



The Seveso Capacity Building Project



Current results and future plans



Joint Research Centre
the European Commission's
in-house science service

Overview of presentation



1. Accomplishments 2014-2016
 - Development of an implementation strategy
 - Tools for analysis and information exchange
 - Survey of EU Neighbour Countries
 - Other activities
2. 2017 and beyond

Main focus areas of project strategy (1)



- **Strategy development**
 - 2015 Project strategy paper and brainstorming workshop
 - 2015 Survey and capacity building measures
- **General exchange and training events**
 - 2016 Rapid-N (Natech)* Risk Assessment workshop
 - 2017 Chemical Accident Risks Seminar for Seveso competent authorities (all EU & affiliates)
- **Bilateral exchange and training events**
 - 2016 Moldova Israel Georgia
 - 2017 Follow-up in Moldova, Israel, Georgia on agreed topics
- **Web data analysis and management tools**
 - 2015 – 2017 ADAM (Accident Damage Assessment Model) Tool
 - 2015 AIDA Accident Data Collection System
 - 2016-2017 Rapid N Natech Risk Assessment Model for Floods
 - 2016 Minerva Communities for targeted Neighbourhood Countries
 - 2017-2018 GIS-ARA (Area Risk Assessment) Tool

*Natural hazard event causing technological accident

Country Engagement 2015-2016



4

Country	Project Involvement	Survey Response?	Natech workshop?	Bilateral meeting?	Outlook
ALGERIA	Medium	✓	✓	Invited No reply	Technical interest, but political barriers
ARMENIA	Medium	✓	✓		JRC experts may offer training within UNEP project
AZERBAIJAN	Low		✓		Low interest. Not a priority.
BELARUS	Low	✓		Invited No reply	Some progress already in major chemical hazard controls. Possible priority for 2018/19.
EGYPT	Low		✓		Involvement has not yet been very serious.
GEORGIA	High	✓	✓	✓	2016-2017 Follow up. Project with Czechs (TAEIX) on Seveso implementation. Keen on risk assessment.
ISRAEL	High	✓	✓	✓	2016-2017 Follow up. Strong preparedness/ emergency response (link with JRC model). Aligning with Seveso prevention elements(2016 TAIEX project)
JORDAN	Low	✓		Invited No reply	PPRD 2 feedback indicated interest, but since then no response. Possible priority for 2018/2019
LEBANON	Low	✓	✓		Interest unknown. Possible priority 2019.
MOLDOVA	High	✓	✓	✓	2016-2017 Follow up. In the process of implementing Seveso. JRC follow-up on inspections and Seveso site inventory.
MOROCCO	Low				Low priority due to lack of interest.
PALESTINE	Medium	✓	✓		Some interest. Possible priority 2019
TUNISIA	Low	✓			Interest not high. Possible priority 2019
UKRAINE	Medium	✓	✓	Would not commit	In principal, a high priority due to large industrial base, but political will is not strong.



- Maintain initial focus on a few priority countries who have political will to engage with the project
- Help establish a Seveso reference community for the ENPI countries, e.g., web platform, link with the EU Seveso network
- High appreciation in Neighbourhood Countries for risk assessment tools of ADAM, Rapid-N and GIS-ARA
Need to continue efforts to make them operational and freely available to competent authorities
- Aim to address language barriers by investing in translation of key products and tools over time.
- Actively use capacity building indexes to promote bilateral dialogue within countries on key implementation needs



2016 progress

- **ADAM Consequence Assessment**
- **Rapid N Natech Risk Assessment** Model for Floods – *E. Krausmann*
- **Minerva Communities** for targeted Neighbourhood Countries

