Needs and Best Practices on Chemical Safety and Security Management

25 November 2016

NEEDS AND BEST PRACTICES ON CHEMICAL SAFETY AND SECURITY MANAGEMENT

Executive Summary

This report is a summary of information provided by Member State focusing on existing or needed tools, guidance, and best practices in the area of chemical safety and security management (including those related to chemical industry and laboratories). Sixteen State Parties to the OPCW responded to the Secretariat's request and provided inputs.

This report provides an overview of chemical safety and security management initiative undertaken in Member States from around the globe representing all the five regions. This report doesn't intend to provide total comprehensive picture of all programmes and initiatives nor independent evaluation of programme effectiveness evaluation on this issue adopted on this matter.

This summary is the first set in a series of publications by the Secretariat looking at the tools, guidance, and best practices in chemical safety and security management implemented by Member States and those needed by others. The end goal of this initiative is to develop a collection of lessons learned regarding implementation, tools, guidance and best practices that can be shared among Member States and help respond to relevant needs in order to enhance integrated chemical risk management practices globally.

Member States not currently represented in this report are invited to provide comments regarding their chemical safety and security management practices and identify gaps in their capacity to prevent, detect, and/or respond to a chemical accident or a chemical security incident.

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Introduction

The Chemical Weapons Convention (hereinafter "the Convention"), signed by 192 Member States, aims to destroy existing stocks of chemical weapons (CW) and prevent the re-emergence of chemical weapons under international supervision. While the Convention seeks to ban chemical weapons, it also provides international cooperation among State Parties in the pursuit of chemistry for peaceful purposes, which is highlighted in Article XI of the Convention.

In the context of the Convention, chemical safety and chemical security can be referred to measures taken at the governmental and private enterprises to ensure that chemistry is practiced in a safe and secure manner.

- "Chemical safety" refers to measures to prevent non-deliberate releases of toxic chemicals into the environment and to mitigate the impact if such events occur. Chemical safety comprises disciplines such as occupational safety, public safety, process safety, environment safety, consumer safety and transport safety. Many of these are also dealt with by other international conventions and by several other international bodies and lead agencies.
- "Chemical security" refers to measures to prevent deliberate releases of toxic chemicals and to mitigate the impact if such events occur. In a wider context, it also includes policies to prevent attempts to acquire toxic chemicals or chemical weapons precursors.

In general, chemical safety and security management programmes, governmental or within private enterprises, national or international including these delivered by the OPCW, provide a platform for chemical industries, particularly small and medium enterprises, to discuss specific safety and security management issues related to chemical processes safety, layer of protection analysis, safety and security risk management and mitigation measures, toxic waste management, occupational health and safety and other issues that have a direct bearing on the effective implementation of the Convention for chemical industries.

Main objectives of these programmes include the following:

- Create a framework for cooperation and coordination at national, regional and international level to minimise the chemical accidents/incidents and potential misuse of chemicals;
- Build the national capacity on chemical safety and security towards full implementation of Article XI of the Convention;
- Promote awareness among Member States on chemical threats and suggest chemical threat reduction methods by assessing security risks; and
- Share knowledge and experiences among States Parties on chemical safety and security principles and develop network among them.

From 2009 to 2016, forty-seven events related to chemical safety and security management had been conducted by the Technical Secretariat of the OPCW (hereinafter "the Secretariat") with the support from States Parties. These events have engaged more than 1400 participants from more than 130 Member States. Participants have been provided with updated knowledge on, inter alia, current

practices, modern safety strategies, chemical site security management, and process safety culture. Best practices on chemical safety and security management within the countries also has been shared in this platform.

Through capacity building programmes on integrated chemical risk management, the OPCW seeks to meet the needs of Member States in the field of chemical safety and security management – an emerging and vital area in the peaceful use of chemicals. Indeed, since the inception of chemical and security programmes, the Secretariat has identified a widespread desire and increasing demands among Member States to learn more about other countries' understanding and practices on chemical safety and security management.

At its Sixteenth Session, the Conference of the States Parties (hereinafter "the Conference") adopted decision C 16/DEC.10 (dated 1 December 2011) on the components of an agreed framework for the full implementation of Article XI of the Convention. In accordance with operative paragraph 2 of that decision, States Parties and the Secretariat should "conduct, based on input from National Authorities and relevant stakeholders, a needs assessment on tools and guidance that would be helpful for promoting chemical safety and security." The Conference further recommended that States Parties and the Secretariat "organise workshops and training courses involving relevant governmental institutions, National Authorities, chemical industry and academic representatives, to promote the exchange of best practices, including on the improvement of chemical plant safety and safe transportation of toxic chemicals." In this context and based on its systematic gathering of knowledge and best practices throughout its chemical safety and security capacity building activities, the Secretariat invited Member States to inform, on a voluntary basis, their specific tools and practices in chemical safety and security management.

Specifically in the request, the Secretariat invited Member States to provide information based on the following questions:

- Tools, guidance, or best practices in the area of chemical safety and security management (including those related to chemical industry and laboratories);
- Description of tools, guidance, or best practices;
- Implementation status of tools, guidance, or best practices (if applicable); and
- Additional resources.

Sixteen[1] State Parties to the OPCW responded to the Secretariat's invitation and provided information on their respective needs, tools and best practices. The information provided by these sixteen Member States was supplemented by reviewing public source information to capture regional trend and allow for a broader perspective of chemical safety and security management implementation by Member States. While the Secretariat hopes to receive inputs from even more Member States, the sixteen reports at hand and supplemental material may constitute one of the largest inventories of tools, guidance, and best practices on implemented chemical safety and security management available in the world today.

The information gathered so far allows the Secretariat to provide, in this report, an overview of the types of chemical safety and security management initiatives currently in place in Member States from

[1] Afghanistan, Bangladesh, Chile, Cuba, Germany, Latvia, Malaysia, Mauritius, Myanmar, Peru, Panama, Sri Lanka, Sudan, United Kingdom, United States of America, Yemen

around the globe representing all the five OPCW regions: Africa, Asia, Eastern Europe, group of Latin American and Caribbean countries, and Western Europe and other groups. By no means does this report provide a total or comprehensive picture of all programmes adopted to deal with conditions conducive to chemical safety and security, nor does the report venture into an independent evaluation of the programmes' effectiveness. It is expected that this report will be the first in a series of reports highlighting both chemical safety and security management initiatives and an outline of tools, process, training, and other support needed to address chemical safety and security needs by Member States.

Integrated Approach to Chemical Safety and Security

Chemical safety and security are both vital areas in the peaceful use of chemicals. The Secretariat, in the context of this report has defined chemical safety to focus on those measures designed to reduce the risk of a chemical accident and chemical security to be those measures that reduce the risk of a chemical security incident. The overarching principles of both safety and security are prevent, detect, and respond[2].

