



CBRNe bioterrorism, and agroterrorism: the impact on human security and safety





Report:

CBRNe, bioterrorism, and agroterrorism: the impact on human security and safety

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Executive Summary

The report emphasizes preparedness, training, legal aspects of responses, and reference parameters for parliamentarians, government, civil protection, and civil defense officials and volunteer organizations in the Euro-Mediterranean and Gulf areas. It underscores the necessity for well-developed training and readiness strategies to handle emergencies effectively. Special attention is given to the preservation and protection of the civilian population from bioterrorism and agroterrorism through the adoption of legal and organizational measures.

The report highlights how the European Union has boosted research and development to improve cross-border cooperation in response to CBRNe threats, and how the EU and the Gulf Cooperation Council have enhanced their cooperation on economic relations, climate change, energy, environment, and research. Additionally, the report emphasizes the importance of strengthening CBRNe preparedness and response capabilities in the MENA region, given its strategic significance and vulnerability to such threats. It also focuses on the current role of health /security cooperation in preventing bioterrorism and the risks posed by agroterrorism.

The report uses as reference the successful approaches represented by European bioterrorism legislation, focusing on prevention, detection, and response to CBRNe threats. As bioterrorism and agroterrorism impact food safety in the Euro-Mediterranean and Gulf regions, the report raises concerns about the weak areas identified. As for the management of the risks linked to food safety, security, and health, the CGS proposes the revitalization and support for Euro-Mediterranean and Gulf cooperation network for Food Safety, Security, and Health. This will require relevant investments in the regional training programs. This report is an excellent reference tool for policymakers and public authorities, as well as citizens, as it aims to help them improve human security given emerging CBRNe threats.

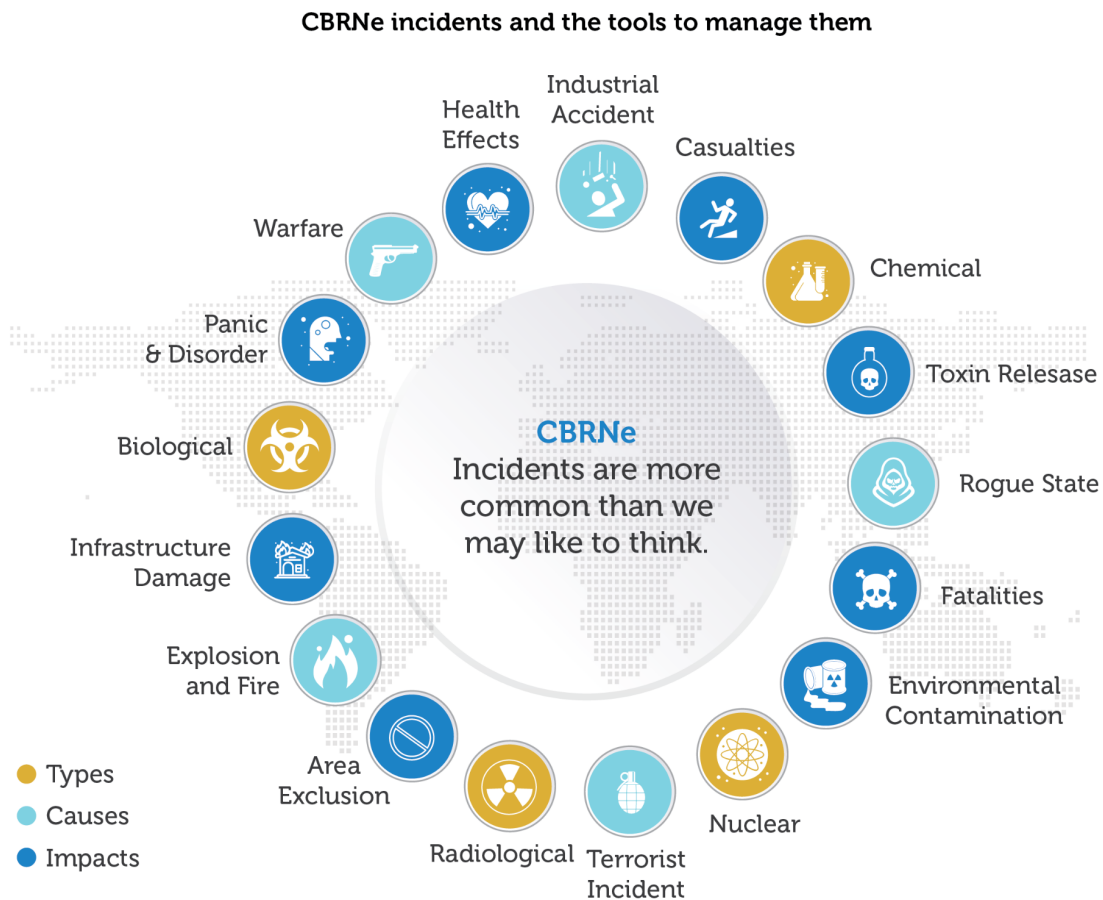
The Center for Global Studies (CGS), a special program of the Parliamentary Assembly of the Mediterranean (PAM), prepared this document on chemical, biological, radiological, and nuclear threats, as well as bioterrorism and agroterrorism

Introduction

1. In the geopolitics of (in)security, threats and crises are profoundly interrelated. The researchers at the Center for Global Studies (CGS), the strategic think tank of the Parliamentary Assembly of the Mediterranean (PAM), worked with the Council of Europe (CEMEC) and other international experts to elaborate on this report. It focuses on CBRNe (chemical, biological, radiological, and nuclear) threats and the impact of bioterrorism and agroterrorism on human security. As Antonio Guterres, Secretary-General of the United Nations, stressed in the General Assembly of Human Security in New York on 2 April 2024, “The concept of human security, with its emphasis on people and prevention, has an important role to play in strengthening links at the local, national, and regional levels and creating momentum to tackle our shared challenges.”¹. The report defines some critical aspects: i) the importance of preparedness and training on preventing and managing catastrophic crisis scenarios at the level of citizens and ruling classes; ii) the implementation of legal and operational frameworks on bioterrorism and agroterrorism and threats to human security at various levels; iii) reference guidelines for members of parliaments, public officials, and citizens in the Euro-Mediterranean and Gulf area to promote international cooperation, and safeguard human safety and security in the region.