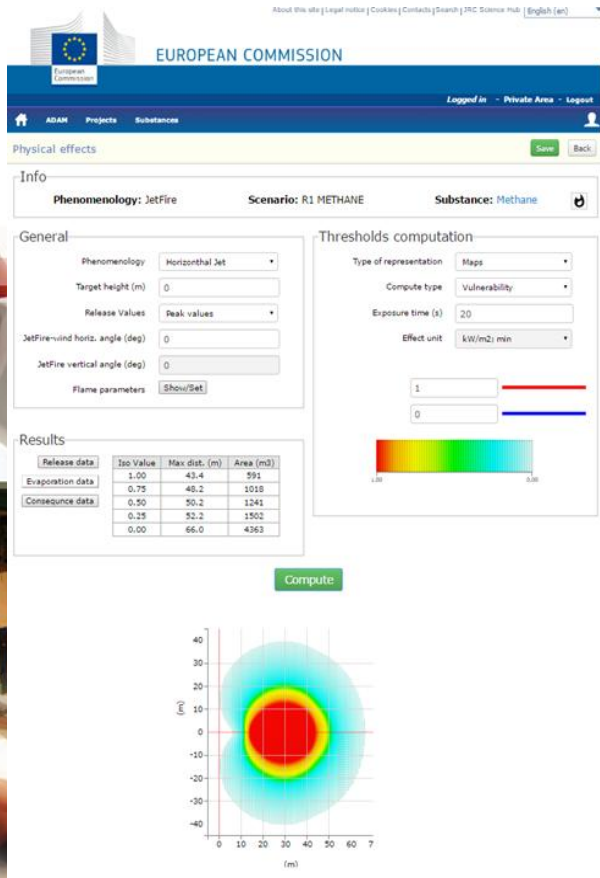
Development of the ADAM* Web prototype

Accident Consequence Analysis tool

- **Scope:** Porting prototype of ADAM onto a web platform, for the analysis of consequence effects on human beings associated with possible accidents involving the unintended release of dangerous substances
- **Main benefits:** This tool will be very beneficial for the Competent Authorities responsible for the implementation of the Chemical Prevention and Preparedness Programme in their countries to assess the risks associated with certain industrial activities and to organize emergency plans.
- **Follow-up:** This work is the basis for preparing ADAM with a full consequence mapping capability

Development of the ADAM* Web prototype

Accident Consequence Analysis tool



EUROPEAN COMMISSION

ADAM Projects Substances

Physical effects

Info
Phenomenology: JetFire Scenario: R1 METHANE Substance: Methane

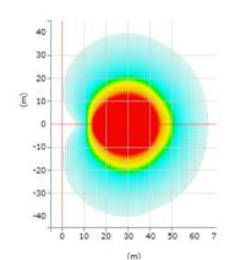
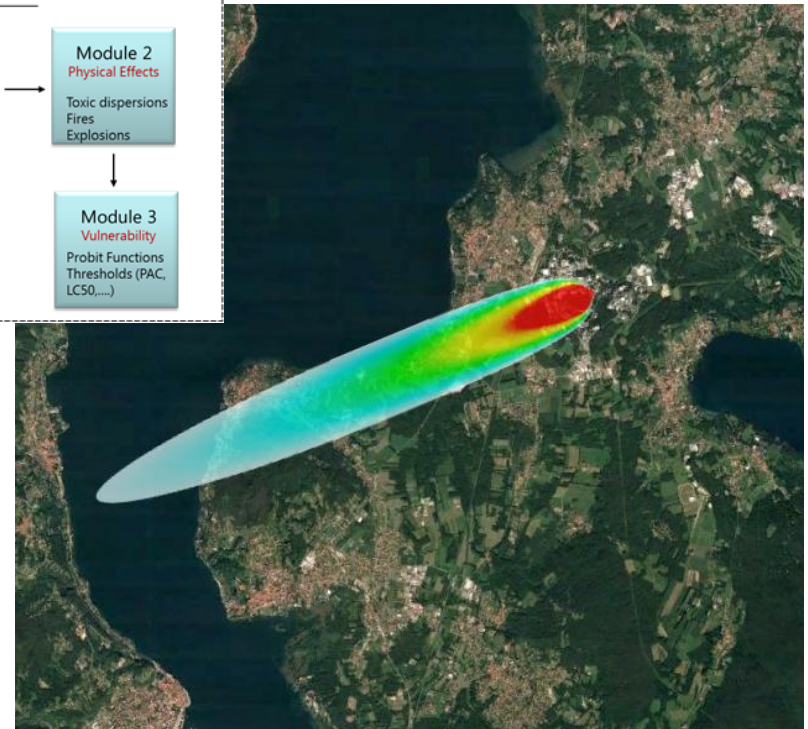
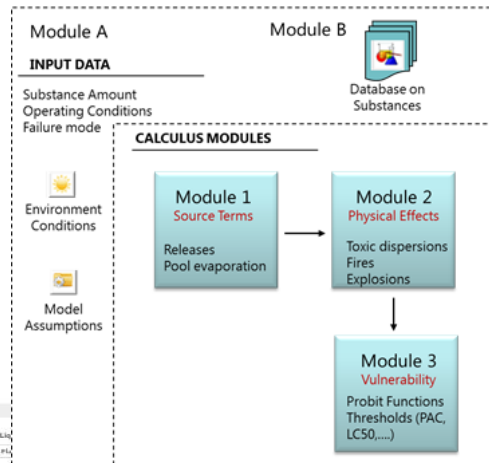
General
Phenomenology: Horizontal Jet
Target height (m): 0
Release Values: Peak values
JetFire wind horiz. angle (deg): 0
JetFire vertical angle (deg): 0
Flame parameters: Show/Set

