

# PREVENTING BIOLOGICAL RISKS INCREASED BY ENVIRONMENTAL AND CLIMATE CHANGE



**through EU CBRN Risk Mitigation Centres of Excellence Initiative** (*Instrument for Stability and Peace, IcSP*):

**THE LARGEST EXTERNAL CIVIL SECURITY PROGRAM**

## ***CBN WMD and CBR terrorism: some common factors***

- **DEEP REGIONAL AND GLOBAL DESTABILIZATION**
- **THREAT TO INTERNATIONAL PEACE AND SECURITY**
- **NEED FOR RESPONSE, BUT COULD BE DIFFICULT TO IDENTIFY AGGRESSOR (ESPECIALLY IN TERRORISM CASE => NEBULA OF ACTORS AND NETWORKS)**



# CBN WMD and CBR terrorism: some differences

## ➤ CBN WMD AND DELIVERY MEANS ↔ STATE

**ACTORS:** THE DEVELOPMENT IS A LONG, COMPLEX AND THUS COSTLY PROCESS THAT CANNOT NOT BE SET UP WITHOUT A STRONG POLITICAL WILLINGNESS



## ➤ CBR TERRORISM ↔ NON STATES ACTORS: MUCH MORE OPPORTUNISTIC, WHATEVER COULD BE THE DIFFERENT TYPES OF TERRORISM:

- **IDEOLOGICAL/POLITICAL** *E.G. WHITE SUPREMACISTS, XENOPHOBIC, EXTREME RIGHT, EXTREME LEFT, ANARCHIST...*
- **ECONOMICAL** *E.G. STAFF FROM SENSITIVE INDUSTRIAL PLANTS,...*
- **RELIGIOUS/MILLENARIST** *E.G. AUM SHINRIKYO,...*



## ***N WMD and CBR terrorism: a major difference***

- N WMD ⇔ DETERRENCE [P<sub>5</sub> AS RESPONSIBLE NUCLEAR-WEAPON STATES ACCORDING TO NPT]: THE POWER LIES IN THE ***POSSESSION*** OF THE WEAPON



- **CBR TERRORISM**: THE POWER LIES IN THE ***USE*** OF THE WEAPON

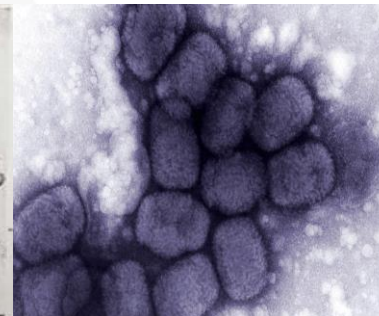
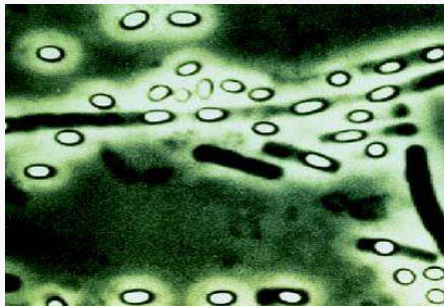




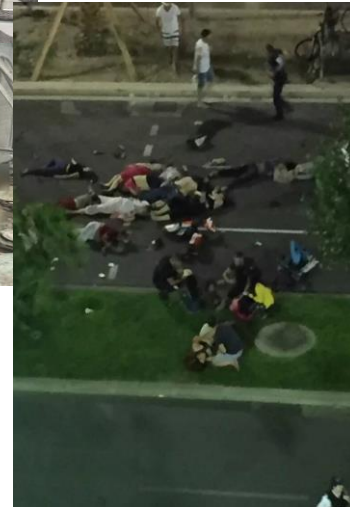
- **C WMD AND C TERRORISM:** SOME COMMON COMPOUNDS (MUSTARDS, NEUROTOXIC ORGANO-PHOSPHORUS,...), OTHER DIFFERENT (TOXIC INDUSTRIAL CHEMICALS)



- **B: SAME MICROORGANISMS AND TOXINS,** BUT FROM DIFFERENT QUALITY SO FAR



## CONVENTIONAL TERRORISM VERSUS CBR TERRORISM : TOWARDS THE SAME PARADIGM SHIFT? I.E. MASS SCALE (BALI, MADRID, LONDON, PARIS, BRUSSELS, NICE,...) ?





M. AHMET ÜZÜMCÜ, OPCW GENERAL DIRECTOR IN OCTOBER 2017:

« *What is important to emphasize is that chemical terrorism is no longer a theoretical risk, but a very real threat. In Syria, as in Iraq, Daesh used Sulphur mustard.*

*In Europe, [as everywhere in the world] there is a growing concern that foreign fighters currently active in conflict areas will return to their home countries with the know-how and motivation to conduct chemical terrorist actions.»*