¹ Human security approaches ‘can highlight blind spots and, gaps in understanding today’s interconnected crises’ the secretary-general of the General Assembly | Meetings coverage and press releases. United Nations. <https://press.un.org/en/2024/sgsm22182.doc.htm>

Graph 1: CBRNe Incidents: Types, Causes, and Impacts²



CBRNe Response in the European Union

2. CBRNe threats have been a significant concern for many countries, especially Western ones. Terrorism in Europe is far from a new phenomenon; many European States have a long history of fighting foreign and domestic terrorist groups. However, since the September 11 attacks on United States soil, the terrorist threat has evolved to a more global scale.

² See from minute 00:20, PAM 18th Plenary Session - 3rd standing committee. Speech of Mirko Sundov, former Chief of Staff in the Croatian Armed Forces, Braga, May, 2024 (2024) YouTube. <https://www.youtube.com/live/P-oM2k0HMGA>

3. To improve cross-border CBRNe response, the European Union (EU) has, for instance, increased investment in research and development. Article 4 of the Treaty of the European Union (TEU) outlines actions to prevent and respond to CBRNe events. The EU aims to develop appropriate countermeasures and health remedy standards. To this end, the EU has also institutionalized the role of national contact points for better coordination and resource allocation³.

4. In 2003, the European Council adopted a Declaration on the Non-Proliferation of Weapons of Mass Destruction to defend and strengthen the multilateral Non-Proliferation and Disarmament Architecture⁴. The EU also developed a program called “Pooling and Sharing” to improve its efficiency in defense and security areas. EU Member States decided to enhance their ability to manage CBRNe attacks by tapping into the expertise or facilities of other Member States. The Lisbon Treaty⁵ signed in 2016, has led to the joining of the EU defense and security policy similarly to a comparable agreement within the NATO civil defense mechanism. Nevertheless, cross-border CBRNe response initiatives to the European Union territorial limits are usually challenging to depict from the activities of international bodies.

5. The Euratom Research and Training Programme⁶ (2021-2025) is a complementary funding program to Horizon Europe⁷, which covers nuclear research and innovation. The main objectives, among others, are to improve nuclear atomic safety, security, safeguards, and radiation protection, including the safe and secure use of nuclear power and non-power applications of ionizing radiation maintenance, and further develop expertise and competence in the nuclear field within the community. The EU strives to keep up with threats through research and development policy and streamline preparedness measures to improve its capabilities⁸.

³ Consolidated version of the Treaty on European Union, European Union. . https://eur-lex.europa.eu/resource.html?uri=cellar:2bf140bf-a3f8-4ab2-b506-fd71826e6da6.0023.02/DOC_1&format=PDF

⁴ Annual Progress Report on the Implementation of the European Union Strategy against the Proliferation of Weapons of Mass Destruction (2022) by the Council of Europe. <https://data.consilium.europa.eu/doc/document/ST-13252-2023-INIT/en/pdf>

⁵ *Implementation of the Lisbon Treaty Provisions on the Common Security and Defence Policy (CSDP): European Council Briefing: Think Tank: European Parliament*. Think Tank | European Parliament. https://www.europarl.europa.eu/thinktank/en/document/EPRS_BRI%282016%29573285

⁶ Euratom Research and Training Programme, European Commission. https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe/euratom-research-and-training-programme_en#objectives

⁷ Horizon Europe, European Commission. https://research-and-innovation.ec.europa.eu/funding/funding-opportunities/funding-programmes-and-open-calls/horizon-europe_en

⁸ Hassine, S. B. H., Davies, C., & Garbil, R. (2023). Forty-five years of joint research programmes on geological disposal of radioactive waste and the pioneering role of the HADES Underground Research Laboratory. Special Publication - Geological Society of London/Geological Society, London, Special Publications, 536(1), 225–236. <https://doi.org/10.1144/sp536-2021-205>

CBRNe Response in the MENA and GCC Region, and the 5+5 Dialogue

6. The Cooperation Council for the Arab States of the Gulf (GCC) was established in 1981 and is a regional organization comprising six members: the Kingdom of Bahrain, the State of Kuwait, the Sultanate of Oman, the State of Qatar, the Kingdom of Saudi Arabia, and the United Arab Emirates. The core objectives of CGS are to enhance coordination, integration, and interconnection among its members.

7. EU-GCC relations are based on a Cooperation Agreement signed in 1989, which establishes regular dialogue on cooperation between the EU and GCC on economic ties, climate change, energy, environment, and research. On 18 May 2022, the Commission and the High Representative adopted a Joint Communication on a Strategic Partnership with the Gulf ⁹, proposing a comprehensive and more robust partnership between the EU, the GCC, and its Member States. Council Conclusions endorsed it on 20 June 2022 ¹⁰.