- "Prevent" refers to the understanding of and implementation of measures to reduce the potential for a chemical accident or security incident to occur. A chemical accident may include an accidental release of chemicals into the environment, accidental exposure of a chemical. A chemical security incident may include the theft of chemical materials for subsequent misuse or the malicious release of chemicals into the environment.
- "Detect" refers to systems and processes that support the early detection of a chemical release or loss, and the confirmation of chemical use following a suspected release (either accidental or malicious). Detection systems should also incorporate risk communication processes.
- "Response" refer to both facility level response and national level response to a chemical accident or chemical security incident. Response systems include the engagement, equipping, and training of responders, such as fire, hazmat, emergency, and police.

The systems required to adequately prevent, detect, or respond to a chemical accident or chemical security incident are often found to overlap. As such, an integrated approach to chemical safety and security risk management may support more effective implementation of risk reduction measures, provide better detection and risk communication, can be used to support a culture of safety and security within the chemical sector, and allow for the more effective implementation of limited resources.

[2] Demonstrated by NATO in their CBRNE strategy, adopted by the Global Health Security Agenda (USA), and a common practices of industry

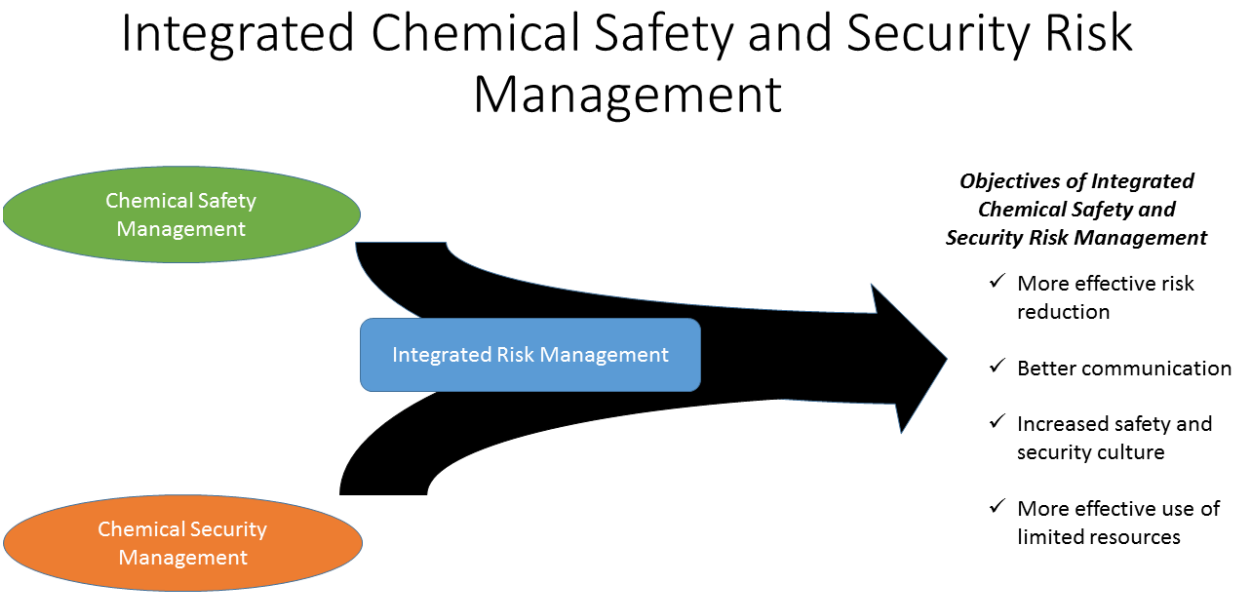

FIGURE 1: INTEGRATED CHEMICAL RISK MANAGEMENT [3]

Through capacity building programmes on integrated chemical risk management, the Secretariat seeks to better support the needs of Member States in the field of chemical safety and security management by providing context for the risks, working to provide tools and techniques to build a stronger safety and security culture, and provide guidance on the implementation of measures to reduce chemical accidents and chemical security incidents. This integrated approach has been demonstrated to be effective, inter alia, within localized chemical facilities[4], airports[5], and at national level within the nuclear industry[6]. Many of the tools, guidance, or best practices submitted by the sixteen countries align with integrated chemical safety and security risk management. Risk management is a system designed to assess the potential risks, implement processes to manage those risks, and ensure ongoing performance of those processes.

Regulations, Frameworks, and Best Practices that support Chemical Safety and Security Management

There exist international treaties, national level regulations, and industry best practices that support chemical safety and security management. In addition to the CWC, the following treaties, guidance, and best practices incorporate elements of chemical safety and security management:

[3] Derived from the World Health Organizations Biorisk Management Plan,2007

[4] Reniers, Genserik L. L., Multi-Plant Safety and Security Management in the Chemical and Process Industries, 2010

[5] Siemens, Airport Safety and Security Solutions, 2013

[6] Leach, et. al., Leveraging Safety Programs to Improve and Support Security Programs, 2015

- "UN Security Council Resolution 1540" – this resolution obliges States, inter alia, to refrain from supporting by any means non-State actors from developing, acquiring, manufacturing, possessing, transporting, transferring or using nuclear, chemical or biological weapons and their delivery systems. This resolution is focused on the prevention elements of chemical security risk management, but, the implemented regulations by many states support chemical safety focusing on the safe handling and transport of chemicals[7].
- "The Basel Convention" – this convention is focused on the protection of the environment during the movement of hazardous materials and encourages the reduction of hazardous waste. This convention is focused on chemical management designed to prevent a release into the environment, but implementing measures can support safe handling of chemicals and reduce the volume of chemicals in transport and within the waste system, supporting both chemical safety and chemical security best practices[8].
- "The Stockholm Convention" – this convention is designed to support the reduced production and use of persistent organic pollutants, these organic pollutants pose and environmental risk, but additionally may contain scheduled precursor chemicals or hazardous chemicals. As such, regulations and best practices adopted to support this convention directly support enhanced chemical safety and security risk management[9].
- "The Rotterdam Convention" – this convention is designed to support the labelling and handling of hazardous chemicals, specifically those traded internationally. This directly support safer handling of the chemicals along the supply chain and can be used to support supply chain security practices[10].
- "The Convention on the Transboundary Effects of Industrial Accidents" – this convention is a United Nations Economic Commission for Europe (ECE) convention designed to protect people and the environment against industrial accidents[11].
- "The Seveso Directive (I, II, and III)" – the idea of this directive to standardize the requirements for facilities conducting specific higher risk activities with specific hazardous materials. These requirements are designed to reduce the potential of a chemical accident and support the response to an accident[12].
- "The Globalized Harmonized System of Classification and Labeling of Chemicals (GHS)" – GHS is a voluntary framework with no binding treaty, but national level regulations have made this framework compulsory by many Member States. GHS defines standard for the classification of health and environmental impact of chemicals, defined a standard process for labeling and communication of chemical risks. This standardized process for labeling and classification of chemicals supports chemical safety and chemical security measures[13].