Thresholds computation
Type of representation: Maps
Compute type: Vulnerability
Exposure time (s): 20
Effect unit: kW/m² min

Results

Release data	Iso Value	Max dist. (m)	Area (m ²)
Evaporation data	0.75	43.2	1018
Consequence data	0.50	50.2	1241
	0.25	52.2	1502
	0.00	66.0	4363

Compute

Flame model: Johnson

Reference or flow ratio (R _{ref} /R)	16.93
Reference jet velocity (m/s)	882.76
Source equivalent diameter (m)	0.18
Flame length in still air L ₀ (m)	04.40
L ₀ x H ₀ (m)	10.44
Frustum length (m)	24.18
Frustum base width W _f (m)	5.19
Frustum tip width W _t (m)	6.78
Frustum base coordinate x (m)	16.64
Frustum base coordinate y (m)	0.00
Frustum base coordinate z (m)	5.00
Frustum tip coordinate x (m)	20.22
Frustum tip coordinate y (m)	0.00
Frustum tip coordinate z (m)	11.02
H ₀ at flow speed (m/s) (H ₀ /U ₀)	304.24
H ₀ at flow speed (kW/m ²)	327.76

Minerva Communities Web Platform

Technical exchange for chemical accident expert communities

- **Scope:** Provides web space for technical exchange for competent authority and expert communities
- **Main benefits:** Opportunity for private, semi-private and public exchange areas managed by community members.
- **Most interesting features:** Allows JRC to establish country-specific areas in 2017 for Moldova, Georgia and Israel (and others as possible) containing their Seveso survey results and JRC technical briefs in own language (currently in Romanian, Georgian and Arabic).
- **Follow-up:** Adding more communities on special topics to establish Minerva Communities as an important access point for Seveso technical reference materials. A public area on industry sectors and private areas for specific projects have already been established.

IT Tools – Minerva communities

Interactive web platform

Country “communities” in development

To evolve according to users needs

The screenshot shows the website for MINERVA Communities, part of the European Commission. The top navigation bar includes links for 'About this site', 'Legal notice', 'Cookies', 'Contacts', 'Search', 'JRC Science Hub', and 'English (en)'. The main header features the European Commission logo and the text 'EUROPEAN COMMISSION'. Below this, a blue bar indicates the user is 'Logged in MINERVA_ADMINISTRATOR - Private Area - Logout'. A secondary navigation bar contains icons and links for 'About MAHB', 'Data and Tools', 'Focus Areas', 'Publications', 'Admin Tools', and 'MINERVA Communities'. The main content area is titled 'About JRC MINERVA Communities' and includes a 'Historical background' section. A sidebar on the right contains two highlighted sections: 'MINERVA Communities Thematic Areas' and 'MINERVA Communities Tools'. The 'Thematic Areas' section lists: Benchmarking Exercise, ESReDA Foresight in Safety, European Neighbourhood, TWG2 Inspections, and Human Factors and Inspections. The 'Tools' section lists: eMARS, eSPIRS, AIDA, and ADAM. Below the sidebar, there is a section titled 'About communities of practice' which discusses the evolution of information and knowledge and the need for better curation.