8. CBRNe preparedness military training has been focused on and conducted in various countries in the MENA region. Some GCC nations contribute to operations spearheaded by the United States in Kuwait¹¹ and Saudi Arabia¹² and are trained on fewer CBRNe types. Similarly, concerning preventive measures, the United Nations has also made some attempts to train the capabilities of the first responders of the regional nations, such as a pilot training course conducted by the NATO ICI-RC in 2009¹³. Moreover, Marshal Training could provide CBRNe and HAZMAT¹⁴ training courses to ensure the participants gain the adequate knowledge and experience required to address CBRNe and HAZMAT-related emergencies. Further, private training from the UN-contracted Mechem has been provided to UNMOVIC and OPCW weapon inspector teams. The purpose of this training is to equip the inspector with the appropriate knowledge and skills to undertake the

⁹ The Diplomatic Service of the European Union. EEAS. <https://www.eeas.europa.eu/en>

¹⁰ Gulf Cooperation Council (GCC) and the EU. EEAS. https://www.eeas.europa.eu/eeas/gulf-cooperation-council-gcc-and-eu_en#:~:text=The%20Cooperation%20Council%20for%20the,and%20the%20United%20Arab%20Emirates

¹¹ <https://www.usarcent.army.mil/News/Features/Article/2644466/army-specialist-embraces-opportunity-to-lead-cbrn-training-in-kuwait/>

¹² Bolstering Saudi Arabia's CBRN defenses (2024). The Washington Institute. <https://www.washingtoninstitute.org/policy-analysis/bolstering-saudi-arabias-cbrn-defenses>

¹³ Farhat, H. *et al.* (2023), Exploring attitudes towards health preparedness in the Middle East and North Africa against chemical, biological, radiological, and nuclear threats: A qualitative study, *Journal of Contingencies and Crisis Management*, 32(1). <https://doi.org/10.1111/1468-5973.12509>

¹⁴ CBRNe & Hazmat Training Course Dubai. <https://marshaltraining.com/cbrne-hazmat/>

management of CBRNe incidents. In general, measures include joint military training, UN-led programs, and cooperation to mirror efforts to improve the capability to deal with CBRNe threats in the Middle East. These efforts are focused on preserving the participating countries' safety and security and promoting the suppression of CBRNe threats worldwide.

9. A virtuous example of collaboration between countries concerns Iraq and the United Kingdom (UK)¹⁵. Collaborative research involving biotechnology, diseases, and animal health with targeted threat assessment is essential for earlier indication of disease outbreaks. An automated information exchange setup helps provide early alerts on CBRNe hazards. Besides, UK scientists' Saudi Arabian counterparts, and vice versa, have also been arranged to develop joint research.

10. The 5+5¹⁶ West Mediterranean Dialogue Forum Initiative, of which PAM serves the parliamentary dimension, is among the concrete regional defense efforts to attempt proper regional cooperation to strengthen regional security through communication, coordination, and synergy. Several regional workshops, conferences, and exercises have been conducted to reinforce human and communication capabilities to prepare for the potential CBRNe threats among the agenda exercises in different fields such as terrorism, piracy, trafficking of drugs and humans, and illegal fishing. Furthermore, many countries are provided with the features of advanced run security solutions with new technological tools. The capability to implement measures to prevent threats and improve security may not be available for wider sectors.

11. Countries in the Middle East and North Africa (MENA) region have been suffering from various internal and external crises since the early 20th century¹⁷. Today, the Middle East and North Africa have limited financial resources for huge military expenses, a lower level of technology applications in the field of modern military tools, and a constrained ability to prevent and counter terrorism, which is adding further threats not only in this region but also worldwide. The successful handling of CBRNe attacks requires a great deal of preparation before the threats come into existence. It is worth considering what can be done at industrial and individual levels to

¹⁵ Biosafety and Biosecurity capacity-building efforts in Iraq. <https://emphnet.net/media/aeof5001/biosafety-and-biosecurity-capacity-building-efforts-in-iraq.pdf>

¹⁶ 5+5 Defense initiative: confidence-building measures under a 2020-2025 horizon confidence-building measures under a 2020-2025 horizon from id in brief: julho 2014 on JSTOR. (n.d.). <https://www.jstor.org/stable/resrep19103.2?seq=1>

¹⁷ Belaid, F., Dagher, L., & Filis, G. (2021). Revisiting the resource curse in the MENA region. Resources Policy, 73, 102225. <https://doi.org/10.1016/j.resourpol.2021.102225>

face these threats and handle the overwhelming crises of international and regional terrorism in a financially affordable way.

12. The 5+5 Forum, at the September 2010 Ministerial Declaration on the Disposal of Hazardous Wastes on a Technical and Environmental Level highlighted the significant progress of its Member States in setting up suitable national legal systems¹⁸. A successive equally noteworthy endorsement of the Basel, Rotterdam, and Stockholm Conventions¹⁹, and other relevant international Conventions, plus international protocols for the safe handling of hazardous chemicals spearheaded by the United Nations Economic Commission for Europe, was made at a 2010 Ministers' meeting in Abu Dhabi, United Arab Emirates²⁰. During the Forum, ministry representatives were motivated to provide support due to the substantial increase in global trade and a growing awareness of environmental issues. This trend aims to promote sustainable development among MENA Member States. Despite the progress that has been made, much work remains to be performed concerning concrete cooperation among MENA nations. With an eye to the future, the first step towards realizing the set objectives will be to develop the capability to manage emergencies arising from transportation, storage, or the improper handling of hazardous chemicals.