[7] http://www.un.org/en/sc/1540

[8] http://www.pic.int/

[9] Ibid.

[10] Ibid.

[11] https://www.unece.org/env/teia.html

[12] http://www.hse.gov.uk/seveso/

[13] UNITAR, Guide to the Linkages between the GHS and International Chemicals Management Agreements, 2011

- "Strategic Approach to International Chemicals Management (SAICM)"- SAICM is a framework focusing on chemical safety and life cycle management of chemicals. This framework, was International Conference on Chemicals Management (ICCM) in 2006 to focus on chemical management in the areas of chemical safety and environmental protection[14].
- "Registration, Evaluation, Authorisation & restriction of CHemicals (REACH)" is a European Union regulation designed to support health and environment risks from chemicals without impacting industrial competitiveness. This regulation is liked to members of the European Union, but many countries outside the European Union follow the guidance regarding risk management focusing on chemical safety[15].
- "Responsible Care ©" - Responsible Care © is an industry promoted set of codes focusing on worker safety, environmental protection, and chemical security. The collection of these codes are promoted by industry and not driven by any specific government entity. However, they promote chemical safety and security management in alignment with best practices[16].
- "International Organization for Standardization (ISO) Standards" – ISO standards, specifically 13000 on Risk Management, 28000 on the Chemical Supply Chain, 14000 on Environmental management, and 9000 on Quality Management all promote elements of chemical safety and security. ISO standards are purely voluntary measures, but are endorsed by some countries for their industry leaders as a competitive advantage[17].

Some of these international treaties, national level regulations, and industry best practices, in additional to national level regulations, have been identified or highlighted by the responding Member States as implemented to reduce chemical safety and security risks. The responding Member States have frameworks and regulations to support CWC implementation and many have additional frameworks and regulations defining occupational safety requirements, environmental protection, and transportation regulations; and have submitted their UN1540 implementation reports as of December 2015[18]. These reports provide context regarding the level of implementation of national policies and regulations focusing on chemical safety and security management. The level of implementation varies between the Member States.

Most of the sixteen responding Member States have ratified the Rotterdam, Stockholm, and Basel conventions; the exception is the United States, who has accepted but not ratified any, and Bangladesh and Myanmar, who have not ratified the Rotterdam convention[19]. These countries have, however, identified legislation and regulations that support the chemical safety and environmental protection measures defined by those conventions. Only a handful of Member States have not either accepted or fully ratified these three treaties.

[14] http://www.saicm.org/

[15] http://www.hse.gov.uk/reach/

[16] https://www.icca-chem.org/responsible-care/

[17] http://www.iso.org/

[18] NTI Index, 2016

[19] http://www.pic.int/

Some Member States work specifically to engage the chemical industry and academic sectors within and outside of their countries in efforts to create a strong chemical safety and security culture. These efforts complement the efforts undertaken by the Secretariat regarding outreach and education. Some specific risk assessment and security vulnerability tools were mentioned by the respondents.

Africa

The African region has been identified as one of the leading areas for chemical industry growth[20] due to its growing economy and natural resources. In the meantime, Africa has seen its share of chemical safety accidents and security incidents in recent years. As such, this region will be a key player in defining guidance and best practices in the next decade.

The UN1540 level of implementation, specifically focusing on chemical security, varies greatly across the African region. Some countries have very strong implementation, while others have minimal regulatory measures to support the protection of chemicals that could be misused[21]. Many of the non-regulatory chemical safety and security management systems, such as REACH[22], SACIM[23], and Responsible Care©[24] have independently identified the need for integrated chemical safety and security management within Africa and have been working over the last several years to identify the greatest needs and engaging industry and academic partners.

The responding Member States of the Africa region provided information regarding their implemented and existing tools, guidance, and/or best practices in the area of chemical safety and security management (including those related to chemical industry and laboratories). In general the responding Member States of the Africa region highlighted national level policies regarding chemical safety focusing on occupational health and transportation. In addition, Mauritius highlighted their implementation of the SAICM framework for chemical lifecycle management and the Dangerous Chemical Control Act. The responding African Member States also provided details on their processes for hazard identification and risk assessment for chemical safety, and emergency planning.

Asia

Over the last decade, Asia has witnessed a massive chemical industry expansion and has become a leader of the world's chemical market. As such, tools, guidance, and best practices from this region are useful to other growing economies. Most of the Member States within the Asian region have national policies or regulations regarding chemical and security management. The level of implementation and enforcement varies between the countries, specifically, implementation is more limited in the Middle

[20] Frost and Sullivan, 2016

[21] http://www.un.org/en/sc/1540

[22] Ackerman et. al., Implications of REACH for the Developing Countries, 2006

[23] http://www.saiicm.org

[24] http://www.icca-chem.org

East then in South or Southeast Asia[25]. Many Member States in the Asian region, specifically the Southeast Asia, have implemented or are working to implement measures such as REACH, Responsible Care©, and SACIM.

The Member States of the Asian region provided information regarding their existing tools, guidance, and/or best practices in the area of chemical safety and security management (including those related to chemical industry and laboratories). Almost all the responding Asian Member States highlighted regulations and standards for occupational health and safety and chemical transportation. Additionally, each Member State identified specific national policies regarding chemical safety and security standards for chemical industries, manufacturers, transportation, laboratories and storages. Some Member States conduct onsite evaluations of the chemical safety and security within the chemical industries. At present, this procedure is used to monitor industries that are using specifically regulated chemicals.

The Member States have implementing legislation that is specific to the Convention and restricts importation and exportation of scheduled chemicals. In addition, many highlighted Chemical Control Acts for regulations of additional specific chemicals. Malaysia has been working to implemented GHS across the academic and industry laboratories with support from the National Authority. Several of the countries also highlighted their ongoing capacity building to create awareness among stakeholders on importance of chemical safety and security management. Bangladesh provided details on hazard assessment software for plants and storage facilities.

Eastern Europe

The Member States of the Eastern Europe region have implemented measures in support of the Convention and in response to UN1540[26]. Most of these countries have additional environmental management and occupational safety regulations[27]. The responding Member State highlighted guidelines of the Convention that target businesses community. The goal of the business targeted guideline is to raise awareness explain the requirements and procedures of the Convention to the chemical industries. Member States within the Eastern Europe region are working to partner with industry in the implementation of measures to enhance chemical safety and security management.

[25] http://www.un.org/en/sc/1540

[26] Ibid.

[27] http://www.icrc.org

The Group of Latin American and Caribbean Countries (GRULAC)

The Member States of the GRULAC region have implemented measures in support of the Convention and in response to UNSCR 1540, the level of implementation and enforcement of these measures varies dramatically across the region[28]. The scale of the chemical industry within these Member States also varies based upon the existing natural resources and industrial development.