<b><i>TYPE OF ATTACK</i></b>	<b>CONVENTIONAL</b>	<b>CHEMICAL/BIOLOGICAL</b>
<b><i>LIKELIHOOD</i></b>	High	Low
<b><i>POTENTIAL SEVERITY (GEOGRAPHIC EXTENT AND DECONTAMINATION CONSEQUENCES)</i></b>	Medium	EXTREME
<b><i>POTENTIAL SEVERITY (MORTALITY, MORBIDITY, NUMBER OF VICTIMS)</i></b>	Medium	EXTREME
<b><i>NATURE OF THE THREAT</i></b>	Known (in principle)	BELATEDLY KNOWN/ UNKNOWN
<b><i>FIRST RESPONDERS INTERVENTION DIFFICULTIES (INCLUDING POTENTIAL HAZARDS)</i></b>	Low (in principle)	EXTREME
<b><i>POTENTIAL HAZARDS FOR HOSPITAL WORKERS</i></b>	Absent	HIGH
<b><i>ENVIRONMENTAL IMPACT</i></b>	Low	EXTREME
<b><i>PSYCHOLOGICAL IMPACT ON GOVERNMENTS AND CIVIL SOCIETY</i></b>	HIGH	EXTREME

***"We will make you check everything and anything  
you eat out of fear, horror and terror"***

***"We will never allow you to enjoy the taste of what you desire"***

➡ ***"Sprinkle the liquid substances or the basics of bacteria with  
drinking water to take effect automatically"***

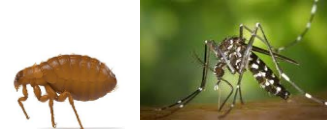
1. STRONG IDEOLOGICAL MOTIVATION, HATE, DESTRUCTION WILLINGNESS
2. FUNDS
3. BRAINS: SCIENTISTS, INCLUDING FOREIGN ONES
4. THE COLLAPSE OF THE TERRITORIAL CONTROL,  
THE DEATH OF AL BAGHDADI IS NOT THE END OF  
THE REMAINING BRAINS...



*A terrorist act succeeds in the banality of the **EVERYDAY LIFE GESTURES...***

*Vulnerabilities of targets: e.g. mass gathering, major events such as football world cup, world exhibition*

- **CONTACT POISONING** (e.g. chemical compounds on surfaces contacts,...)
- **INFECTIOUS DISEASE VECTOR BORNE** (e.g. insects, rodents, human,...)
- **AIRBORNE THREATS** (e.g. drone, spreading planes, portable spray or diffuser, IED, rockets, tank trucks, sensitive infrastructures --i.e. chemical plants,...--)