13. Over the past decade, many MENA countries have significantly bolstered their CBRNe response capabilities. Coinciding with regional and extra-regional geopolitics developments, some nations have invested more into their chemical, biological, and radiological defense capabilities, at the expense of nuclear and explosive capabilities, as CBRNe-related threats, involving primarily chemical (toxic substances), biological (infectious agents), and to a lesser extent radiological (deliberate release of ionizing radiation), represent at present the perceived greater immediate threat. This issue has been a subject of concern in the region, mainly due to uncertain or suspected inadequate locations of depositing dangerous materials in the MENA region. Nevertheless,

¹⁸ Transboundary movements of hazardous wastes in international law | International Management of Hazardous Wastes: the Basel Convention and Related Legal Rules | Oxford Academic. (n.d.). <https://academic.oup.com/book/3261/chapter-abstract/144226253?redirectedFrom=fulltext&login=false>

¹⁹ Basel, Rotterdam, and Stockholm conventions. (n.d.). UNDP. <https://www.undp.org/chemicals-waste/chemicals-and-waste/basel-rotterdam-and-stockholm-conventions>

internationally, much work has been done to improve and safeguard the manipulation of dangerous substances.²¹

CBRNe Response in the United States of America

14. The United States of America (USA) have a multi-agency response that includes drills and planning. The international community's response is incident-specific and supported by federal agencies, the military, and allies. Local agencies handle domestic incidents with federal assistance from the Department of Homeland Security.

15. On 1 April 1979, the USA established the Federal Emergency Management Agency (FEMA), which has the dual functions of civil defense and emergency management. Together with the Centers for Disease Control and Prevention (CDC), it represents a significant departure in commitment to CBRNe events. For more than a decade, the Office of Emerging Threats (OET) has successfully built, deployed, and sustained a series of capabilities, a comprehensive relationship network, and a multi-component risk management framework that have helped guide FEMA and its mission partners in preparing for, responding to, and recovering from CBRNe incidents.

16. Following the terrorist attack on “11 September 2001”, and the anthrax bioterrorism incidents in the United States that same year, the global scientific and public perception of biosecurity and biodefence changed forever²². The realization that many nations were unprepared for bioterrorist attacks in the wake of the 2001 attack was the main factor driving the worldwide surge in biodefense funding. A USD one billion program was implemented in the USA in 2002 through bioterrorism preparedness grants, biodefense research funding, and medical preparedness stockpiling within the Department of Health and Human Services.

²¹ Mani, Z., Plummer, V., Kuhn, L., Khorram-Manesh, A., Tin, D., & Goniewicz, K. (2024). Public health responses to CBRN terrorism in the Middle East and North Africa. *Disaster Medicine and Public Health Preparedness*, 18. <https://doi.org/10.1017/dmp.2024.73>

²² McCarty, A. (2018). Changes in U.S. Biosecurity Following the 2001 Anthrax Attacks. *J Bioterror Biodef*; 9 (163). [10.4172/2157-2526.1000163](https://doi.org/10.4172/2157-2526.1000163)

17. In 2019, the global biodefence market was valued at USD 12,2 billion and is expected to grow at a compound annual growth rate of 5.8% from 2020 to 2027, resulting in a projected market value of USD 19,8 billion by 2027²³. Factors such as continued government and private funding are driven by the looming threat of bioterrorism and the recent occurrence of natural outbreaks of bioterror-related pathogens. Ebola virus (EBOV), SARS-CoV-1, SARS-CoV-2, influenza, and Lassa virus are likely significant contributors to the ever-expanding global biodefence market²⁴.

18. An efficient CBRNe response requires multiple occupational specializations. Drills are supposed to create a social identity and set clearly defined response objectives. Preparedness drills and exercises are carried out in the USA and are now highly funded. They are critical for testing and improving response plans and creating a CBRNe response knowledge base among various personnel²⁵.

Response to CBRNe in Africa

19. In Eastern and Central Africa, activities within the European Union Chemical Biological, Radiological, and Nuclear Centers of Excellence (EU CBRNe CoE) initiatives have occurred since 2011. Partner countries cooperating with the EU CBRNe ECA Center of Excellence are Burundi, the Democratic Republic of Congo, Ethiopia, Ghana, Kenya, Malawi, Rwanda, the Seychelles, Tanzania, Uganda, and Zambia²⁶.

20. Project 060²⁷, titled “Support to the European Union Chemical Biological Radiological and Chemical Center (CBRNe) of Excellence of Eastern and Central Africa in Nuclear Security,” is conceived and funded under the EU Instrument Contributing to Stability and Peace (ICSP), within the framework of the EU CBRNe Centers of Excellence Initiative. Networking and regional

²³ Long CM, Marzi A. (2021). Biodefence research two decades on: worth the investment? *Lancet Infect Dis.* 21(8):e222-e233. Doi: [10.1016/S1473-3099\(21\)00382-0](https://doi.org/10.1016/S1473-3099(21)00382-0)

²⁴ Ibid

²⁵ UN World Water Development Report 2024 | UN-Water. <https://www.unwater.org/publications/un-world-water-development-report-2024>

²⁶ African countries engage in a comprehensive assessment of their biosafety and biosecurity capabilities (2023). Chemical, Biological, Radiological and Nuclear Risk Mitigation. https://cbrn-risk-mitigation.network.europa.eu/news-1/11-african-countries-engage-comprehensive-assessment-their-biosafety-and-biosecurity-capabilities-2023-11-21_en

²⁷ Project 060: Support to the EU CBRNe Centre of Excellence of Eastern and Central Africa in Nuclear Security, European Union. https://cbrn-risk-mitigation.network.europa.eu/projects-pool-page-use-list-page-instead/project-060_en

collaboration are the project's driving principles for achieving sustainable results. It will strive to consolidate and coordinate existing capabilities and expertise through technical assistance and training.

