



Indo-US

Workshops on

Strengthening Supply Chain Security in the Pharmaceutical Industry

2020



VIRTUAL WORKSHOP

November 30, 2020 to December 2, 2020
9h00 to 12h30 (3h30)

by

CSIR-North East Institute of Science and Technology, Jorhat, Assam, India
and
CSIR-Central Leather Research Institute, Chennai, Tamilnadu, India

In association with

Pacific Northwest National Laboratory (PNNL), Richland, WA, USA
U.S. Department of State's Chemical Security Program (CSP), Washington DC, USA
CRDF Global, Arlington, VA, USA





Indo-US

Workshops on

**Strengthening Supply Chain Security in the
Pharmaceutical Industry**

2020

VIRTUAL WORKSHOP



Theme

Pacific Northwest National Laboratory (PNNL), USA, CRDF Global, USA and the U.S. Department of State's Chemical Security Program (CSP), USA, along with CSIR-North East Institute of Science and Technology (CSIR-NEIST), India and CSIR-Central Leather Research Institute (CSIR-CLRI), India, are pleased to organize the 5th Indo-US Workshop on Chemical Security, on Strengthening Supply Chain Security in the Pharmaceutical Industry. The present workshop, due to the prevailing global situation, is going to be a VIRTUAL WORKSHOP.

The workshop syllabus and hands-on exercises are designed to help participants strengthen chemical security awareness, improve supply chain security, and enhance customer vetting. There is an immediate need for the pharmaceutical industry managers and staff, as well as others associated with the industry (academics, emergency services, transport and logistics) to learn how to deter and mitigate potential security threats involving the manufacture, use, or storage of hazardous or dual-use chemicals.

The workshop will take place over three consecutive days, for about 3½ hours per day. The contents of the workshop will be converted into an e-Learning course after the workshop to support the sustainability of the training.

The workshop will build chemical security awareness and provide cost-effective techniques for enhancing chemical supply chain security, provide a tool for evaluating the maturity of supply chain security programs, and enhance security coordination and communication. The workshop will assist companies to address and enhance chemical and product security beyond traditional concerns over product quality, counterfeiting, and transportation.



Strengthening Supply Chain Security in the
Pharmaceutical Industry

Who Should Attend?

The target audience for the workshop includes personnel from pharmaceutical and associated chemical industries along with their suppliers and distributors. This includes firms that span a broad spectrum of sizes - from large firms to those firms who produce products with quantities even in the range of 1 to 100 kg. In particular, the workshop invites attendees who are:

- Industry decision makers and facility managers
- Company safety and security personnel
- Facility emergency planners
- Managers of the transportation or distribution of chemicals
- Government security officials and law enforcement authorities
- Academicians who train people who currently work in the chemical and pharmaceutical sector or students who are potential future employees.

Workshop Syllabus

The tentative syllabus for the workshop is as follows:

- Characterizing the potential adversary capabilities to divert or steal pharmaceutical chemicals, intermediates, and/or end products.
- Understanding threats to public safety and security from a potential attack involving the use of dual-use chemicals obtained from the pharmaceutical product supply chain.
- Raising security awareness throughout the product lifecycle.
- Improving incident response and security event reporting.
- Evaluating the maturity of existing chemical supply chain security programs, identifying security weaknesses in the supply chain, and identifying risk-based security objectives.
- Identifying high-value and cost-effective security controls that can improve security within the supply chain (e.g., security in product and process design, selection of suppliers and vendors, product procurement, workforce management and security training, inventory management, theft prevention, security monitoring, transportation).



