

Pioneering education for disarmament and non-proliferation

A multi- and interdisciplinary course on CBRN transfer controls

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Professors, Ladies and Gentlemen, students and colleagues,

It is a great honour and pleasure to address you today on the topic of 'Pioneering education for disarmament and non-proliferation'. Given that the conference is entitled '*Small and Medium Entrepreneurship: Problems and Prospects of Development in Ukraine*', you will likely wonder why my topic is relevant to you. Many among you are educators endeavouring to provide the students entrusted to you with the best possible basis for a successful career in business. Other conference participants are students, likely eager to succeed in life and for which a good degree is a significant stepping stone. So, indeed, why should disarmament and non-proliferation be a concern of yours?

Before going any further, let me tell you a little story. Well, perhaps first a question: do you know what *isopropanol* is? It is also known as *isopropyl alcohol* or propan-2-ol. The chemical is colourless, it is flammable and it has a distinct strong smell. Well, it is used as a dissolvent, such as for paint, or in industrial production processes. It has many household or pharmaceutical applications. You can buy it in a pharmacy and chances are that you have it at home in your medicinal cabinet. Indeed, its common name is 'rubbing alcohol', which you might use to disinfect your hands. It is a very common chemical that is produced worldwide. For 2017, global market size was estimated at 1.99 million MT and is expected to reach 2.29 million MT by 2023.¹

¹ Isopropyl Alcohol Market: Global Industry Trends, Share, Size, Growth, Opportunity and Forecast

Now, just imagine I come and find you in the chemical plant in which you work. ‘Madam or Sir, will you please follow me to the police station? You have violated national export control regulations.’ You are wholly surprised. You are bewildered and you cite all the uses for isopropanol I have just described to you.

‘Madam or Sir’, I reply, ‘you are surely aware that *isopropanol* is a key precursor in the manufacture of sarin, the highly lethal nerve agent that the extreme religious cult Aum Shinrikyo released in the Tokyo underground in March 1995 and that Syria has used since 2013 against civilians in the civil war.’ To which you respond, ‘No, I did not know that. What did I do?’ ‘Well’, I answer, ‘over the past five years you have regularly supplied *isopropanol* to Syria in violation of national export control regulations and international sanctions’. Totally shocked, you stammer: ‘Why did I not know this? Why did my professors not tell me that I must beware of inadvertently helping a chemical weapon programme in another country or terrorist organisation?’

My little story is based on real facts. Earlier this year, in my own country Belgium and in Switzerland companies were found to have supplied Syria for many years with *isopropanol*. In reaction with methylphosphonyl difluoride (DF) it produces sarin. Syria declared and destroyed 133 MT of isopropanol under supervision of the Organisation for the Prohibition of Chemical Weapons (OPCW).² A Belgian chemical company exported 168 MT of isopropanol to Syria between May 2014 (i.e. the month in which the OPCW reported Syria’s full destruction of isopropanol) and December 2016 in twenty-four shipments. The transfers were illegal under European Union sanctions.³ The company had been selling the compound to Syria since long before the start of the civil war. The company and the customs brokers it had employed reportedly failed to notify export control authorities. A company representative also stated his ignorance about the role of isopropanol in the synthesis of sarin.⁴ A similar incident took place in Switzerland, with the difference that Swiss export control authorities had granted the export licence for a single shipment of 5 MT in 2014. Switzerland is not an EU member and had promulgated national sanctions against Syria.

2018–2023, IMARC Group, Press release (no date given), URL <<https://www.imarcgroup.com/isopropyl-alcohol-technical-material-market-report>> (Accessed 26 August 2018).

² Letter dated 23 May 2014 from the Secretary-General addressed to the President of the Security Council, UN Security Council document S/2014/368, 23 May 2014.

³ Council Decision 2012/739/CFSP of 29 November 2012 concerning restrictive measures against Syria and repealing Decision 2011/782/CFSP, *Official Journal of the European Union*, 30 November 2012, pp. L330/21–51.

⁴ Anouk van Kampen, ‘Hoe kon Belgisch bedrijf bestanddeel zenuwgif naar Syrië exporteren?’ (How could a Belgian company export a nerve agent component to Syria?), NRC, 14 May 2018. URL <<https://www.nrc.nl/nieuws/2018/05/14/hoe-kon-belgisch-bedrijf-bestanddeel-gifgas-naar-syrie-exporteren-a1602862>>.

Although inspired by the EU measures, the Swiss legislation did not include a list with controlled goods.⁵ It has now been amended to close the loophole.