21. Eastern and Central African (ECA) countries face radiological and nuclear risks arising from uranium mining, processing, and transportation and the state of management of radioactive sources. Intelligence-led CBRNe surveillance underlines the need for research and development to adapt existing and new tools. Even though the threat of CBRNe incidents could be devastating, surveillance has remained limited. The resources are predominantly dedicated to natural epidemics and re-emerging infections.

5. Bioterrorism and Human Security

22. CBRNe is connected to bioterrorism, as it is one of the vital factors causing insecurity among people. Bioterrorism uses biological or chemical devices to harm civilians intentionally and create terror. A legal definition of bioterrorism is “the deliberate release of viruses, bacteria, or other biological agents intended to cause illness or loss of life among people, livestock, or the natural world”²⁸. Academia contributes to national and global security policies by understanding several aspects of bioterrorism, like risk perception and prevention strategies.

23. The human security debate concentrates on bioterrorism's hazards as a driving force for modern security challenges. The issue of “limiting” the technology and knowledge developed in the biotechnology field, willfully or unintentionally, presents the risk that progress might be misused for malevolent purposes. Policymakers and security experts should pay special attention to the dual-use paradox and the role of non-state organizations during the bioterrorism era²⁹. The former U.S. Food and Drug Administration Commissioner, Margaret Hamburg, underlined the synergistic and “strategic relationship between public health and public security” and “the necessity to work

²⁸ Bioterrorism, INTERPOL. <https://www.interpol.int/Crimes/Terrorism/Bioterrorism>

²⁹ Bioterrorism: Thinking the Unthinkable. Livestream Event 24–25 March 2021 Presentation by Chair: https://www.un.org/en/sc/1540/documents/Chair_Statement_BioTerrorism_Livestream_Event_2021.pdf

across all the components of government and engage with the private sector and the not-for-profit sector”³⁰.

24. The 2024 report to the Parliament by the Italian Intelligence Service (DIS) analyses the simultaneous impact of climate change and the possible risks deriving from CBRNe threats, including terrorist agents. Wide-ranging monitoring from the point of view of safety and security concerning human health is considered to be decisive³¹.

6. Agroterrorism and Human Security

25. Agroterrorism refers to the intentional release of biological agents or toxins to harm or kill humans, animals, or plants with the intent to intimidate or coerce a government or civilian population to further political or social objectives³². According to several studies, agroterrorism could become “attractive” for terrorist groups of different natures³³.

26. INTERPOL collaborates within a global biosecurity network with the World Customs Organization, the World Health Organization, the World Organization for Animal Health, the UN Food and Agriculture Organization, and the UN Office for Disarmament Affairs³⁴. Moreover, the FAO Surveillance Evaluation Tool (SET) is essential in its role “to evaluate beneficiary countries’ capacities to detect criminal or terrorist animal health events³⁵.”

27. On 2 - 5 October 2023, in Agropoli (SA), Italy, the European Centre for Disaster Medicine of the Council of Europe (CEMEC/CoE) organized an international seminar on agrocrime,

³⁰ Lessons learned with Margaret Hamburg (2023) Council on Foreign Relations. <https://www.cfr.org/event/lessons-learned-margaret-peggy-hamburg>

³¹ Information system for the security of the Republic - to protect Italy’s political, military, economic, scientific, and industrial interests of Italy. <https://www.sicurezza nazionale.gov.it/>

³² Agrocrime and Agroterrorism: World Organisation for Animal Health (2023) WOAH. <https://www.woah.org/en/what-we-offer/emergency-preparedness/agro-crime-and-agro-terrorism/>

³³ Adebola, O. (2021), Analyzing the threat, vulnerability, and consequences of Agroterrorism, *Proliferation of Weapons- and Dual-Use Technologies*, pp. 279–300. https://link.springer.com/chapter/10.1007/978-3-030-73655-2_14

³⁴ For more, see the Interpol website on animal agroterrorism. <https://www.interpol.int/Crimes/Terrorism/Bioterrorism/Animal-agrocrime-and-agroterrorism>

³⁵ “Vasconcelos Gioia, G., Lamielle, G., Aguanno,” R. *et al.* (2021). Informing resilience building: FAO’s Surveillance Evaluation Tool (SET) Biothreat Detection Module will help assess national capacities to detect agro-terrorism and agro-crime. *One Health Outlook* 3, 14: <https://doi.org/10.1186/s42522-021-00045-8>

agroterrorism, and biological threats concerning the impact on the food supply chain ³⁶. PAM contributed to this critical event, reaffirming its “commitment to participate in the global effort to strengthen the resilience of the food supply chains and reduce potential risks of bioterrorism³⁷.”

28. In the workshop “Building Resilience Against Agroterrorism and Agrocrime Affecting Animal Health Consortium,” held in Tunis between 15 - 17 June 2022, Rachid Bouguedour, World Organization for Animal Health's (OIE) sub-regional representative for the North Africa region, recalled that “agrocrime and agroterrorism are growing phenomena and require greater coordination between the various services to respond effectively to any threats³⁸”. Dr. Bouguedour clarified certain aspects of agrocrime concerning the trafficking of animals and animal products or the disruption of the natural environment of wild animals, causing uncontrolled links with domestic animals or humans, which can create cross-contamination or even pandemics such as COVID-19 and Ebola ³⁹.