Indo-US

Workshops on

Strengthening Supply Chain Security in the Pharmaceutical Industry

VIRTUAL WORKSHOP

WORKSHOP PROGRAM

Day - 1

November 30, 2020

9h00 - 12h30

Theme: Awareness of Supply Chain Security Issues

09h00 - 09h50: 50 min	Opening Ceremony 50 min
	<ul style="list-style-type: none">■ Welcome Remarks and Greetings from US and Indian Organizers■ Purpose, Structure and the Goals of the Workshop■ Introduction of Instructors and Participants■ Perspectives and Overview on the Security of Dual-Use Chemicals (Europe, India and USA)
09h50 - 09h55:	Break 05 min
09h55 - 10h55:	Technical Session - 1 60 min
09h55 - 10h25: 30 min	L1 Examples of Security Risks in Supply Chain and Customer Vetting <ul style="list-style-type: none">● Sabotage, theft, diversion, and loss of sensitive information
10h25 - 10h55: 30 min	L2 Threats and Consequences <ul style="list-style-type: none">● Insiders, criminals, terrorists, nation states, and other external threats● Types of attacks: physical, cyber, and blended● Confidentiality, Availability, and Integrity Impacts● Ways to enhance security: Predict, Prevent, Detect, and Respond to attacks
10h55 - 11h00:	Break 05 min
11h00 - 12h30:	Technical Session - 2 90 min
11h00 - 11h25: 25 min	Exercise - A <ul style="list-style-type: none">● Given the characteristics of an example pharmaceutical company and the capabilities of an identified adversary -- identify potential security issues.
11h25 - 11h55: 30 min	L3 Supply Chain Security and Customer Vetting <ul style="list-style-type: none">● Similarities and differences between traditional supply chain security and what is needed to safeguard hazardous chemicals● Customer vetting/Know-your-customer
11h55 - 12h20: 25 min	Exercise - B <ul style="list-style-type: none">● For the pharmaceutical company in the previous exercise, identify potential practices that can be adopted to better secure the chemical supply chain.
12h20 - 12h30:	Questions & Answers and Discussions 10 min

Indo-US

Workshops on

Strengthening Supply Chain Security in the Pharmaceutical Industry

VIRTUAL WORKSHOP

WORKSHOP PROGRAM

Day - 2

December 1, 2020

9h00 - 12h30

Theme: Security vulnerabilities and engineering

09h00 - 10h10: Technical Session - 3

09h00 - 09h10: Review of Day 1 / Introduction to Day 2 10 min

09h10 - 09h40: L4 Security Vulnerabilities in the Supply Chain
30 min

- Security vulnerabilities may exist throughout all the stages in the product lifecycle
- Review potential supply chain security vulnerabilities.

09h40 - 10h10: Exercise - C
30 min

- For the pharmaceutical company in the previous exercises, identify potential vulnerabilities in their supply chain.

10h10 - 10h15: Break 05 min

10h15 - 11h25: Technical Session - 4 70 min

10h15 - 10h55: L5 Security Engineering
40 min

- Supply chains can be securely engineered to prevent abuse and crime.
- Security approaches: strategic, tactical, and their integration.
- Layered defences, building security into equipment, incident response, and event reporting.

10h55 - 11h25: L6 Social Engineering for Chemical Security
30 min

Techniques used by adversaries to manipulate organization staff

11h25 - 11h30: Break 05 min

11h30 - 12h30: Technical Session - 5 60 min

11h30 - 12h15: Exercise - D
15 min

Assess the pluses and minuses of various supply chain security and customer vetting best practices.

12h15 - 12h30: Questions & Answers and Discussions 15 min

Indo-US

Workshops on

Strengthening Supply Chain Security in the Pharmaceutical Industry

VIRTUAL WORKSHOP

WORKSHOP PROGRAM

Day - 3		December 2, 2020	9h00 - 12h30
Theme: Chemical security and supply chain security maturity model			
09h00 - 10h55:		Technical Session - 6	55 min
09h00 - 09h10:		Review of Day 2 / Introduction to Day 3	10 min
09h10 - 09h55: 45 min	L7	Assessing Supply Chain Security <ul style="list-style-type: none">● Assessment methods● Introduction to maturity models● Discuss modeling the maturity of chemical security programs● Introduce the freely available Chemical Security Maturity Model.	
09h55 - 10h00:		Break	05 min
10h00 - 11h15:		Technical Session - 7	75 min
10h00 - 10h30: 30 min		Exercise - E Exercise to apply chemical security maturity model.	
10h30 - 11h15: 45 min	L8	Assessing Supply Chain Security (cont.) <ul style="list-style-type: none">● Assessing supply chain security costs● Introduction of the Chemical Security Supply Chain Maturity Model● Balancing risks and costs	
11h15 - 11h20:		Break	05 min
11h20 - 12h30:		Technical Session - 8	70 min
11h20 - 12h05: 45 min		Exercise - F Group Activity: Exercise to apply Chemical Security Supply Chain Maturity Model.	
12h05 - 12h30: 25 min		Conclusions and Closing Remarks (Both the teams)	

