

2016 Workshop on Analysis of Trade Data and  
Related Open Source Information  
for Non-Proliferation and Strategic Security

27 – 28 June 2016, Vienna

Summary Report



Project Alpha

Centre for Science and Security Studies  
King's College London



## **Executive summary**

- Engagement between government and the non-governmental research community using open source information analysis has yielded productive results for non-proliferation and other strategic objectives.
- More collaboration and cooperation in the field of non-proliferation analysis amongst the non-governmental research community is key to helping address pressing challenges.
- Trends towards openness by states and multilateral institutions in this field are encouraging and will further assist non-proliferation goals.

## **Event background**

This dialogue was organised by Project Alpha at King's College London and the Vienna Center for Disarmament and Non-Proliferation (VCDNP). The workshop focused on analysis of trade data and related open source information to understand critical supply chains and improve non-proliferation trade-control efforts. The workshop aimed to bring together practitioners working on the development and application of relevant analytical techniques and tools. This programme is generously funded by the Carnegie Corporation of New York.

## **This report**

This meeting summary aims to capture general points of discussion during the event. The points made in this report are not attributed to any particular individual or organisation. While a draft of this meeting summary has been circulated to all participants, this report does not represent a formal position on the part of anyone present nor of any institution whose members participated in the workshop.

## **Meeting participants**

The first event was attended by members of international organisations, government and the non-governmental research community, including from the International Atomic Energy Agency, European Union Peer-2-Peer Program on Dual-Use Goods, UK Ministry of Defence, Australian Government Department of Defence, Institute for Science and International Security, Chinese Academy of International Trade and Economic Cooperation, Curry College, Harvard University, University of Maryland, Wisconsin Project on Nuclear Arms Control, James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies at Monterey, Northeastern University, King's College London, CSIS Pacific Forum, University of Liège, Stimson Center, the Verification Research, Training and Information Centre, European Commission Joint Research Centre, University of Georgia, IHS Jane's, and the International Institute for Strategic Studies. A full list of participants is found at the end of this report.

## **The discussions**

### *Opening remarks*

In his opening remarks, Project Alpha's Ian Stewart commented on the need for the non-governmental research community (NGRC) to collect and share information of relevance to promoting non-proliferation objectives. Mr Stewart noted that in many cases, states are unable to effectively share information useful to non-proliferation efforts. Across international organisations, too, there are barriers to information-sharing. How, then, Mr Stewart asked, can organisations in the non-governmental research community effectively share information to achieve non-proliferation goals? He noted that various organisations have small parts of the picture, and the challenge is to work together to bring these parts together. More collaboration and cooperation in the field of non-proliferation analysis is key to addressing this challenge.

### *Perspectives on trade data, non-proliferation and open source analysis*

A key theme discussed by participants was the interaction between states and the NGRC on issues of open source information in the non-proliferation context. Participants noted that governments frequently collect and hold confidential information that while sensitive, can be extremely useful for NGRC analysis and outreach activities in the non-proliferation domain. Most participants considered this material a form of open source information. Engagement between government and the NGRC using this sort of information can yield productive results, as has been seen in instances where NGRC experts have aided prosecutions of proliferators.

A particular issue of concern to participants involves ensuring the flow of relevant information (particularly confidential information) from governments to industry where it can be used to support export control and non-proliferation efforts. At least one case was outlined where state-held information was provided to a company too late for that company to prevent a proliferation-related transaction.

In both of these contexts, there is a delicate balance to be struck between confidentiality and preventative activity.

### *The global landscape: proliferators and other challenges*

The proliferation landscape features some enduring challenges, particularly with respect to enforcing UN Security Council resolutions regarding North Korea and Iran.

On North Korea, participants noted that Pyongyang continues to use tried-and-true methods of deception and obfuscation to advance its prohibited programmes. Shipments of complete missile or weapons systems by the DPRK are rare, with most visible proliferation-related trade involving sub-control threshold components or commercially available items. North Korean proliferators and sanctions evaders also frequently hide in plain sight, conducting 'normal' business activities while also undertaking UN-prohibited activities.