About this site | Legal notice | Cookies | Contacts | Search | JRC Science Hub | English (en)

EUROPEAN COMMISSION

European Commission

Logged in MINERVA_ADMINISTRATOR - Private Area - Logout

About MAHB | Data and Tools | Focus Areas | Publications | Admin Tools | MINERVA Communities

About JRC MINERVA Communities

Historical background

Since its establishment in 1995, the Major Accident Hazards Bureau (MAHB) has continuously collaborated with Competent Authorities, International Organisations, Research Centres, Industry, Academia, etc. MAHB has also been part of several consortia in the frame of European Commission Research Framework Programmes, along with Technical Working Groups, Technical Committees and Advisory Groups. All these experiences with many organisations active in the area of chemical accident prevention and preparedness (CAPP), including the wider industrial risk management arena, resulted in the following:

- identification and prioritisation of common needs to define our collaborative work;
- better understanding of our partners;
- better targetting of MAHB services;
- strengthening of our partnerships;
- creating knowledge together with our partners;
- sharing of knowledge with MAHB stakeholders;
- etc.

Throughout the years, the volume of information and knowledge and pace of their creation and sharing has increased, along with the number of interconnected networks with whom MAHB collaborates. Thus, there has long been the need to better curate these information and knowledge. The evolution of new Information and Communication Technologies (ICT) brings an opportunity to address this need.

Against this background, the idea to build a Knowledge Portal in partnership with MAHB's vast

MINERVA Communities Thematic Areas

- Benchmarking Exercise
- ESReDA Foresight in Safety
- European Neighbourhood
- TWG2 Inspections
- Human Factors and Inspections

MINERVA Communities Tools

- eMARS
- eSPIRS
- AIDA
- ADAM

About communities of practice

There are many definitions of *community of practice*. Here are some selected definitions, which we would like to share with you. These definitions aims to depict what MAHB is working towards in the next years.

Web-based tools development

- **Finalisation of legal/practical details for launching ADAM**
- **Addition of GIS Model and Area Risk Assessment tool** - for area aggregation of risk and visualisation
- **Completion of Natech flood risk module for Rapid-N**

Capacity building and network/exchange activities

- **Continuation of bilateral collaborations with Moldova, Israel, Georgia**
- **Elaboration of (Neighbourhood) country-specific areas within Minerva Communities**
 - e.g. , survey responses, translations of technical briefs
 - Open for direct uploading and exchange of each country
 - Also, could be special topics or forums, but these functions will evolve with time
- **Chemical Accident Risks Seminar – Networking event**



- **Training and collaboration on ADAM consequence assessment** model (Moldova, Israel, Georgia)
- **Training on Rapid-N for Natech risk assessment**
- **Training on Seveso inspections** (Moldova, Israel)
- **Risk assessment** advice/support for **emergency response** (Israel, Georgia)
- Assistance with establishment of **Seveso site inventory** (Moldova)
- Advice/ support for **Seveso prevention elements**, e.g., safety management systems, safety reports (Moldova, Israel)
- **Key topics of interest** are
 - risk assessment
 - coordination between government authorities
 - role of the authorities
 - new EU country experiences implementing Seveso



<https://minerva.jrc.ec.europa.eu/en/shorturl/minerva/publications>

Buletin privind lecțiile învățate nr. 5
Prevenirea și nivelul de pregătire pentru accidente chimice
Accidente majore cu implicare îngrășămintelor

Scopul acestui buletin este să ofere informații cu privire la cele mai bune practici aplicabile în domeniul de prevenție și acțiunile necesare în caz de accidente chimice, atât operaționale, cât și asociate cu regenerarea în sală, bazându-se pe datele furnizate în FPFC și în documentația asociată. Trebuie să se ia în considerare și toate cele trei dimensiuni ale triadului.