## FOOD SUPPLY THREATS AS DAY-TO-DAY ACTIVITIES



Primary production



Manufacturing



Transport



Preparation

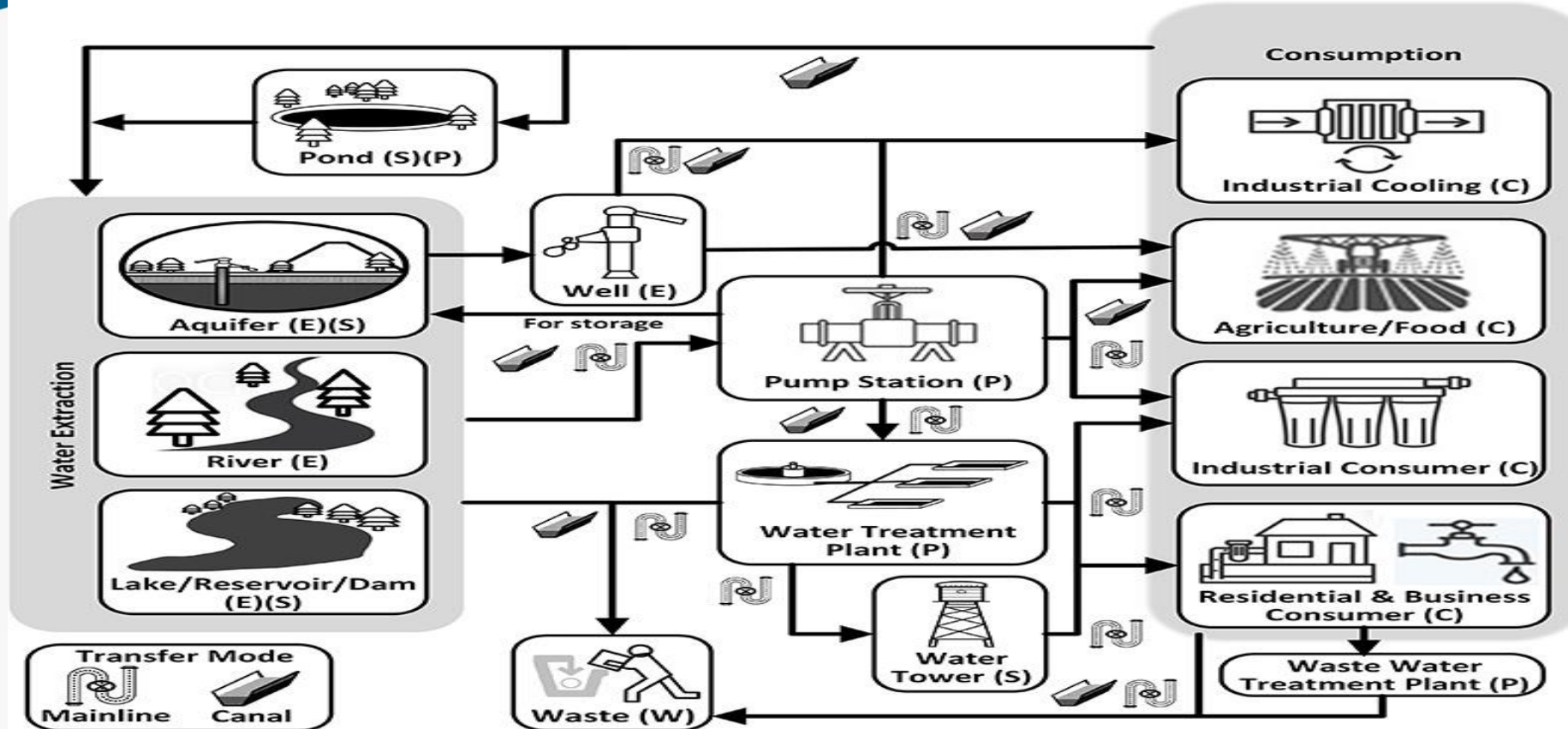


Distribution

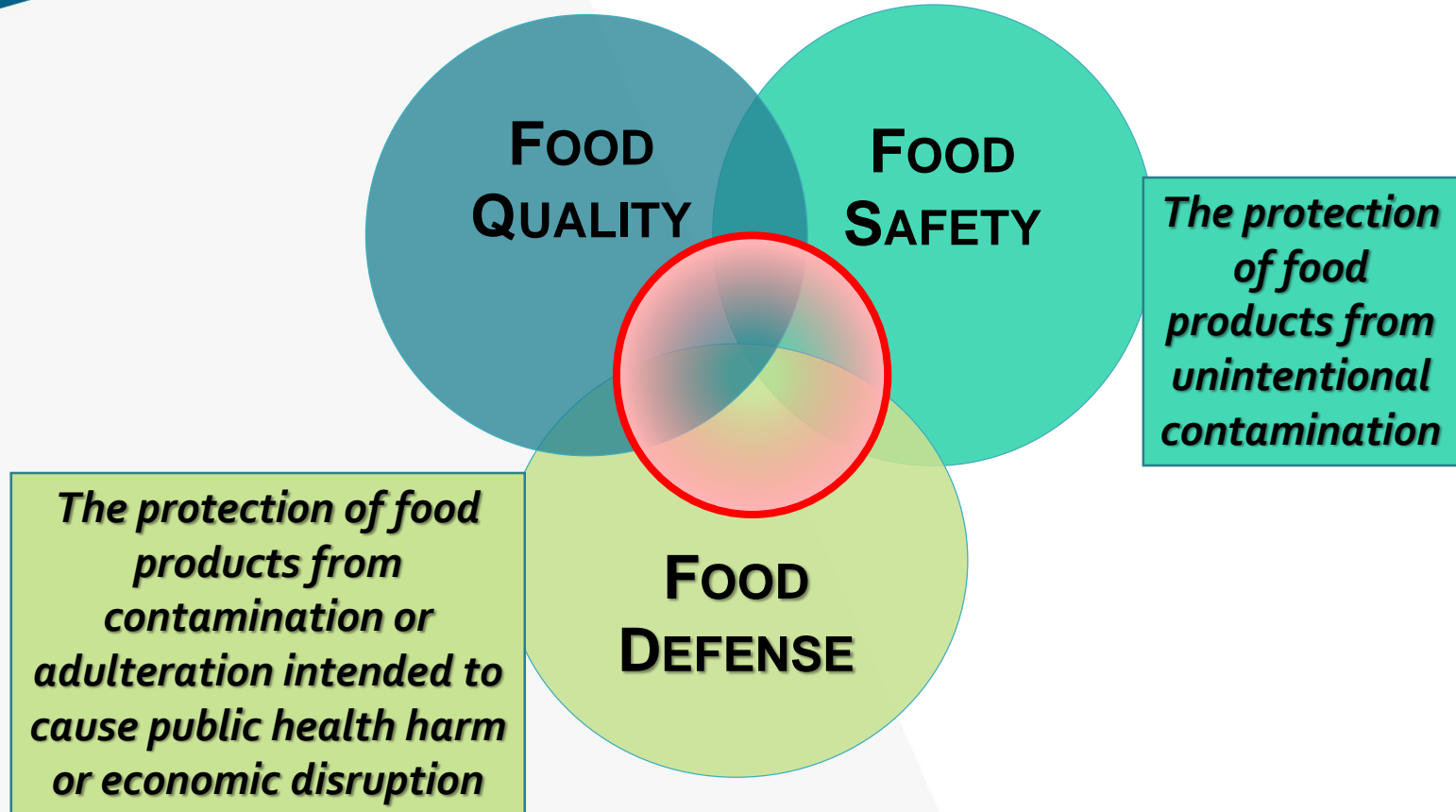


Consumer

## WATER SUPPLY THREATS



# Crossed objectives





# KEY INSTRUMENT

ENABLING EU TO PLAY A

## MAJOR ROLE

IN PREVENTING AND PREPARING FOR  
ACTUAL OR EMERGING CRISES





CBRN  
**Centres  
of Excellence**  
*An initiative of the European Union*

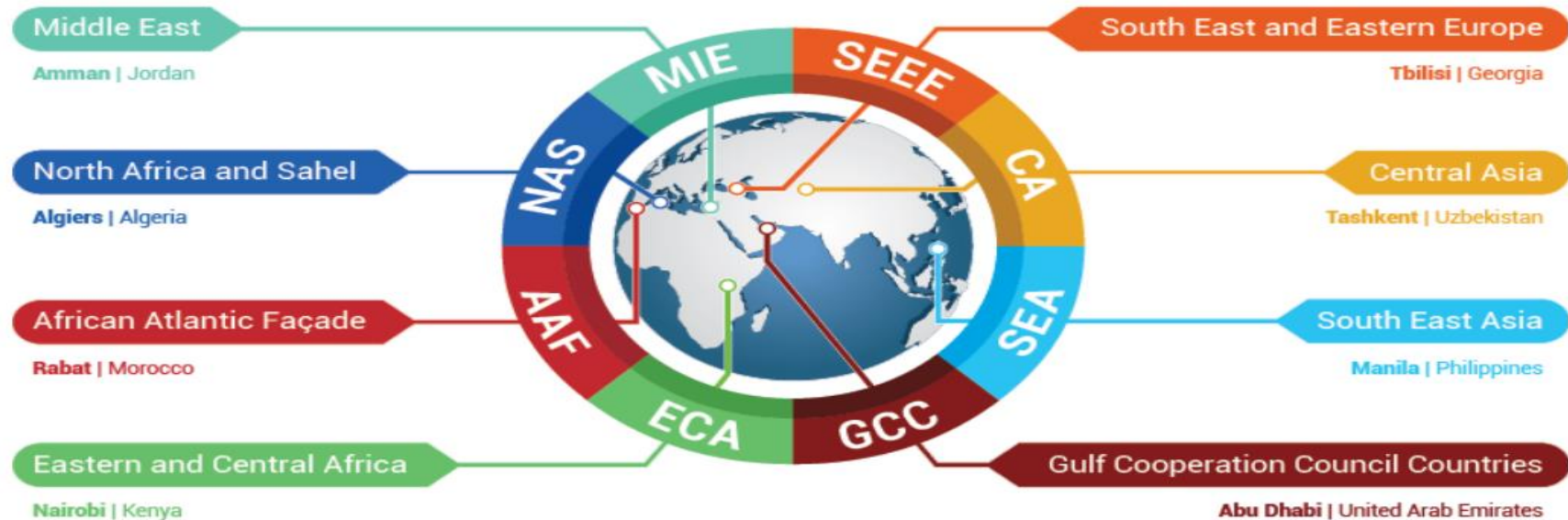


***Intentionally  
Accidentally  
Naturally***

**created**

**CBRN risks**

# A LOCAL WORLDWIDE NETWORK



*The CoE is a global network of local experts and collaborating partners. Working in partnership with countries encourages local ownership through CBRN needs assessments, action plans, policies and projects.*



## SHARING A COMMON EUROPEAN CULTURE OF

### **CBRN** SAFETY & SECURITY

**Prevention, Detection, Preparedness and Response**

**<=> CBRN risks mitigation, ACCORDING TO A TAILORED APPROACH**

BY:

**INCREASING PREPAREDNESS**

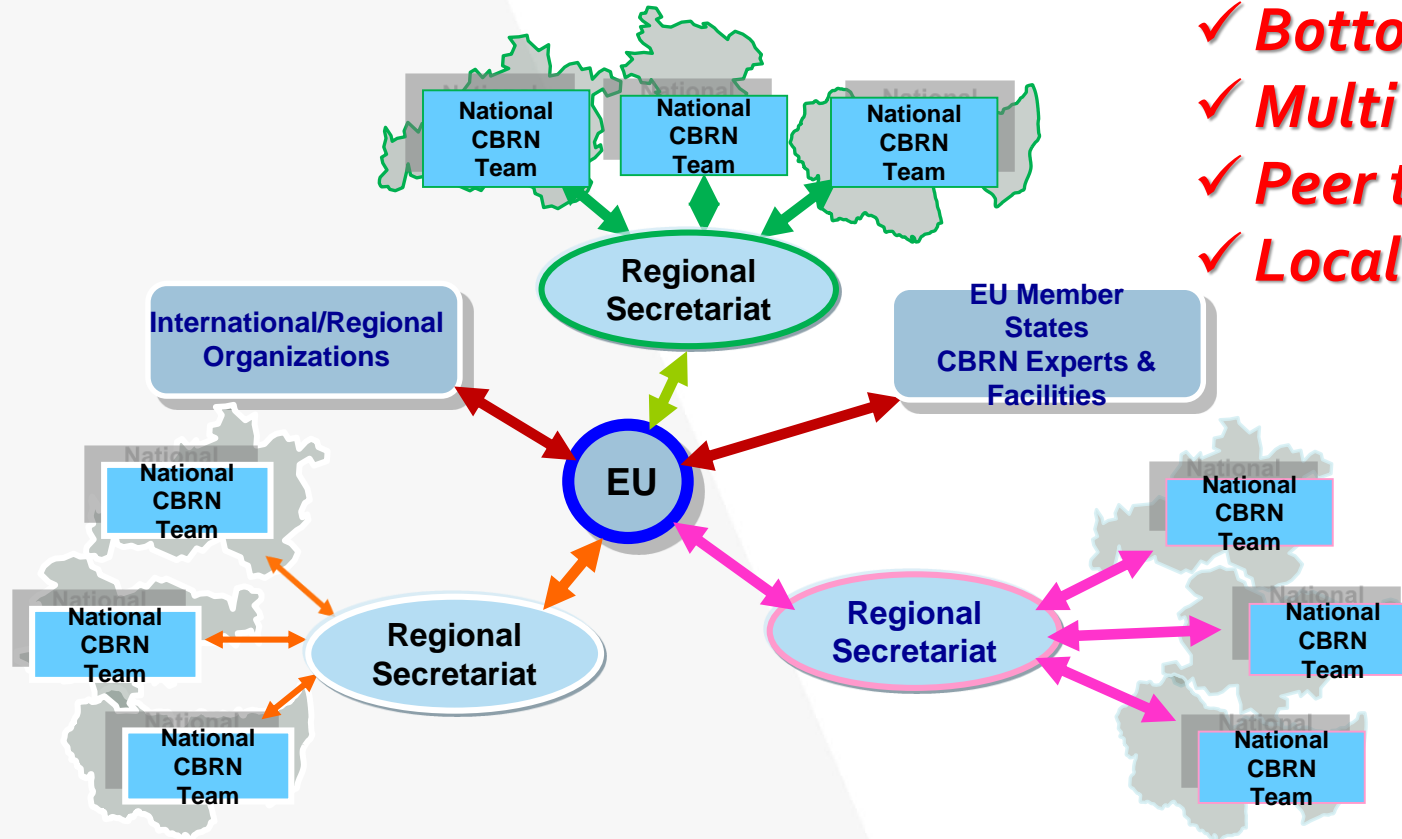
AT LOCAL AND REGIONAL LEVEL;

**HARMONISING RESOURCES**

WITHIN THE EU; AND

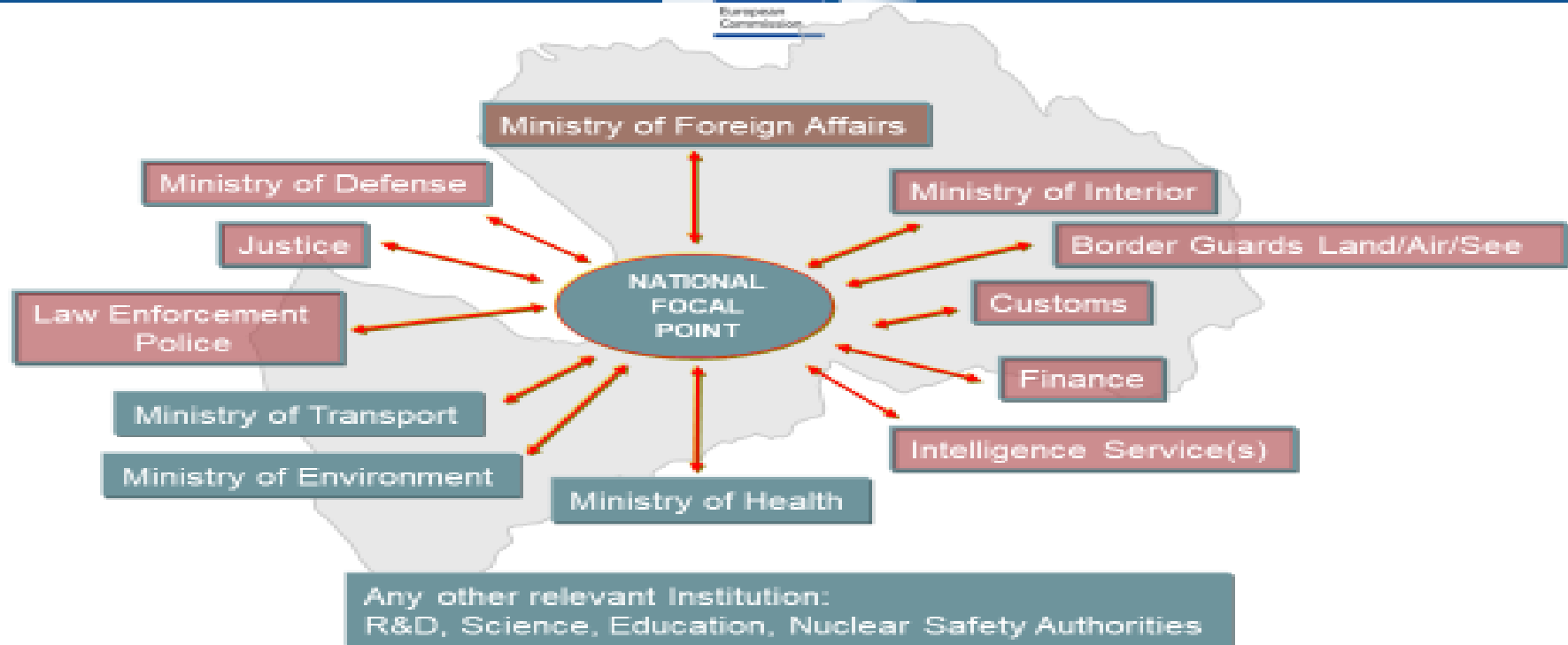
**EXPORTING BEST PRACTICE**

AND LESSONS LEARNED...