On Iran, participants noted that despite the Joint Comprehensive Plan of Action and diplomatic resolution of the Iranian nuclear issue, UN restrictions on Iran's missile programme remain in place.

Further analysis of Iran's missile programme and its procurement networks using open source information can help illuminate the extent of this programme, which is still under-examined.

There is substantial open source information available that can be used to help counter efforts by the DPRK and Iran to counter restrictions and sanctions and to help uphold UN Security Council resolutions. However, there is often a lack of detailed technical information that can help identify and verify critical proliferation-related components – such as images of dual-use electronic components used in missile systems. (An area for future consideration by the NGRC is the proliferation implications of making such information available in open publications or online.) In addition, participants discussed the need to utilise open source information which is available in foreign languages, including Russian, Chinese, Korean, Arabic, Japanese, and Spanish, but is rarely translated into English. Further, it was stated during the conference that consolidation of open source information from multiple sectors is essential to expose proliferators' global networks. This includes information from the banking sector, shipping industry, trading sector, company registry databases, and court documentation from multiple countries.

One piece of the information picture that participants considered to be so far underdeveloped is the insights of proliferators themselves. Research is underway involving interviews of individuals who have been convicted of crimes relating to proliferation and export control violations. This research is expected to yield useful insights into the problem.

Participants discussed the challenges of using information that while unclassified is not completely shareable.

#### *Open source information: challenges*

Particular thematic challenges in the use of open source information in the non-proliferation context were discussed.

Source durability of online information was acknowledged as an issue warranting consideration. Participants noted that information found online is perishable and can be lost for various reasons, including because of security concerns on the part of proliferators or their facilitators. It was agreed that this is an issue to remain conscious of in the course of online information-gathering, whether it is manual or automated (such as through the use of scraping).

Another concern of participants was the need to maintain proper evidentiary and information provenance standards during the course of analysis and publication. Participants noted the significant responsibility that the NGRC incurs in the context of sanctions and illicit trade to ensure that published analysis does not include misleading or outdated information. It was acknowledged that good analysis and good systems cannot always overcome the problems of poor or deceptive data.

#### *Trade data, big data and visualisation*

The opportunities afforded by 'big data' in the context of non-proliferation analysis are substantial indeed, and there is little doubt that trade data and open source information analysis are invaluable for non-proliferation and counter-proliferation work. Participants discussed various systems and

methods being used by governments and multilateral organisations in order to make sense of the increasing volume of relevant data and information.

Technical challenges were discussed, particularly regarding information aggregation and joining databases together. Participants noted that requirements continue for both manual information gathering as well as automated tools such as scraping and semantic characterisation of documents. Free and open source software is often available to facilitate these processes.

Improvements on a number of fronts by governments and companies to improve availability of information of utility to non-proliferation analysis were described. Trends toward openness were noted in a number of contexts, including in the uranium mining industry and from key governments. The group especially welcomed information from Chinese participants on local efforts to use trade data in the non-proliferation context.

Several participants across a number of institutions and governments continue to engage in research using data collected using Harmonised System (HS) nomenclature to better understand proliferation-related trade. Persistent challenges noted in this area include the well-known difficulty of correlating goods under the HS system with control lists used by the European Union and various states. Existing correlation tables, such as the table developed by the European Commission's Directorate-General for Taxation and Customs Union (TAXUD) can be of help. However it has to be noted that some of these tables were developed for purposes other than trade analysis, so they need to be used with caution.

Options were discussed that could help remedy current problems in this area, including actions by the export control regimes to identify a relevant HS code for each listed items. However, it was noted that broader approaches would be needed if this problem was to be solved.

### *Analysis and outreach*

Participants discussed a number of examples of productive engagement between the NGRC and states on non-proliferation issues using open source information. There is an ongoing need for engagement in this way in several regions, with East Asia and the ASEAN group of states outlined as particular areas of focus for participants. Participants noted the need for an honest accounting of costs as well as benefits when engaging on non-proliferation issues. Most states in this region understand the need for doing non-proliferation, but capability remains an issue. Engagement might focus on how these states' existing trade data collection modes can be expanded to include proliferation-relevant markers. This could be incentivised by assistance providers (such as the European Union and United States) via technical /legal assistance.