Bioterrorism and European Regulations

29. European bioterrorism legislation aims to maintain a framework for prevention, detection, and response to CBRNe challenges. The main legal instrument, Council Regulation (EC) No. 851/2004⁴⁰, created the European Centre for Disease Prevention and Control, crucial in identifying and alleviating health threats. The European Parliament and the Council's Regulation 852/2004⁴¹ 34 EC on the hygiene of food products applies to everyone in the food industry. It sets general hygiene standards that are needed to keep food safe. It also prepares people for the specific hygiene

³⁶ Spa, T. Corso Internazionale ‘Agrocrime, Agroterrorism and Treats to Food Supply Chains’ Salerno, 2-5 October and 6-7 December 2023, Centro Europeo Medicina delle Catastrofi. <https://www.cemec-sanmarino.eu/it/corso-internazionale-agrocrime-agroterrorism-food-supply-chains-salerno-2-6-ottobre-2023.php>

³⁷ PAM contributes to the seminar on “Agrocrime, Agroterrorism and Threats to Food Supply Chains.” Parliamentary Assembly of the Mediterranean. <https://www.pam.int/en/press-releases/pam-contributes-seminar-agro-crime-agro-terrorism-and-threats-food-supply-chains>

³⁸ Regional Workshop of the Building Resilience against agro-terrorism and agro-crime affecting animal health. FAO. Available at: <https://www.fao.org/neareast/news/details/Regional-Workshop-of-the-Building-resilience-against-agro-terrorism-and-agro-crime-affecting-animal-health/en>

³⁹ Kamarulzaman, Y. *et al.* (2020). Public Perceptions of Radiation Effects on Health Risks and Well-Being. A Case of RFEMF Risk Perceptions in Malaysia. *Springer Singapore*. [10.1007/978-981-32-9894-1](https://doi.org/10.1007/978-981-32-9894-1) cite

⁴⁰ Regulation (EC) No. 851/2004 of the European Parliament and of the Council of 21 April 2004. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32004R0851>

⁴¹ Regulation (EC) No 852/2004 of the European Parliament and of the Council of 29 April 2004. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0852>

standards for foods that come from animals that are set out in Regulations 853/2004⁴² and 854/2004⁴³. Commission Decision (EC) 2008/617⁴⁴ and Council Regulation (EURATOM) No. 333/2012⁴⁵ handle those aspects linked to medical devices and radioactive materials. These unprecedented measures are fine-tuned to balance risk management and advancing science, reassuring European citizens of their safety⁴⁶.

30. In the Commission Communication of 2 June 2003,⁴⁷ whistles up cooperation within the EU member states on biological and chemical agent attacks and health security. The Commission Communication of 28 November 2005,⁴⁸ focused on building coordination in the combat against bioterrorism. It aimed to facilitate greater coordination and readiness among the EU states due to the changing pattern of security challenges. Besides, ENL's 11 July 2007,⁴⁹ Green Paper focused on readiness against biological attacks. It has been a ground for dialogue and policy-making that helped build the European countries' resistance to bioterrorism.

Bioterrorism and International Treaties

31. The existing international agreements aim to prevent the use of biological agents as weapons and provide guidelines for responding to incidents of bioterrorism. The Biological Weapons Convention (BWC)⁵⁰ is a vital international treaty focused on bioterrorism and protection against biological weapons. It completely bans the development, production, and stockpiling of an entire

⁴² Regulation (EC) No. 853/2004 of the European Parliament and of the Council of 29 April 2004. <https://eur-lex.europa.eu/legal-content/en/ALL/?uri=CELEX:32004R0853>

⁴³ Regulation (EC) No. 854/2004 of the European Parliament and of the Council of 29 April 2004. . <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32004R0854>

⁴⁴ Council Decision 2008/617/JHA of 23 June 2008. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32008D0617>

⁴⁵ Commission Implementing Regulation (EU) No. 333/2012 of 19 April 2012. <https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX%3A32012R0333>

⁴⁶ Frane N, Bitterman A. (2023) Radiation Safety and Protection. *StatPearls. StatPearls Publishing, Treasure Island (FL)*. https://stacks.stanford.edu/file/druid:pn116pv4512/Intersections,%20Reinforcements,%20Cascades_Proceedings%20of%20the%202023%20Stanford%20Existential%20Risks%20Conference.pdf#page=156

⁴⁷ Communication from the Commission, 2003, European Commission. https://health.ec.europa.eu/publications/communication-commission-com-2003-320-final_en .

⁴⁸ Commission of the European Community, 28 November 2005. [https://www.europarl.europa.eu/RegData/docs_autres_institutions/commission_europeenne/com/2005/0607/COM_COM\(2005\)0607_EN.pdf](https://www.europarl.europa.eu/RegData/docs_autres_institutions/commission_europeenne/com/2005/0607/COM_COM(2005)0607_EN.pdf)

⁴⁹ Green Paper on Bio-preparedness. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A52007DC0399>

⁵⁰ Biological Weapons Convention, United Nations. <https://disarmament.unoda.org/biological-weapons/>

category of weapons of mass destruction. Other treaties, like United Nations Security Council Resolution 1540⁵¹, require states to take specific measures to prevent non-state actors from acquiring biological weapons. Continual updates to the law are critical for finding the most effective legal methods to prevent and control bioterrorism⁵².

Reference Principles

32. High instability, severe humanitarian crises, climate change, and water scarcity characterize the Mediterranean area. It also represents a strategic place for protecting agrobiodiversity, agricultural production, and food chains. For this reason, the objectives of the 2030 Agenda and its Sustainable Development Goals⁵³ must be the hinge of all climate change policies and plans. Starting from the “One Health⁵⁴” approach proposed by the World Health Organization, it is vital to recognize that the health of humans, domestic and wild animals, plants, and the wider environment are closely linked and interdependent. “One Health” can help address the full disease control spectrum and contribute to global health security by connecting humans, animals, and the environment.