The responding Member States of the GRULAC region have provided the following information regarding tools, guidance, or best practices in the area of chemical safety and security management (including those related to chemical industry and laboratories). Most have implemented measures in alignment with the requirements of the Convention. Some of the Member States highlighted additional national regulations focusing on risk management for chemical facilities. Many GRULAC region Member States have adopted GHS; Brazil, Ecuador, Mexico, and Uruguay had fully implemented GHS as of late 2014, but were still working to integrate the GHS language into regulatory frameworks[29]. Argentina, Chile, Colombia, Costa Rica, Dominican Republic, Guatemala, Honduras, and Paraguay, from the same late 2014 report, were working on updates their existing transport and chemical safety legislation to be in alignment with GHS. Peru provided the Secretariat details on their level of implementation of GHS for chemical industries and outlined their specific regulations for the transportation of dangerous chemicals.

The Western European and Other Groups (WEOG)

The WEOG region has the most established chemical industry and a large chemical risk management infrastructure, as such this region can an offer guidance and support to other regions. Member States of the WEOG region have provided information regarding tools, guidance, or best practices in the area of chemical safety and security management (including those related government and private enterprises). Public source research and the responses received indicate the WEOG has an extensive amount of resources, equipment, tools and guidelines implemented in chemical safety and security management. Specifically, Member States in this region have been actively conducting outreach and training on chemical safety and security management for academia and industry. Member States within the European Union have adopted REACH and some SAICM. The chemical industries of several WEOG Member States are active in Responsible Care © and have implemented GHS. Most have implemented national level policies in alignment with the requirements of the Convention plus additional national policies focusing on occupational health, environmental protection, and security. Both the United Kingdom and the United States have provided details on tools and processes to support facility level security vulnerability analysis.

[28] http://www.un.org/en/sc/1540

[29] Cueras, Leticia, 2014 Latin America GHS Update, 3E Company/Verisk, 2014

Summary of Regulations, Frameworks, and Best Practices from all five Regions

Based upon the tools, guidance, and best practices, in the areas of chemical safety and security management submitted by the responding Member States and identified by reviewing publicly available information, most Member States have adopted national level policies specifically on occupational health and safety as well as environmental safety. A few have specific regulations on security for chemical beyond regulations regarding scheduled chemicals. Some of the responding Member State have experience with such industry best practices as GHS, SAICM, and Responsible Care©. These measures, while voluntary and industry focused have demonstrated a notable reduction in chemical safety and security issues. Countries with more expertise in chemical risk management have the potential to support countries with less experience by working in partnership in the development of guidance and tools. Leveraging experiences and expertise of Member State, the Secretariat aims to provide tools and documents to expand chemical safety and security management to all Member States.

Identified Needs Regarding Tools, Guidance, or Best practices in the Area of Chemical Safety and Security Management

Chemical safety are those measures designed to reduce the risk of a chemical accident and chemical security are those measures that reduce the risk of a chemical security incident. The overarching principles of both safety and security are prevent, detect, and respond. Needs identified by responding Member States have been organized into those categories to better identify trends and overarching gaps.

FIGURE 2: CYCLE OF MEASURES NEEDED TO REDUCE RISK

Prevent

Tools, guidance, and best practices in the area of chemical safety and security management for chemical facilities across the entire chemical lifecycle help to prevent chemical accidents and chemical security incidents from occurring. The majority of the responding Member States identified the need for increased awareness at both the national level and within the local chemical industries regarding integrated chemical safety and security management processes. There is a need to increase a culture of chemical safety and security globally. In addition to general knowledge, many requested more information on how chemical safety and security management support risk reduction and add value to chemical industries.

The key principles of risk management begin with understanding what risks may exist, the implementation of targeted mitigation measures, and assessing the performance of these measures[30]. Following this concept, a national level inventory, inventory management tools, and more knowledge of hazard assessment were specifically identified by several Member States. Additionally, general risk assessment tools and training, plus specific tools and training for security vulnerability assessments were also requested.

Specifically, Member States requested:

- Inventory Management systems,
- Hazard Assessment Tools,
- Risk Assessment Tools,
- Chemical Safety and Security Guidance documents, and
- Chemical Safety and Security Training (both general awareness and advanced implementation training).

Detect

Detection includes the tools, guidance, and best practices focusing on the identification of a chemical accident or a chemical security incident. Many responding Member States requested support for technologies for detection and identification following a suspected chemical accident or suspected security incident. Training on these technologies is also needed to expand to handling and tracking of samples.

Respond

Response measures are focused on those tools, guidance, and best practices following a chemical accident or chemical security incident. Many responding Member States have limited training for their response team and are requesting general and advanced (table top response exercises) training and

[30] https://www.irgc.org/risk-governance/what-is-risk-governance/

tools. Many are in need of personal protective equipment and decontamination equipment for their responders.

Summary of Identified Needs Regarding Tools, Guidance, or Best Practices from all Responding Member States

Many Member States are still lacking an indigenous culture of chemical safety and security. As such, this is the biggest need for the majority of the responding Member States. In addition to education and outreach, tools and technologies as well as guidance documents are needed to spawn the development of a responsible chemical culture. Detection technologies and response measures are also very limited in the regions outside the WEOG.

Next Steps

This summary is the first set in a series of publications by the Secretariat looking at the tools, guidance, and best practices in chemical safety and security management implemented by Member States and those needed by others. The end goal of this initiative is to develop a collection of lessons learned regarding implementation, tools, guidance and best practices that can be shared by Member States to Member States to enhance integrated chemical risk management practices globally. This collection will be disseminated to wider State Parties and used to enhance the Secretariat's relevant capacity building programmes

Member States not currently represented in this report are encouraged to provide inputs regarding their chemical safety and security management practices and identify gaps in their capacity to prevent, detect, and/or respond to a chemical accident or a chemical security incident.

Based upon this initial analysis, countries in every region have experiences and processes that can aid others in their enhancement of chemical safety and security, and countries in every region still have gaps that need to be addressed. Member States with newer chemical economies have unique issues and solutions while Member States with older chemical industries have well established practices and tools, which can be shared and learned. By sharing lessons learned, tools, guidance and best practices, in conjunction with identified gaps, Member States can work together to support chemical safety and security management globally.

