the companies and research entities identified in the inventory noted above in a series of meetings (a) to explore the obligations contained in UN Security Council Resolution 1540 and (b) to evaluate what the business and research communities can do to make their activities consistent with these obligations on a voluntary basis.

The initiation of this project should begin with a dialogue with CMC staff as soon as possible. After the process of evaluation and definition, this project should be carried out over a period of three years beginning in 2007.