- ✓ *Bottom up*
- ✓ *Multi hazard*
- ✓ *Peer to peer*
- ✓ *Local expertise*

## National Teams



- \* Launch in 2010 - first contacts and presentation of the initiative 2007-2009**
- \* First CoE projects 2011**
- \* 182,1 M€ for 82 CoE projects (5 CB, 36 CBRN, 6 C, 23 B, 8 RN, 4 CRN)**
- \* 61 countries (+ 1 candidate = Chad)**



## COE PARTNER COUNTRIES IN AFRICAN ATLANTIC FAÇADE



## COE PARTNER COUNTRIES IN NORTH AFRICA AND SAHEL



## COE PARTNER COUNTRIES IN CENTRAL ASIA REGION



## COE PARTNER COUNTRIES IN EASTERN AND CENTRAL AFRICA



## COE PARTNER COUNTRIES IN GULF COOPERATION COUNCIL COUNTRIES REGION



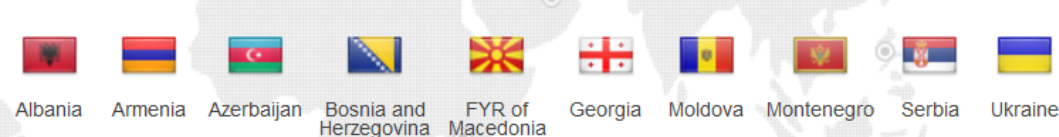
## COE PARTNER COUNTRIES IN MIDDLE EAST REGION

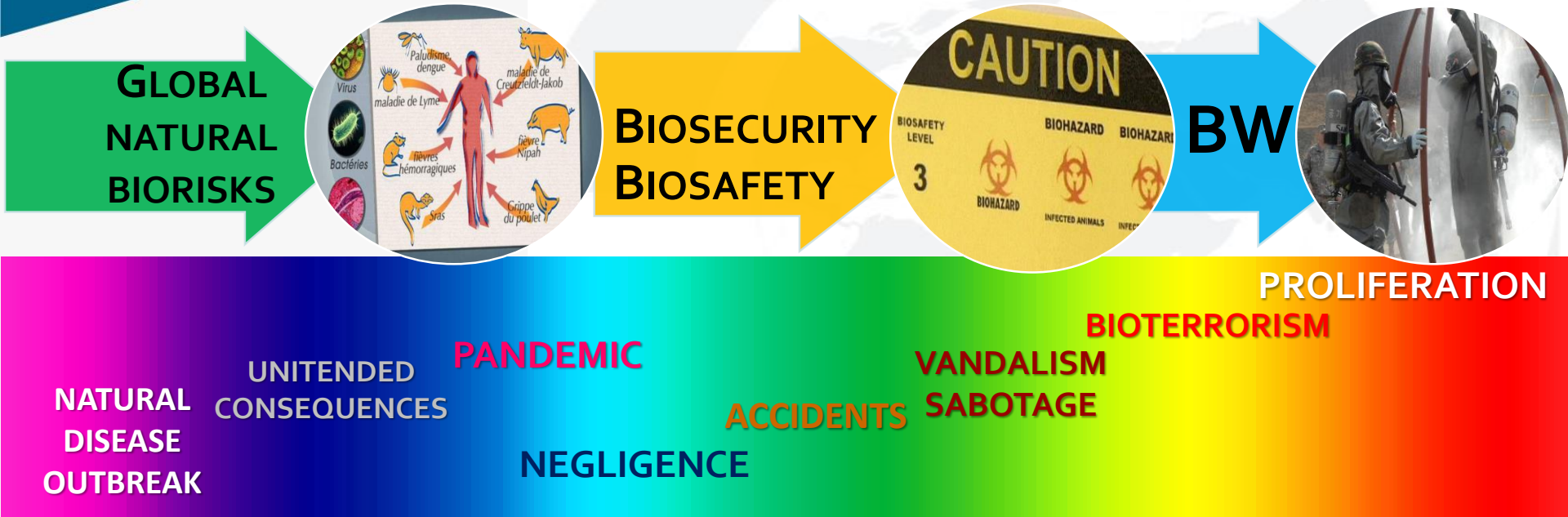


## COE PARTNER COUNTRIES IN SOUTH EAST ASIA REGION



## COE PARTNER COUNTRIES IN SOUTH EAST AND EASTERN EUROPE REGION





*Whole spectrum of B threat (from natural to human-induced risks)<=> There is not one size fits all.  
Need cooperation with WHO, FAO, OIE...*

*=> Actions to reduce biothreats and biorisk contribute to the biodefense*

*BUT: to avoid strategic surprise => keep in mind and on the table the great difference between the consequences of unintentional use and malevolent use of micro-organism!*