Cases of productive engagement involving the private sector were also outlined. Amongst future areas for outreach activity, one important priority is shipping conferences in East Asia. In addition to bolstering awareness of proliferation issues, such engagement can help encourage private sector entities to collect proliferation data for use by the NGRC. Participants also suggested identifying lessons from private sector analysis on cigarette smuggling networks to bolster non-proliferation work.

Free trade zones (FTZs) were identified as an important area where there is potential for the NGRC to engage with both states and the private sector to further pursue non-proliferation objectives.

Some concerns were raised regarding the intersection between free trade zones (FTZs) and non-proliferation obligations. There are apparent inconsistencies between obligations outlined under the Kyoto Convention and obligations that all states must adhere to under United Nations Security Council Resolutions. The need for a database of cases involving illicit trade from FTZs was identified.

### *Looking forward*

Challenges for non-proliferation analysis will persist across several domains.

Sanctions remain a key focus for both analysis and policy development in the non-proliferation arena. Ensuring state and private sector adherence to UN sanctions on Iran will be challenging in a complex environment of complex and often overlapping autonomous sanctions regimes. Further information sharing across sanctions monitoring bodies is required to help adherence.

Proliferation finance continues to be a subject worthy of increased scrutiny, information-gathering and analysis. Proliferators continue to use traditional money laundering and transit techniques (such as cash-couriering), but it remains difficult to get useful financial information from states and the private sector.

### **Next steps**

Participants agreed to remain seized of the issues discussed and to continue to share, wherever possible, tools, data and information of utility to non-proliferation analysis.

Ian Stewart mentioned a new tool (Alpha-POST) being developed by Project Alpha, which may help to capture, collate and utilise all forms of open source information. He also raised the possibility of creating a closed community amongst whom details of tools, techniques and data could be shared. Participants undertook to consider how such a community might function.

## Participants

1. Mr David Albright, Institute for Science and International Security
2. Mr James Archer, UK Ministry of Defence
3. Dr Malin Ardhammar, IAEA
4. Dr Aaron Arnold, Curry College & Belfer Center for Science and International Affairs, Harvard University
5. Dr Stephan Blancke
6. Mr Renaud Chatelus, University of Liège
7. Mr Damien Chifley, Australian Government Department of Defence
8. Dr Grant Christopher, International Centre for Security Analysis, King's College London
9. Dr Giacomo Cojazzi, European Commission Joint Research Centre
10. Mr Karl Dewey, IHS Jane's
11. Ms Catherine Dill, James Martin Center for Nonproliferation Studies (CNS), Middlebury Institute of International Studies at Monterey
12. Mr Ahmed El Gebaly, IAEA
13. Mr Katsuhisa Furukawa
14. Dr Seema Gahlaut, Center for International Trade and Security, University of Georgia
15. Mr Nick Gillard, Project Alpha, King's College London
16. Dr Han Lu, Chinese Academy of International Trade and Economic Cooperation
17. Ms Paulina Izewicz, International Institute for Strategic Studies
18. Mr Kang Jiang, Centre for Science and Security Studies, King's College London
19. Mr Hyuk Kim, CSIS Pacific Forum
20. Ms Valerie Lincy, Wisconsin Project on Nuclear Arms Control
21. Mr Matt Linfoot, UK Ministry of Defence
22. Mr Ken MacDonald, Northeastern University
23. Mr Jonathan McLaughlin, Wisconsin Project on Nuclear Arms Control
24. Ms Elena Marinova, IAEA
25. Ms Egle Murauskite, ICONS Project, University of Maryland
26. Mr Alberto Muti, Verification Research, Training and Information Centre
27. Dr Jenny Nielsen, Vienna Center for Disarmament and Non-Proliferation
28. Mr Christopher Nelson, IAEA
29. Ms Mara Pfneisl, Vienna Center for Disarmament and Non-Proliferation
30. Ms Morena Priori, IAEA