Accidentul 1
Depozitarea și distribuția n-7 și cu amoniac

Succesiunea evenimentelor

Un incendiu a surdit în sala de depozitare a îngrășămintelor și a produs o explozie, expunând șase persoane și un grup de alți șase profesioniști, inclusiv șase medici, îngrășămintelor și amoniacului. În urma acestui incendiu și a exploziei au rezultat 25 răni ușoare și 8 decesuri. O altă cauză a fost contaminarea îngrășămintelor n-7 (20% N, 6% P, 27% K) și n-7 (20% N și 6% P, 27% K) în sala de depozitare și distribuție a îngrășămintelor n-7 și cu amoniac. În urma acestui incendiu și a exploziei au rezultat 25 răni ușoare și 8 decesuri. O altă cauză a fost contaminarea îngrășămintelor n-7 (20% N, 6% P, 27% K) și n-7 (20% N și 6% P, 27% K) în sala de depozitare și distribuție a îngrășămintelor n-7 și cu amoniac.

Figura 1. Instalația de depozitare și distribuție a îngrășămintelor n-7 și cu amoniac.

BULETIN BPAM
 UNITATEA PENTRU EVALUAREA TEHNICILOR DE SECURITATE
 Institutul pentru Prevenirea și Acțiunile Necesare în Caz de Accidente Chimice
 21202 Ispira, 01057 Italia
<http://www.jrc.ec.europa.eu/>

Numărul 6
JRC01057

**MAH-
 ბიულეტენი**

ბიულეტენი
 6
 ივნისი, 2014 წ.
 JRC01057

დაგროვილი გამოცდილებების კომპიური ავარიების შემთხვევების სასაუბრონად დავაგვირგებლო

ავარა 1
საბოლოო და საცალო სტოვების და დისტრიბუციის მოვლა

შედეგები

25 მძიმე და 8 მძიმე დაზარალებული იქნა დაზარალებული. 25 მძიმე და 8 მძიმე დაზარალებული იქნა დაზარალებული. 25 მძიმე და 8 მძიმე დაზარალებული იქნა დაზარალებული.

Figura 1. ავარიის დაზარალებული საცალო სტოვების და დისტრიბუციის მოვლა.

**MAH-
 ბიულეტენი**

ბიულეტენი
 6
 ივნისი, 2014 წ.
 JRC01057

نشرة التروس المستفادة رقم 5
الوقاية من الحوادث الكيميائية والاستعداد لها
الحوادث الكبرى المرتبطة بالآسمدة

الوقاية من الحوادث الكيميائية والاستعداد لها

الحوادث الكبرى المرتبطة بالآسمدة

التحليل رقم 1
مخزن النجاسة والذخيرة والتوزيع

مخزن النجاسة والذخيرة والتوزيع

نتائج

25 إصابة خطيرة و 8 وفيات. 25 إصابة خطيرة و 8 وفيات. 25 إصابة خطيرة و 8 وفيات.

Figura 1. الحوادث الكيميائية والاستعداد لها.

MAHBULLEEN
 6
 يونيو 2014
 JRC01057

Romanian

Georgian

Arabic



Topics selected by Steering Committee of 10 countries (mix of EU-15, new EU, Neighbourhood, EEA)

- 1. Challenges in substance classification of non-harmonised substances for Seveso Directive implementation**
- 2. Security challenges associated with IT technology and automation in major hazard industries**
- 3. Safety challenges with IT technology and automation in major hazard industries**
- 4. How do we know if we are reducing chemical accident risks? Do we have the right tools to measure this?**
- 5. Integrity of installations and equipment (maintenance, aging, etc.)**
- 6. Organisational change and influence of enforcement**

Speakers sought from all EU/EU-affiliate countries, with opportunities for also industry and research institutes.

14 and 16 June - Introductory training on ADAM/Rapid-N offered

Thank you for your kind attention!

**Please come visit the Minerva web platform for resources on
chemical accident risk reduction**

<https://minerva.jrc.ec.europa.eu/en/minerva>