Specific Tools, Guidance, and Best Practices Identified by Responding Member States

Country	Topic of area	Summary of tool/guidance or best practices	Link to tool, guidance, or best practice
Bangladesh	Chemical Safety Management	Bangladesh Fire Services	http://www.fireservice.gov.bd
Bangladesh	Chemical Safety Management	Bangladesh University of Science and Technology. This university offers courses in chemical process safety.	http://www.buet.ac.bd
Bangladesh	Chemical Safety Management	University of Dhaka	http://du.ac.bd
Cuba	Chemical Safety Management	The Office of Regulations for Cuba, Chemical Safety Regulations	http://www.orasen.cu/seguridad-quimica
Germany	Training and outreach activities	"OPCW Trains Chemical Safety Specialists in Germany The Organisation for the Prohibition of Chemical Weapons (OPCW) made another step to building of capacity of chemical safety specialists during a training held between 4 and 8 April in Wuppertal, Germany. Twenty three specialists from 22 countries benefited from two parallel training courses on "Loss Prevention and Safety Promotion in the Chemical Process Industries". The first course was offered for Africa region, while the second targeted Asia, and Latin America and the Caribbean (GRULAC) regions."	https://www.opcw.org/news/article/opcw-trainschemical-safety-specialists-in-germany/
Malaysia	Chemical Safety Management	Malaysia Department of Occupational Safety and Health under Ministry of Human Resources	http://www.dosh.gov.my/index.php?option=com_content&view=article&id=1699&Itemid=1385&lang=en

Peru	Chemical Safety Management	CINQUI (Chemical Informtion Center) is a non-profit organization created to provide information and advice in case of emergencies involving hazardous materials, in order to minimize damages, prevent, educate people in safety, protection, health care and the environment , Through clear, objective and accurate information in real time, through a telephone service activated 24 hours 365 days a year.	http://www.cinqui.org.pe
Peru	Chemical Safety Management	Chemical Information Center Library	http://www.cinqui.org.pe/biblioteca.php
Peru	Chemical Safety Management	Chemical Information Center Legislation	http://www.cinqui.org.pe/legislacion.php

United Kingdom	Chemcial Safety and Security Management	HSE is responsible for the regulation of activities on sites which manufacture explosives, or store more than 2000kg of explosives, including the granting of a license for the site to operate. The legislation which applies to such sites, is the Explosives Regulations 2014 (ER2014), which consolidated a number of pieces of explosives legislation relating to safety and security. The main requirements of the Regulations are: • anyone manufacturing or storing explosives must take appropriate measures to prevent fire or explosion • to limit the extent of any fire or explosion should one occur and • protect persons in the event of a fire or explosion Dependent on the quantity of explosives stored a site may also be subject to the COMAH Regulations. HSE operates a risked based scheme for the inspection of licensed explosives sites. HSE also enforces security arrangements on the explosives sites it has responsibility for, under the requirements of the Explosives Regulations 2014 (ER2014) and Section 23 of the Explosives Act 1875. HSE has good links with the Home Office and associated security services (CPNI and NaCTSO) which support this work. HSE also provides guidance on the safety and security of the storage of different quantities and types of Ammonium Nitrate	http://www.hse.gov.uk/explosives/index.htm

United Kingdom	Chemcial Safety and Security Management	DSHAR governs various aspects of the handling, storage, loading, unloading and carriage of dangerous substances in harbours and harbour areas. The regulations contain requirements to notify entry of dangerous goods into harbours, provisions regulating loading and unloading of dangerous substances, requirements for harbours to put in place emergency arrangements, and licensing and security requirements for harbours receiving explosives, among other things. Enforcement responsibility is shared between HSE and individual statutory harbour authorities. A consultation recently closed on replacing the regulations with new, shorter, Dangerous Goods in Harbour Areas Regulations. The purpose of the proposed changes is to remove redundant and duplicated material from DSHAR and to align the regulations with more recent regulatory and legislative changes.	http://www.hse.gov.uk/ports/dangerous-substances.htm

United Kingdom	Chemical Safety Management	European Union Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation & restriction of Chemicals (REACH) requires manufacturers and importers of chemical substances to take responsibility for chemicals they place on the market. They have to register their substances and provide data on them. REACH also enables regulators to evaluate the data provided and to introduce controls in the form of authorisations and restrictions where appropriate, applying a targeted and prioritised approach. HSE enforce the Pipelines Safety Regulations 1996 (PSR), which cover the onshore and offshore pipeline conveyance of oil, gas or chemicals (such as ethylene and ammonia). PSR provides a means of securing pipeline safety by placing duties, principally on pipeline operators, to ensure that pipelines are designed, constructed, operated and decommissioned safely.	http://www.hse.gov.uk/reach/index.htm
United Kingdom	Chemical Safety Management	The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations (CDG) and the European agreement "Accord européen relatif au transport international des marchandises dangereuses par route" (ADR) together regulate the carriage of dangerous goods by road. The ADR Regulations are owned by DfT, but for road transport, the Health and Safety Executive (HSE), the Driver and Vehicle Standards Agency (DVSA) and the police are responsible for enforcing ADR. (there are parallel requirements for transport of dangerous goods by air, rail and sea/waterways)	https://www.gov.uk/government/collections/transporting-dangerous-goods

United Kingdom	Chemical Safety Management	The Control of Substances hazardous to Health regulations (COSHH) requires employers to assess and manage the risks from chemicals hazardous to health in their workplaces. COSHH implements EU directives on the use of chemical agents and on carcinogens and mutagens in the workplace. It also applies occupational exposure limits agreed at EU level in Great Britain. Many businesses use substances, or products, or have processes that generate substances that are harmful to the health of employees, contractors and other people. COSHH is the law that requires employers to control substances that are hazardous to health.	http://www.hse.gov.uk/coshh/basics.htm
United Kingdom	Chemical Safety Management	CLAW is the law that requires employers to prevent, or to control employee exposure to lead.	http://www.hse.gov.uk/lead/
United Kingdom	Chemical Safety Management	The Seveso Directives are the main EU legislation dealing specifically with the control of on-shore major accident hazards involving dangerous substances. The Seveso III Directive came into force on 1 June 2015, replacing the Seveso II Directive. To implement this Directive, the COMAH Regulations 1999 (as amended) have been revoked and replaced by the COMAH Regulations 2015. The Seveso III covers industrial activities using dangerous substances including sectors such as oil refining, chemical manufacture and storage, and explosives. At the last revision the UK sought to include security measures to provide a pan European level playing field, but there was no support from other partners at the time. The next revision will be 2019 with discussions starting in 2017. It is unlikely any changes will take place before that date for timescale reasons.	http://www.hse.gov.uk/seveso/faqs.htm

United Kingdom	Chemical Safety Management	COMAH implements the EU Seveso III Directive and covers the oil refining, chemical industry and storage of specified chemicals (and other major hazards such onshore oil & gas and explosives). HSE enforces COMAH as part of the joint Competent Authority alongside the Environmental Regulators. Sites are categorised into Lower Tier (~580 LT sites) and Upper Tier (~ 350 TT sites) dependent on the type and quantity of substances held. This helps to prioritise inspection along with other parameters such as societal sensitivities and company performance. COMAH requires all sites to have on-site emergency plans and for Upper Tier sites to work with Local Authorities to have an off-site emergency plan.	http://www.hse.gov.uk/comah/index.htm
United Kingdom	Chemical Safety Management	The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) require employers to control the risks to safety from fire, explosions and substances corrosive to metals. Dangerous substances can be found in nearly all workplaces and include such things as solvents, paints, varnishes, flammable gases, such as liquid petroleum gas (LPG), dusts from machining and sanding operations, dusts from foodstuffs, pressurised gases and substances corrosive to metal.	http://www.hse.gov.uk/fireandexplosion/dsear.htm