33. The history of the people living in the Euro-Mediterranean and Gulf areas has shown strategic paths of dialogue and the construction of sustainable and healthy food systems, such as the “Mediterranean diet.” Attention to “food heritage” and proactive action for security, sustainability, justice, and peace are essential to the Earth.

34. The World Economic Forum's report "Transforming the Global Food System for Human Health and Resilience⁵⁵," released on 5 December 2023, underscores the necessity of a combined focus on planetary and human health, calling for collaborative, cross-sector efforts to reshape food systems and policies.

⁵¹ <http://unscr.com/en/resolutions/1540>

⁵² Fraley, E. (2020). US Security Threatened by Solar Storm Impacts on Earth and Space-Based Technologies. *Student Research Reports*. <https://www.usu.edu/cai/files/studentpaper-fraley.pdf>

⁵³ Harnessing Climate and SDGs Synergies, United Nations. <https://sdgs.un.org/climate-sdgs-synergies>

⁵⁴ One Health, World Health Organization. https://www.who.int/health-topics/one-health#tab=tab_1

⁵⁵ Transforming the Global System for Human Health and Resilience (2023). World Economic Forum. <https://www.weforum.org/publications/transforming-the-global-food-system-for-human-health-a>

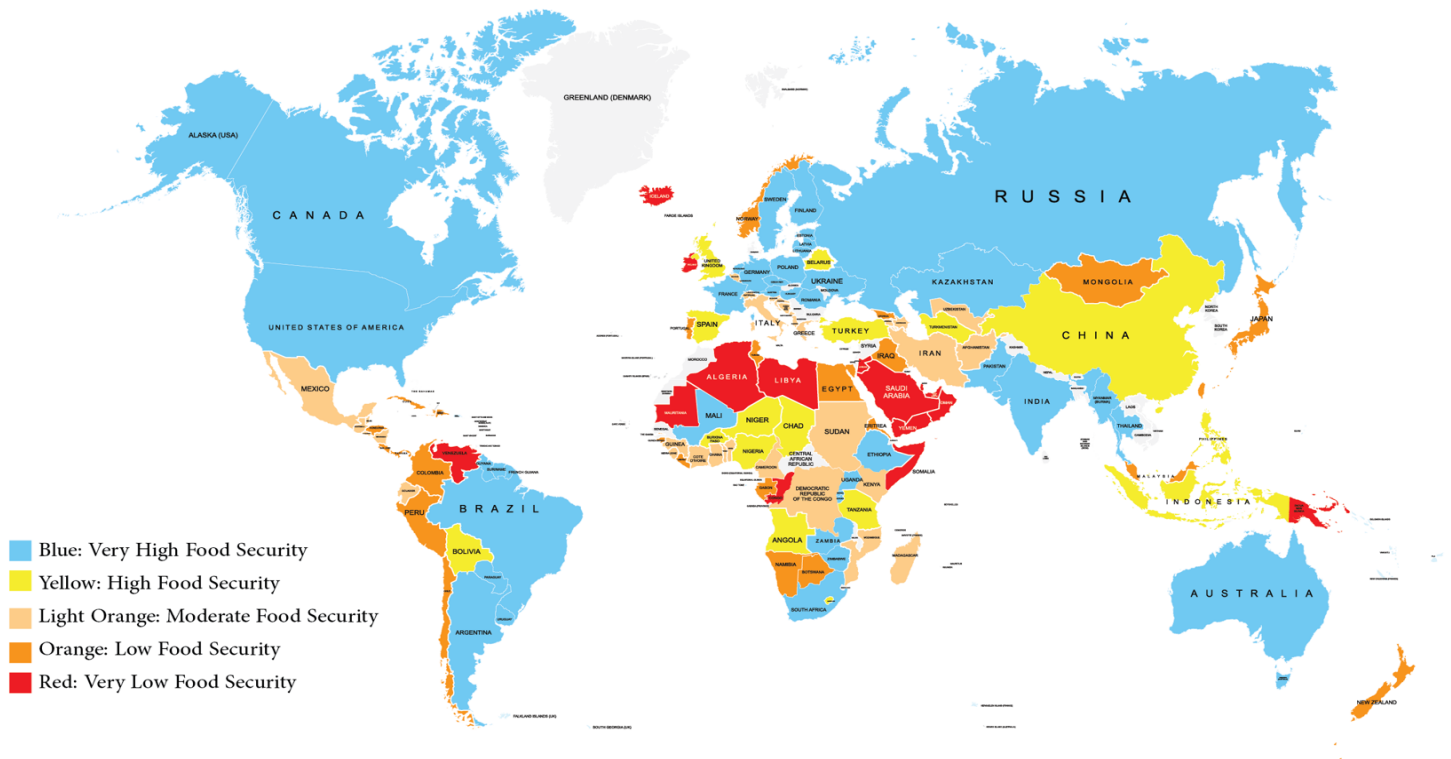
35. The Center of Global Studies recommends the following reference Principles for members of parliament and public officials to build a Euro-Mediterranean and Gulf Network for Food Safety, Security, and Health through targeted investments in training at the regional level:

- Improve national legislation concerning CBRNe threats and implement national security strategies related to CBRNe threats, bioterrorism, and agroterrorism.
- Improve operational coordination networks involving urban, territorial, and national governments up to continental levels and international organizations, civil protection and civil defense networks, intelligence services, research centers, universities, and Think Tanks for the prevention and management of risks linked to CBNR, bioterrorism, and agroterrorism threats.
- Spread a “systemic sustainability” culture in cities and territories for balanced, long-lasting, and sustainable development.
- Promote “sustainable prevention” with particular attention to animal and environmental security to safeguard public health.
- Promote and strengthen intrastate and interstate cooperation at regional and global levels regarding preventive diplomacy and human community resilience to address growing and interrelated emerging risks.
- Guarantee the knowledge and skills necessary to conduct investigations into the smuggling of biological material, weapons, and information linked to bioterrorism on the darknet to staff dealing with counterterrorism, intelligence, and cybercrime.
- Invest in developing innovative and more specific CBRNe-oriented technology to make local crops more resilient.
- Implement collaboration among countries on the scope of dual-use technologies in biological and medical research. Integrating artificial intelligence (AI) into the frontiers of biotechnology is decisive in improving the efficiency and resilience of biological systems for the benefit of humanity ⁵⁶.
- Build a shared regional database to monitor movements, sources, and risks.

⁵⁶ Bray, D. (2023), *Artificial Intelligence and Synthetic Biology Are Not Harbingers of Doom*, Grand Strategy. <https://www.stimson.org/2023/artificial-intelligence-and-synthetic-biology-are-not-harbingers-of-doom/>

- Conduct joint programs, regularly evaluate procedures, inspect high-risk structures, improve defensive and security capabilities, and share research and best practices. A virtuous example of coordination is the EUR-OPA Major Hazards Agreement Platform of the Council of Europe, which includes 21 centers specialized in natural and technological disasters and disaster risk reduction ⁵⁷.

Graph 2: A world map highlighting general food security levels ⁵⁸



⁵⁷ European and Mediterranean Major Hazards Agreement. European and Mediterranean Major Hazards Agreement. <https://www.coe.int/en/web/europarisks/home>

⁵⁸ It is important to note that this map does not narrow down to specific countries. However, it is still possible to vary food security even within countries. The CGS research team made this graphic. For a reference, see the live map by the World Food Programme at <https://hungermmap.wfp.org>.

Global food insecurity

- Statistics show that local food insecurity remains a global concern. The latest Hunger Hotspots Report⁵⁹, covering the period until April 2024, warned that acute food insecurity was likely to deteriorate further in 18 hunger hotspots, with five countries or territories at risk of famine: Burkina Faso, Mali, Sudan, South Sudan, and the Occupied Palestinian Territories. Conflict and violence are the main drivers behind food insecurity in these hotspots. Moreover, elevated inflation, tighter monetary policies, reduced fiscal support, and extreme weather events contribute to continued pressure on global economic growth.
- It's sobering that over 80% of the countries in the MENA region rely on imported food, leaving them exceptionally susceptible to the ravages of climate change. The global crisis directly jeopardizes food access and stability due to its detrimental effects on agricultural productivity and price volatility.
- Sub-Saharan Africa is currently grappling with a perfect storm of crises—a food, fuel, and fertilizer shortage exacerbated by Russia's illegal war of aggression against Ukraine, the economic fallout of COVID-19, escalating inflation and debt, and extreme weather events intensified by climate change. The World Bank estimates that 36 million people across the Horn of Africa are now experiencing severe food insecurity⁶⁰.
- The Gulf Cooperation Council region has a high decadence rate of food imports, mainly of essential staples such as cereals⁶¹. UAE had the highest score in food security performance in the GCC and MENA regions in 2022⁶².

⁵⁹ World Food Programme. Hunger Hotspots: FAO-WFP early warnings on acute food insecurity, November 2023 to April 2024 outlook. <https://www.wfp.org/publications/hunger-hotspots-fao-wfp-early-warnings-acute-food-insecurity-november-2023-april-2024>

⁶⁰ Enhancing Food and Nutrition Security in the Sahel and Horn of Africa. January, 4, 2024. <https://www.worldbank.org/en/results/2024/01/04/enhancing-food-and-nutrition-security-in-the-sahel-and-horn-of-af-africa#:~:text=At%20least%2036%20million%20people,worst%20drought%20in%2040%20years.>

⁶¹ Distribution of net food imports volume in the Gulf Cooperation Council, by type. <https://www.statista.com/statistics/678006/share-of-gcc-volume-of-food-imports-by-type/>

⁶² Food security performance in the Middle East and North Africa in 2022, by country. <https://www.statista.com/statistics/1168500/mena-food-security-score-by-country/>

Conclusions

36. The rise in the interdependency of crises and hazards increases the chances of unsustainability of the present system. The Euro-Mediterranean and Gulf area, of primary interest to the PAM-CGS, and particularly sensitive in this historical phase, demands integrated policies that put both human security and One Health at the center of strategic initiatives, starting with human health and the integrity of the food chain. With a particular focus on the study of CBRNe risks, passing through the challenges of bioterrorism and agroterrorism, this report by PAM-CGS intends to call the attention of parliamentarians, government authorities, private sector, and academia in the Euro-Mediterranean and Gulf areas on the following proposal: (i) to revive and reinforce the Euro-Mediterranean and Gulf Network for Food Safety, Security, and Health. Moreover, PAM is ready to expand the scope of its International Parliamentary Observatory, served by CGS in San Marino, on risks for human security and safety; and (ii) to develop further, in collaboration with, among others, UN, Arab and European institutions, regional and national civil protection agencies, the (CEMEC), in the framework of the EUR-OPA Major Hazards Agreement of the Council of Europe, FAO, the private sector and academia, the contents of the present report.