31. Dr Crystal Pryor, Harvard University
32. Mr Tiit Romet, Government of Canada
33. Mr Erkan Saka, IAEA
34. Mr Daniel Salisbury, Centre for Science and Security Studies, King's College London
35. Mr Ian J. Stewart, Project Alpha, King's College London
36. Mr Junichi Takano, European Union Peer-2-Peer Outreach Programme on Dual-Use Export Controls
37. Dr Cindy Vestergaard, Stimson Center
38. Ms Andrea Viski, European Commission Joint Research Centre
39. Dr Zhang Ying, Chinese Academy of International Trade and Economic Cooperation



## Event Programme

**Monday, 27 June 2016**

0830| Coffee and registration

0900| Welcome remarks from Ian J. Stewart (King's College London)

0930| **Session 1: Perspectives on trade data, non-proliferation and open source analysis**

- Mr David Albright, Institute for Science and International Security
- Mr Ian J. Stewart, King's College London: Information analysis (and sharing) in support of the export control toolset
- Mr Katsuhisa Furukawa, former member, UN Panel of Experts on the DPRK

1030| Coffee break

1100| **Session 2: The global landscape: proliferators and other challenges**

- Dr Aaron Arnold, Associate, Belfer Centre at Harvard University
- Ms Egle Murauskite, ICONS Project, University of Maryland: Nonproliferation after Ukraine – the changing threat landscape
- Ms Valerie Lincy, Wisconsin Project for Arms Control
- Mr Jonathan McLaughlin, Wisconsin Project for Arms Control: Trade data in South Asia: Identifying Risky Entities

1230| Lunch break

1315| **Session 3: Big data and visualisation**

- Mr Christopher Nelson, Trade Analysis team, Safeguards Department, IAEA: Trade and procurement analysis in the context of IAEA safeguards
- Ms Catherine Dill, James Martin Center for Nonproliferation Studies at the Middlebury Institute of International Studies: Visualising national implementation of Security Council resolution 1540
- Mr Ken MacDonald, US Department of Homeland Security: Big Data tools used by DHS S&T for the Border Enforcement Analytics Program

1500| Coffee break

1530| **Session 4: Trade data**

- Dr Crystal Pryor, Harvard University
- Mr Hyuk Kim, CSIS Pacific Forum: The Harmonized System and other trade classification systems, and their implications for trade data analysis
- Mr Renaud Chatelus, University of Liège: Rating correlations between customs codes and ECCN: looking into uses, approaches, and first results

1630| Day 1 wrap-up

**Tuesday, 28 June 2016**

0830| Coffee

0900| **Session 5: Analysis and outreach, part one**

- Mr Junichi Takano, European Union Peer-2-Peer Program on Dual-Use Goods: Developments in strategic trade controls in the ASEAN region
- Dr Han Lu, Associate Researcher, Chinese Academy of International Trade and Economic Cooperation
- Dr Cindy Vestergaard, Stimson Centre: Conventional and Unconventional Uranium Ore Concentrate Trade and Open Source Information
- Mr Alberto Muti, Verification Research, Training and Information Centre

1030| Coffee break

1100| **Session 6: Analysis and outreach, part two**

- Mr Tiit Romet: How companies market and sell goods of proliferation interest
- Dr Seema Gahlaut, Assistant Director, CITS: How to “market and sell” non-proliferation toolsets to clients in the government & industry
- Ms Andrea Viski, EU Joint Research Centre

1230| Lunch break

1330| **Session 7: Looking forward, part one**

- Dr Malin Ardhammar, IAEA: The IAEA and the Joint Comprehensive Plan of Action
- Mr Nick Gillard, King’s College London: Preliminary findings from Project Alpha’s entity analysis on Iran and the DPRK
- Mr Karl Dewey, IHS Jane’s: Strategic analysis of chemical attacks in the Syrian conflict using geolocation and visualisation

1430| Coffee break

1530| **Session 8: Looking forward, part two**

- Mr Matt Linfoot, UK Ministry of Defence: The Proliferator of the Future
- Ms Paulina Izewicz, International Institute for Strategic Studies: Sanctions; current issues and lessons for the future

1600| Closing remarks: Ian J. Stewart