## STRATEGIC CONTEXT:

**DISTURBANCE OF ECOSYSTEMS, OCEAN ACIDIFICATION, SUPPRESSION OF SPECIES OR, ON THE CONTRARY, PROLIFERATION OF OTHERS... GLOBAL WARMING DISRUPTS AND THREATENS THE WORLD OF LIFE**

- **Global environmental changes: a major destabilisation factor**



- On ecosystems; on movement of animal species; on expansion of harmful species; on rise of the oceans with some more extreme weather events => **increase of --both new and re-emerging-- infectious diseases**. These extreme weather patterns introduce new climates to different regions able to sustain vectors, or introduce and survival of new vectors;



- **=> can likely to lead to major movements of population.**





- **Globalization of trade and travel:** impact on health threats reaches speedier and wider than ever;
- **Population displacement**, epidemics, can also be catastrophic if accompanied by **armed conflict or terrorist destabilization**;
- Unstable regions do not allow timely intervention to contain the crisis (Ebola in the Democratic Republic of Congo). Some terrorist groups may try to capitalize on such effects...

# ENSURE AN ADEQUATE RESPONSE TO MAJOR THREATS TO PUBLIC HEALTH,

**INCLUDING SUDDEN EPIDEMICS WITH A POTENTIAL TRANSNATIONAL IMPACT**

=> increased health risks (due to the spread of human, animal or plants diseases in new areas, as well as due to vector-borne diseases).

**IN ANY CASE, EARLY DETECTION OF AND RESPONSE TO A CHANGING PICTURE OF DISEASES IS A KEY ELEMENT OF HUMAN AND ANIMAL HEALTH STRATEGY TO ENSURE DISEASE AWARENESS AND PREPAREDNESS.**

**ONE HEALTH APPROACH IS KEY.**

THE THEMATIC STRATEGIC PAPER 2014-2020 FOR THE ISCP CALLS FOR SUPPORT TO:

- **GLOBAL DISEASE SURVEILLANCE**
- **EMERGENCY PLANNING**
- **EARLY WARNING, ALERT AND REPORTING SYSTEMS**
- **DISEASE OUTBREAK CONTAINMENT**

## *MediLabSecure, MediPIET and STRONGLABS*

*have been oriented towards taking into account the effects of climate change on infectious diseases, the migration of potential vectors and the alert capacity of laboratories and institutions in charge of field epidemiology to prevent epidemics of new types*

## THE CORE OF THE EU HEALTH CRISIS PREVENTION STRATEGY MAINLY IMPLEMENTED THROUGH





## Principles

**ONE HEALTH** ...is an approach of improving health and well-being through the **prevention of risk** and the **mitigation of effects** of crises (e.g. emerging diseases) that originate at the **interface between humans, animals and their various environments**

(Stone Mountain Process Atlanta USA 2012)

... the desired impact of the **ONE HEALTH APPROACH** expected through **intersectoral integration** can only be achieved if also the **capacities of each involved sector** are sufficiently strong and developed

Häsler B, Gilbert W, Jones BA, Pfeiffer DU, Rushton J, Otte MJ. The economic value of One Health in relation to the mitigation of zoonotic disease risks. *Curr Top Microbiol Immunol.* 2012;365:127–51).



Network for **promoting a One Health** approach to mitigate **biological risks** related to emerging **vector-borne viruses** in the Mediterranean, Black Sea & Sahel regions

*Coordination by Pasteur Institute and implementation by 5 European partner institutes*

***« Preventing biological risks increased by  
environmental and climate change in the  
Mediterranean, Black Sea and Sahel regions by  
strengthening institutional capacities in the context of  
ONE HEALTH »***

***Collaboration between MediLabSecure and MediPIET is crucial  
to ensure necessary links between lab  
capabilities and field epidemiologists***

Institut Pasteur



AVIA GIS



MediLabSecure



INIA  
Instituto Nacional de Investigación  
y Tecnología Agraria y Alimentaria



French National Research  
Institute for Sustainable  
Development  
Institut de Recherche  
pour le Développement  
FRANCE





**« Mediterranean and Black Sea field epidemiology  
TRAINING programme network to increase security in the  
EU neighbourhood »**



**MediPIET**

Mediterranean and Black Sea Field  
Epidemiology Training Programme Network

***Enhancing health security by supporting capacity building for prevention and control of biological, natural, or man-made health threats through the further roll-out of a sustainable training programme in intervention epidemiology  
<=> Collaboration between MediLabSecure and MediPIET is crucial  
to ensure necessary links between lab capabilities and field epidemiologists***

- Sustainable tailor made regional training programme in field epidemiology, including 2-year 'learning-by-doing' course and on job-training. (MediPIET) ⇔ regional competent workforce in intervention epidemiology / regional network of trainers/supervisors and institutions;
- Launched in 2012, MediPIET 1: preparatory phase (contract IfS/2012/307-293/) ⇔ ECDC;
- 2014-2018: MediPIET 2 (IfS/2013/329-859, 6 400 000 €);