United Kingdom	Chemical Safety Management	HSE and DECC act jointly as part of the Competent Authority to implement the requirements of the EU Directive on the safety of offshore oil and gas operations on the UK continental shelf. The partnership formed by DECC and HSE for this purpose is named the Offshore Safety Directive Regulator (OSDR) and is formalised by a Memorandum of Understanding between the originations. The Competent Authority regulates risks to health and safety and associated major environmental incidents from oil and gas undertakings via a number of different regulations. In addition to its functions as part of the Competent Authority, DECC is also responsible for regulating compliance with offshore environmental legislation that is outside the scope of the EU Directive.	http://www.hse.gov.uk/offshore/law.htm
United Kingdom	Chemical Safety Management	For pipelines classed as Major Accident Hazard Pipelines or MAHPs i.e. Those conveying defined 'dangerous fluids', pipeline operators must notify HSE prior to pipeline construction, operation and of certain important changes affecting it. Additional land use planning and offsite emergency planning duties also apply to MAHPs.	http://www.hse.gov.uk/pipelines/index.htm
United Kingdom	Supply chain safety and security (to include import and export)	The prior Informed Consent (PIC) Regulation (EU) 649/2012 [1] concerns the export or import of chemicals or articles containing chemicals. It enables countries, including developing countries to share information on dangerous chemicals that have been banned or severely restricted, including how to store, transport, use and dispose of these chemicals safely. It applies in Europe the Rotterdam convention – a multi-lateral treaty to promote shared responsibilities in relation to importation of hazardous chemicals. In practice it affects businesses exporting certain hazardous chemicals outside of the EU.	http://www.hse.gov.uk/pic/index.htm

United Kingdom	Supply chain safety and security (to include import and export)	A plant protection product must be authorised to be placed on the market. An extensive EU-based regulatory regime sets out: the decision-making process and standards which products must meet in order to be authorised; and ways in which these chemicals should be stored, used and disposed of. The EU regime is implemented by national legislation. The legislation is enforced by both HSE and local authority inspectors. Defra [and devolved administrations/governments] have the policy lead. The Defra Secretary of State, Scottish Ministers and the Department of Agriculture and Rural Development in Northern Ireland are the Competent Authorities. They delegate the Competent Authority function to HSE.	http://webarchive.nationalarchives.gov.uk/20151023155227/http:/www.pesticides.gov.uk/guidance/industries/pesticides
United Kingdom	Supply chain safety and security (to include import and export)	European Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures came into force on 20 January 2009 in all EU Member States, including the UK. It is known by its abbreviated form, 'the CLP Regulation' or just 'CLP'.	http://www.hse.gov.uk/chemical-classification/legal/clp-regulation.htm
United Kingdom	Supply chain safety and security (to include import and export)	Aside from a few residual issues COPR has been repealed following EU legislation on plant protection products and biocides. COPR now exists largely to manage the transition from a UK based scheme to one developed at EU level. COPR is enforced by both HSE and local authority inspectors and trading standards officers.	http://www.hse.gov.uk/biocides/copr/index.htm

United Kingdom	Supply chain safety and security (to include import and export)	Biocides are regulated at EU level and the legislation is primarily single market driven with mutual recognition of products amongst Member states and another possibility of obtaining product authorisation valid throughout the whole of the EU rather than rely on mutual recognition. A biocidal active substance must be approved to be placed on the market. Products containing the active substance need then to be approved in order to get on the market. Companies need to put their active substances/products from an EU wide registered supplier list. HSE is the UK Competent Authority (CA) for biocides under the EU Biocides Regulation (EU BPR) and we are able to deal with enquiries that are relevant to our role as the UK Competent Authority (CA).	http://www.hse.gov.uk/biocides/eu-bpr/product-authorisation-overview.htm

United States of America	Chemical Safety Management	HSEES/NTSIP data can be used to evaluate what industries are high risk for chemical accidents and/or injuries. NTSIP participating states are required to map out where high risk industries and/or transportation routes are and to identify vulnerabilities. They are also required to promote inherently safer technologies or rerouting when possible. Relevant NTSIP/HSEES articles · Using Chemical Release Surveillance Data to Evaluate the Public Health Impacts of Chlorine and Its Alternatives · Chlorine Gas Exposure at a Metal Recycling Facility --- California, 2010 · State Programs to Reduce Uncontrolled Ammonia Releases and Associated Injury Using the Hazardous Substances Emergency Events Surveillance System. · Hazardous substances releases associated with Hurricanes Katrina and Rita in industrial settings, Louisiana and Texas. · Surveillance of hazardous substances releases due to system interruptions, 2002. Human error and time of occurrence in hazardous material events in mining and manufacturing. WE. Morbidity and mortality from hazardous materials events in the personal services industry, 1993–2001: a follow-up report from the Hazardous Substances Emergency Events Surveillance (HSEES) System The role of adverse weather conditions in acute releases of hazardous substances, Texas, 2000-2001.	National Toxic Substance Incidents Program http://www.atsdr.cdc.gov/ntsip/ Formerly Hazardous Substances Emergency Events Surveillance (HSEES) http://www.atsdr.cdc.gov/HS/hsees/
United States of America	Chemical Safety Management		Health and Safety Committee to look at best practices for safety procedures as related to NTAs

United States of America	Chemical Safety Management	In concert with multiple multinational fora.	Establishment of NTA human toxicity estimates
United States of America	Chemical Security Management	C-RAW is a workshop hosted by the local WMD Coordinator and managed by WMDD/CCU personnel. The objective(s) of this systematic outreach initiative is to establish tripwires and countermeasures with local businesses involved in the sale of products containing Explosive Pre-Cursor Chemicals that could be used to develop improvised explosive devices. Through the delivery of relevant case studies and identifying suspicious activity reporting mechanisms, the C-RAW, provides managers of retail storefronts with the tools necessary to train point-of-sale employees on a continuous basis.	Chemical Retailer Awareness Workshop (C-RAW)
United States of America	Chemical Security Management	Interactive forum to engage high- risk chemical facilities that manufacture, store, use, transport or distribute chemicals of interest on a range of WMD/chemical threat-related issues. This regional workshop is designed to engage high risk chemical facilities and connect them with their local FBI counterparts, the WMD Coordinator.	Chemical Facility Outreach Exchange (CFOX)
United States of America	Chemical Security Management	PS-Prep™ is a mechanism by which private sector organizations may be certified under one or more preparedness standards adopted by DHS. Conformance with a voluntary preparedness standard helps foster resilient organizations by allowing entities to “resist, absorb, recover from, or successfully adapt to adversity or a change in conditions.”	Chemical Sector Private Sector Preparedness Accreditation and Certification Program (PS-PREP™) Framework Guide
United States of America	Chemical Security Management	Change 1 is currently being staffed to ASD(NCB) for release	USG-wide Security Classification Guide for NTAs