Incidents like this happen all the time and often involve innocuous technologies that can nevertheless be applied to the development and production chemical, biological, radiological or nuclear weapons – also known as CBRN. Such technologies can be tangible – they are concrete, like the *isopropanol* I mentioned. Other technologies are intangible, as information you transmit across the internet, data production, skills and expertise, and indeed, foreign students who come to study at your universities. The scope is massive.

Conscious of the problematic, the European Commission finances two parallel Targeted Initiatives on ‘Export Controls of Dual-Use Materials and Technologies’ whose implementation has been entrusted to the International Science and Technology Centre (ISTC) and the Science and Technology Centre in Ukraine (STCU). ISTC, located in Astana, targets Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan, Armenia, Georgia, Afghanistan, Pakistan, and Mongolia), whereas the Kyiv-based STCU serves the GUAM countries (Georgia, Ukraine, Azerbaijan and Moldova).

One of the key work packages involves the development of a university course on CBRN dual- use technology transfer controls.

I am proud to say that Faculty of Economics at the Taras Schevchenko National University here in Kyiv has partnered with STCU to become the pioneering institute in organising the course as part of its master programme. But more of that later.

When I started designing the course, it immediately became clear that the university course had to fit a variety of educational situations. Government people might want to obtain a certificate of attainment within the shortest time frame; universities might prefer to integrate the technology transfer controls in broader educational programmes, such as economics, international law, science education, political science, and so on. University students could be interested in certain aspects of the course and therefore have a preference to study those aspects as part of an elective course. Moreover, early discussions also indicated the need for flexibility informed by local legal and administrative demands, as well as the universities’ primary student populations.

⁵ SwissInfo, ‘Swiss authorities allowed isopropanol exports to Syria’, 24 April 2018, URL <<https://www.swissinfo.ch/eng/politics/for-sarin-gas-swiss-authorities-authorized-isopropanol-exports-to-syria/44071586>>.

To maximise flexibility, I proposed early on to structure the full university master programme as a set of modules that could be offered both as a standalone master course or as components to be integrated into already existing university offerings. In the latter case, the university would have the option to make the modules mandatory (e.g., as part of specialisation) or to offer them as elective courses. Professionals (e.g. government functionaries) could take all modules and be rewarded with a certificate of attainment after fulfilling all requirements.

Mind mapping technology helped me with the identification of the issue areas central to the envisaged university course and establishing links between them. The following eight main branches in the mind map came to the fore:

1. Basic knowledge about the CBRN spectrum and core concepts in transfer controls;
2. Core knowledge about the concept of ‘technology’ and ‘dual-use technologies’;
3. International legal and regulatory frameworks governing CBRN-related dual-use technologies;
4. Understanding of the responsibilities of states, institutions and individuals in the prevention of misuse of technology;
5. Threats and risks related to dual-use technologies;
6. Education and outreach with regard to the prevention of the misuse of dual-use technologies;
7. Dynamics of transfer controls, the roles of different professional and actor categories, and resources for information on laws, regulations, and implementing agencies; and
8. Economic relationships, covering domestic and international partners and technology transfer patterns.

Based on these insights, the current master course outline proposes nine modules: 2 introductory ones, 4 substantive ones, and 3 seminar modules that will focus on practical dimensions.

At present we are having detailed discussions about on how to integrate various modules in the economics curriculum at the Taras Shevchenko National University. We also have to make sure that the degrees can become nationally and internationally recognised.

Current planning envisages the test-teaching of some module elements throughout the spring and summer of 2019, the hiring of guest professors, and the development of detailed syllabi for each one of the modules. Provided all legal and administrative requirements have been

met here in Kyiv and in Astana, introduction of the full course should happen during the second semester of 2019.

The project funded by the European Commission and implemented in coordination with STCU also goes beyond educating students. Each of the guest professors who will initially teach the modules will also receive the assignment to assist local – in this case, Ukrainian – teaching staff in developing their own knowledge and expertise so as to be able to take over instruction as soon as possible. Ownership of the course has to revert as soon as possible to local universities. Developing local capacities is a major ambition of the EU-funded project.

So, the Faculty of Economics at the Taras Schevchenko National University will indeed pioneer education in disarmament and non-proliferation in the GUAM region. Great interest has already been expressed by Georgian and Moldova institutions, and some Ukrainian universities more oriented towards the life sciences and chemistry have also shown interest in some modules. Indeed, biological and chemical safety and security, or awareness of the individual in the potential dual-use of certain technologies are all part of preventing the inadvertent transfer of technologies for malicious purposes.

I am deeply appreciative of the interest and enthusiasm shown by my local partners, Professors Iryna Mazur and Viktoriya Gura, for making this university the first to be organising the multi- and interdisciplinary course on CBRN transfer controls.

Thank you very much.

And ... just make sure you are not that isopropanol person!