## 20 PUBLIC HEALTH INSTITUTES



- Albania
  - Algeria
  - Armenia
  - Bosnia and Herzegovina
  - Egypt
  - Georgia
  - Kosovo\*
  - Lebanon
  - Libya
  - Moldova
  - Montenegro
  - Morocco
  - Republic of North Macedonia
  - Palestine\*\*
  - Serbia
  - Tunisia
  - Ukraine
  - Observers: Israel and Turkey
  - EU countries: France, Greece and Spain
- \*\*Instead of Occupied Territories of Palestine*

*\*\*"This designation is without prejudice to positions on status, and is in line with UNSC 1244 and the ICJ Opinion on the Kosovo Declaration of Independence."*

- ✓ *Organization of a FETP dedicated to a new cohort of national fellows from 12 countries with a MediPIET Training Site*
- ✓ *Training for senior and mid-career professionals in field epidemiology*
- ✓ *Increased exchange on public health knowledge and methodologies between EU and non-EU countries*
- ✓ *Encourage regional networking and develop further sustainable country capacity to deal with health security challenges*



## MediPIET

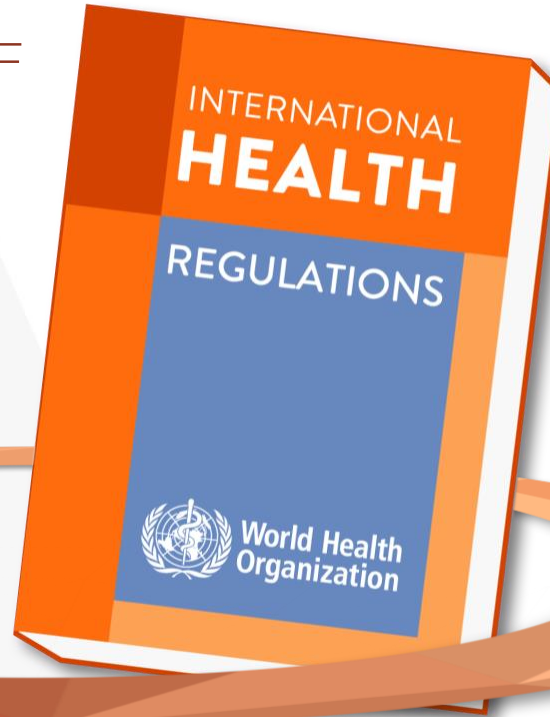
Mediterranean and Black Sea Field  
Epidemiology Training Programme Network





SUPPORT IMPLEMENTATION OF

# THE WHO'S INTERNATIONAL HEALTH REGULATIONS



## *« Preventing biological risks increased by environmental and climate change by strengthening Public Health Laboratories - (STRONGLABS) »*

In the continuity of Project 40 (IFS/2013/332312, 6 400 000 €):  
funded by the CBRN CoE initiative and implemented by WHO

⇒ strengthening health laboratories to ensure a correct IHR implementation and minimize potential biological risks in some countries covered by the Project MediLabSecure.

*To minimize potential biological risks related to climate change by improving the detection of, response to, and recovery from outbreaks and health emergencies <=> enhancing and sustaining functional public health laboratory capacities to test specimens and report results in a safe, secure, timely and reliable manner.*



- STRONGLABS aims to minimize potential biological risks related to climate change by improving the detection of, response to, and recovery from infectious disease outbreaks and health emergencies.
- Actions will focus on *enhancing and sustaining functional public health laboratory capacities* to test specimens and report results in a safe, secure, timely and reliable manner.
- To improve core public health laboratory indicators as defined in the **IHR**'s monitoring and evaluation framework.



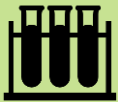




**1.1. LABORATORY SPECIMEN REFERRAL AND TRANSPORT SYSTEMS** are strengthened to ensure early detection and timely confirmation of disease outbreaks.



**1.2. LABORATORY BIOSAFETY AND BIOSECURITY** regimes are implemented to support storage, handling and sharing of biological materials in a safe and secure manner.



**1.3. Access to QUALITY ASSURED LABORATORY TESTING CAPACITY** is ensured for priority diseases for timely, reliable identification and characterization.



## GLOBAL (HQ)

global guideline & tool development  
(for all WHO Member States)

- Global guidance for specimen collection during outbreaks revised
- Shippers of infectious substances training program enhanced
- Global EQA developed for viral haemorrhagic fevers

**EUROPEAN  
REGION**  
53 countries

- UZBEKISTAN
- TAJIKISTAN
- KYRGYSTAN

- Piloting specimen transport systems
- Biosafety/biosecurity trainings
- Biosafety/biosecurity regulation development
- Mentoring on laboratory quality

**EASTERN  
MEDITERRAN  
EAN REGION**  
22 countries

- IRAQ
- TUNISIA

- Regional guidelines for new diagnostic technologies
- Review strategic frameworks for strengthening health laboratories
- Train shippers of infectious substances
- Laboratory policy & biosafety/biosecurity regulation development

**AFRICAN  
REGION**  
47 countries

- BURKINA FASO
- MALI
- NIGER

- Mapping and enhancing specimen referral mechanisms
- Biosafety/biosecurity trainings
- Technical diagnostics trainings for priority pathogens
- Supporting laboratory quality audits

***I thank you for your attention***

***Questions ?***