United States of America	Chemical Security Management		OSTP effort to establish Test Standards & Procedures for NTAs
United States of America	Chemical Security Management	The United States has made contributions to the Trust Fund for Global (over which it has joint control with UNODA on its use), that conceivably apply to small projects (e.g., workshops, training materials) aimed at identifying and developing effective practices in chemical security for the international community.	UN Office of Disarmament Affairs Trust Fund for Global and Regional Disarmament Activities.
United States of America	Chemical Security Management	The 1540 Committee has prepared matrices for 192 UN Member States. Each matrix identifies the national legal and regulatory measures taken by a State related to securing production, use, storage and transport of chemical weapons related materials (e.g., items on the Australia Group lists and CWC Schedules).	1540 Committee Matrices
United States of America	Chemical Security Management	The Cooperative Threat Reduction (CTR) Program provides funding for chemical security and elimination through the Chemical Weapons Elimination (CWE) program. The CWE program is providing security and safety assistance to the Government of Libya to build on work done by the Department of State's Nonproliferation and Disarmament Fund to further protect the site and help enable the return of inspectors from the Organization for the Prohibition of Chemical Weapons to supervise destruction activities.	

United States of America	Response	Volume I and II of the MHMI series provide information on handling chemically contaminated patients in the field and in the hospital, respectively. Volume III of the MHMI Series are the chemical specific Medical Management Guidelines (MMGs) for acute chemical exposures divided in the same manner (Field and Hospital management). A video was also produced to illustrate the procedures in Volumes I and II.	Managing Hazardous Materials Incidents Series – a 3 volume set of guidance to help first responders and emergency medical personnel deal with crisis incidents.
United States of America	Response	Joint Law Enforcement/High Risk Chemical Industry TTX, designed to connect first responders, the chemical industry and the FBI to solve a realistic chemical attack scenario.	Livewire Table Top-Exercise (TTX)
United States of America	Response	NIEF is an exercise to provide improvised explosive and WMD operational experience and investigative techniques to Federal, State, and Local bomb technicians nationally and internationally, by focusing on explosive precursor chemicals and their widespread availability.	National Improvised Explosive Familiarization (NIEF) Exercise
United States of America	Response	The U.S. Department of State's Chemical Security Engagement Program (CSP) works mitigate the global chemical threat through efforts that enhance the security of weaponizable chemicals and dual-use expertise, while supporting and promoting international scientific collaboration and cooperation. NSS effort to identify emergency response guidance for NTAs CSP leads training sessions for law enforcement officials on chemical forensics and chemical threat awareness. Stems from HSPD-22	http://www.state-csp.net

United States of America	Risk Assessment	A key component of the workshops is to teach government, industry, and academia how to conduct a vulnerability assessment related to food.	International Food Defense Awareness Workshops
United States of America	Risk Assessment	The U.S. Department of State's Chemical Security Engagement Program (CSP) works mitigate the global chemical threat through efforts that enhance the security of weaponizable chemicals and dual-use expertise, while supporting and promoting international scientific collaboration and cooperation. CSP offers resources for assessing chemical risk at academic and industrial facilities.	http://www.state-csp.net
United States of America	Risk Assessment	1. MRL Program develops exposure recommendations for hazardous chemicals in the environment. 2. Computational Toxicology Program has capability to develop exposure level recommendations for untested chemicals based on Structure-Activity Relationship (SAR) analysis. 3. The Agency for Toxic Substances and Disease Registry's (ATSDR) congressionally mandated Substance-Specific Applied Research Program (SSARP) currently consists of a research agenda for 60 top hazardous substances that is being accomplished through successful partnerships with other federal agencies, universities, and industry groups.	1. Minimal Risk Level (MRL) Program 2. Computational Toxicology Program 3. Substance Specific Applied Research Program (SSARP)
United States of America	Risk Assessment		NTA Future
United States of America	Risk Assessment		Chemical Hazards and Assessments
United States of America	Risk Assessment		NDU's Response to Unknown Chemical Hazards
United States	Risk Assessment		NTA Hazard Assessment

of America			
United States of America	Risk Assessment	Outreach conducted with regulated explosives industry members and associations, to include seminars, conferences, meetings, and panel discussions. Goal is to foster compliance, public safety, and prevention of diversion of explosive materials. ATF works proactively with industry members and associations to identify and develop voluntary best practices. Examples of collaborative programs include:	Explosives Industry Outreach
United States of America	Risk Assessment	The objectives of the course are to expose public safety personnel to the precursors used in the manufacture of homemade explosives; identify the hazards of mixed or partially mixed precursor chemicals; identification for sampling of suspected chemicals; evidentiary collection; scene Processing; remote methods of removing; and the safe disposal of such HME hazards.	Homemade Explosives (HME) Identify, Process and Disposal School (Law Enforcement/Public Safety/EOD)
United States of America	Supply chain safety and security (to include import and export)	This document lists international standards, codes, and guidelines for reducing threats and vulnerabilities in the supply chain. Good practices are typically written in a document accessible to the public, but they can sometimes take the form of a program or initiative. The tables below provide a description of the good practice, its name, the entity that developed and/or administers the good practice, and a hyperlink to the source. The seven tables categorize the supply chain security compulsory programs as follows:, supply chain security voluntary programs, supply chain risk management, supply chain security standards and protocols, information technology security, operations and business continuity, and additional sources of information	Chemical Supply Chain Security Compendium.

United States of America	Supply chain safety and security (to include import and export)	NTSIP/HSEES data are used for training first responders. For example: HSEES is referenced extensively in the OSHA guide-Best Practices for the Protection of Hospital-Based First Receivers of victims from Mass Casualty Incidents Involving the Release of Hazardous Substances January 2005 • Some relevant NTSIP/HSEES related journal articles • Hazards of Illicit Methamphetamine Production and Efforts at Reduction • Chemical Suicides in Automobiles --- Six States, 2006—2010. • Secondary Contamination of Medical Personnel, Equipment, and Facilities Resulting from Hazardous Materials Events, 2003-2006. • Analyzing Acute-Chemical-Release Data to Describe Chemicals That May be Used as Weapons of Terrorism. • Acute Pesticide-Related Illness among Emergency Responders, 1993-2002. • Secondary contamination of emergency department personnel from o-chlorobenzylidene malononitrile exposure, 2002. • Hazardous substances releases causing fatalities and/or people transported to hospitals: rural/agricultural vs. other areas. • Acute Public Health Consequences • from Illicit Methamphetamine Laboratories --- Selected States, January 2000—June 2004. • Anhydrous Ammonia Thefts and Releases Associated with Illicit Methamphetamine Production --- Selected States, January 2000—June 2004. • Risk factors for acute chemical releases with public health consequences: Hazardous Substances Emergency Events Surveillance in the U.S., 1996-2001.	National Toxic Substance Incidents Program: http://www.atsdr.cdc.gov/ntsip/ Formerly Hazardous Substances Emergency Events Surveillance (HSEES) http://www.atsdr.cdc.gov/HS/hsees/