The Workshop Organizers

The U.S. partners at the workshop are Pacific Northwest National Laboratory (PNNL), CRDF Global, and their work is sponsored by the U.S. Department of State's Chemical Security Program (CSP). The Indian workshop partners include the CSIR-North East Institute of Science and Technology (CSIR-NEIST) and CSIR-Centre for Leather Research Institute (CSIR-CLRI). This workshop is a follow-up to the chemical security vulnerability assessment workshops conducted 2016 in Hyderabad; 2017 in New Delhi, Ahmedabad, and Hyderabad; 2018 in Chandigarh and Visakhapatnam and 2019 in Ahmedabad and Hyderabad.

Patrons and Advisory Committees

Patrons

Dr. Shekar Mande

Director General, CSIR, New Delhi, India

Dr. G. Narahari Sastry

Director, CSIR-NEIST, Jorhat, India

Dr. K.J. Sreeram

Director, CSIR-CLRI, Chennai, India

Mr. Jack Dishner

Chemical Security Program, Department of State, Washington D.C., USA

Advisory Committee

Dr. Clifford S. Glantz

PNNL, Richland, WA, USA

Dr. Radha Kishan Motkuri

PNNL, Richland, WA, USA

Dr. R. L. Goswamee

Senior Principal Scientist, CSIR-NEIST, Jorhat, India

Dr. M. Surianarayanan

Senior Principal Scientist, CSIR-CLRI, Chennai, India

For further information, please contact one of the following USA / India representatives:

India

Dr. G. Narahari Sastry

Director, CSIR NEIST
Jorhat, Assam, India
Tel: +91 99635 82996
director@neist.res.in
gnsastry@gmail.com

Dr. K.J. Sreeram

Director,
CSIR-Central Leather Research Institute
Adyar, Chennai, Tamil Nadu, India - 600 020
Phone: +91 - 44 - 24910897
Email:director@clri.res.in,

Dr. Lakshi Saikia

Senior Scientist,
CSIR NEIST, Jorhat, Assam, India
Tel: +91-9957031635
lsaikia@neist.res.in
l.saikia@gmail.com

Dr. M. Surianarayanan

Senior Principal Scientist,
CSIR-Central Leather Research Institute
Adyar, Chennai, Tamil Nadu, India - 600 020
Tel: +91-44-24437207
E-mail: clrimnsn@gmail.com

Dr. Manas Ranjan Das

Senior Scientist
CSIR NEIST
Tel: +91-9957178399
mrdas@neist.res.in

USA

Dr. Clifford Glantz

Chief Scientist, PNNL
Tel: +1 509-375-2166
cliff.glantz@PNNL.gov

Dr. Radha Kishan Motkuri

Senior Principal Scientist, PNNL
Tel: +1 509-371-6484
radhakishan.motkuri@pnnl.gov

Dr. John Cort

Senior Principal Scientist, PNNL
Tel: +1 509-371-6334
john.cort@pnnl.gov

India (Proposed NACS)*

Prof. V.K. Jain

Gujarat University
Tel: +91-7926300969
drvkjain@hotmail.com

Dr. G. V. M. Sharma

Yajushi Labs., Hyderabad
Tel: +91-944 080 2785
sharmagvm@gmail.com

Dr. S. Prabhakar

CSIR-IICT, Hyderabad
Tel: +91 944 107 0036
prabhakar@iict.res.in

Prof. S. K. Mehta

Panjab University, Chandigarh
Tel:+91 9417786061
surinder.sk1961@gmail.com

Mr. K. Ravindranath

CSIR-IICT, Hyderabad
Tel:+91 944 080 2808
kajjam@iict.res.in

Dr. K. Srinivas

CSIR-IICT, Hyderabad
Tel:+91 917 759 7871
kantevari@gmail.com

*NACS: National Association for Chemical Security (NACS)

During the Indo-US workshop in 2018/2019, the organizers from both the USA and India, planned to establish an Association for Chemical Security at the National level, to popularize the concept on Chemical Security amongst all the Academia and Industry, along with all other stake-holders. In 2020, the above team has formed a General Body and went ahead for the registration of NACS, National Association for Chemical Security. The details will be released by the time of the proposed 5th Indo-US workshop (Virtual).