United States of America	Supply chain safety and security (to include import and export)	NTSIP (2010 on) is modeled partially after HSEES (1990-2009), with additions suggested by stakeholders to have a more complete program. NTSIP has three components (National Database, State Partners, and Response Team). The National Database has estimated transportation incident data for every state back to 2002. NTSIP uses a matching ratio derived from a comparison of NTSIP and US Department of Transportation records in surveillance states and applies that ratio to DOT records in non-surveillance states to get the estimated NTSIP transportation incident numbers. HSEES/NTSIP data can be used to evaluate what industries are high risk for chemical accidents and/or injuries. NTSIP participating states are required to map out where high risk industries and/or transportation routes are and to identify vulnerabilities. They are also required to promote inherently safer technologies or rerouting when possible. Some relevant NTSIP/HSEES related articles available from the websites Follow-up Assessment of Health Consequences after a Chlorine Release from a Train Derailment-Graniteville, SC, 2005 Acute public health consequences associated with hazardous substances released during transit, 1993-2000. Hazardous Substances Released During Rail Transit — 18 States, 2002–2007. Unplanned Releases and Injuries Associated with Aerial Application of Chemicals, 1995-2002 Public Health Consequences from Hazardous Substances Acutely Released During Rail Transit — South Carolina, 2005; Selected States, 1999–2004.	National Toxic Substance Incidents Program http://www.atsdr.cdc.gov/ntsip/ Formerly Hazardous Substances Emergency Events Surveillance (HSEES) http://www.atsdr.cdc.gov/HS/hsees/

United States of America	Supply chain safety and security (to include import and export)	Initial Department-wide Kick-off held in January	Redrafting of current DoD Directives and Instructions on Chemical Security
United States of America	Training and outreach	A field level workshop designed to educate law enforcement, first responders, chemical manufacturers, retailers, distributors, and academia regarding explosive precursor chemical products that may be used to manufacture explosives. These lessons are made real by an explosives range demo using common household products.	Chemical Industry Outreach Workshop
United States of America	Training and outreach	Educational and awareness initiative targeting the academic community; designed to increase awareness regarding the risks/threats associated with chemicals commonly found in college laboratories.	Academic Chemical Security Initiative
United States of America	Training and outreach	Joint Law Enforcement/High Risk Chemical Industry TTX, designed to connect first responders, the chemical industry and the FBI to solve a realistic chemical attack scenario.	Livewire TTX
United States of America	Training and outreach	Chemical Sector Security Summit: The Chemical SSA annually co-hosts the Chemical Sector Security Summit (The Summit) with the Chemical Sector Coordinating Council. The Summit consists of workshops, presentations, and discussions covering current security regulations, industry best practices, and tools for the Chemical Sector. In addition, the event is designed for industry professionals throughout the Chemical Sector providing a broad representation from the chemical stakeholder community senior DHS and government officials, and congressional staff	The 2013 Chemical Sector Security Summit Baltimore, MD July 10-11 2013

United States of America	Training and outreach	The U.S. Department of State's Chemical Security Engagement Program (CSP) works mitigate the global chemical threat through efforts that enhance the security of weaponizable chemicals and dual-use expertise, while supporting and promoting international scientific collaboration and cooperation. CSP sponsors activities to improve the security of chemicals at industrial sites by sponsoring trainings for industrial chemists and providing resources to improve security practices at select facilities.	http://www.csp-state.net
United States of America	Training and outreach	Implemented by the James Martin Center for Nonproliferation Studies.	Establish a chemical code of conduct for academic chemists in the Middle East region.
United States of America	Training and outreach	Goals include: raise global awareness of food defense; promote the implementation and use of food defense measures and best practices by industry, including tools and resources from USG; build relationships with key counterparts in government, the private sector, and academia and identify opportunities for continued collaboration; encourage food defense policy development by government counterparts; support FDA/USDA/FBI foreign posts in their country outreach and technical assistance efforts.	International Food Defense Awareness Workshops

United States of America	Training and outreach	Tailored international program targeting law enforcement/government agencies and international chemical industry representatives within priority countries. This program is serviced by the adaptation of successful FBI/WMDD/CCU domestic programs and consists of tailored curricula designed to address the unique capabilities, needs, threats, and capacity of the host-country. This program supports in a range of WMD mission-sets. In addition to supporting global USG counter-terrorism efforts, the goals of this program include driving the establishment of tripwires and countermeasures for US ally nations; the expansion of threat awareness within the international communities; and increase the mitigation and prevention capabilities to negate of terrorists' abilities to acquire, develop, and execute a terrorist act using chemical precursors in the development of a WMD.	International Chemical Terrorism Prevention Program
United States of America	Training and outreach	The Web-Based Chemical Security Awareness Training Program is a free, interactive tool available to chemical facilities nationwide to increase security awareness. The training is designed for all facility employees, not just those traditionally involved in security. Upon completion, a certificate is awarded to the participant	https://chemicalsecuritytraining.dhs.gov
United States of America	Training and outreach	Chemical Sector Training Resource Guide: Compendium of online courses that the chemical sector can avail themselves for training purposes.	chemicalsector@dhs.gov

United States of America	Training and outreach	Chemical Sector Security Awareness Guide: The purpose of this document is to assist owners and operators in their efforts to improve security at their chemical facility. The goal is to make professionals working in the Chemical Sector aware of the security risk to the sector and to provide a list of activities or actions that they can take to reduce that risk. The information included in this document is not exhaustive but is an introduction only and is applicable for both regulated and non-regulated facilities.	chemicalsector@dhs.gov
United States of America	Training and outreach	The U.S. Department of State's Chemical Security Engagement Program (CSP) works mitigate the global chemical threat through efforts that enhance the security of weaponizable chemicals and dual-use expertise, while supporting and promoting international scientific collaboration and cooperation. CSP sponsors workshops for technical professionals and policy makers to increase awareness of chemical security issues.	http://www.csp-state.net
United States of America	Training and outreach	TTXs are unclassified and adaptable exercises creating an opportunity for public and private critical infrastructure stakeholders and their public safety partners to address gaps, threats, issues, and concerns with incident response and recovery. The various exercises allow participants the opportunity to gain an understanding of issues faced prior to (where applicable), during, and after an incident, and the coordination needed with other entities, both private and government, regarding their facility. The CDs contain a number of incident-specific resources as well as the suite of documents needed to conduct a Homeland Security Exercise and Evaluation Program compliant TTX	Supply Chain Security TTX