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**Eighth Review Conference of the States Parties  
to the Convention on the Prohibition of the  
Development, Production and Stockpiling  
of Bacteriological (Biological) and  
Toxin Weapons and on Their Destruction**

19 September 2016

English only

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**Preparatory Committee**

**Geneva, 26-27 April and 8-12 August 2016**

Item 7 of the agenda

**Comprehensive consideration of all provisions of the Convention**

**Implementation of Article X of the BWC by the European  
Union Institutions and the European Union Member States**

**Submitted by the European Union**

**I. Introduction**

1. In line with its common position set out in Council Decision 2015/2096/CFSP (circulated on 12 April 2016 as BWC/CONF.VIII/WP.5), the European Union (EU) is consistently supporting the concrete implementation of Article X of the BWC through its various assistance programmes and is willing to continue elaboration of common understandings, which form the basis for effective action with regard to cooperation for peaceful purposes in the framework of the BWC.
2. To demonstrate our commitment to the implementation of Article X and as part of the preparations for the Eighth Review Conference of the BWC, we are pleased to provide an overview of the implementation of Article X of the Convention by the EU and its Member States, including contributions through relevant EU Council Decisions and the EU CBRN Centres of Excellence.
3. This overview provides specific but not comprehensive examples of Article X cooperation activities carried out by EU Institutions and EU Member States and builds upon similar EU information papers circulated in 2011 (BWC/CONF.VII/INF.10), 2012 (BWC/MSP/2012/MX/INF.7) and in 2013 (BWC/MSP/2013/INF.4).
4. Part A covers amounts of Development assistance in the fields of disease surveillance, detection, diagnosis, and containment of infectious diseases. Part B sets out some illustrative projects by EU Institutions and EU Member States.

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**II. Part A: Development assistance by EU Institutions and EU Member States with regard to capacity building in the fields of disease surveillance, detection, diagnosis, and containment of infectious diseases (Amounts are in USD million) for the period 2006 – 2014**

Table 1

Source: Official Development Assistance - OECD

<http://stats.oecd.org/index.aspx?DataSetCode=CRSI#>

Type of assistance	ODA* sector code	2006	2007	2008	2009	2010	2011	2012	2013	2014
Infectious Disease Control	12250	751.605	436.03	170.33	574.73	213.555	60.519	320.775	443.093	458.977
Basic Health Care	12220	826.753	595.76	977.91	948.06	937.443	373.462	871.391	548.263	361.693
Health Education	12261	20.763	18.528	42.039	37.267	41.304	16.157	53.022	56.424	24.861
Basic health infrastructure	12230	302.068	78.059	258.14	121.65	183.830	125.423	191.197	321.804	349.039
Malaria control	12262	4.369	35.568	39.829	68.857	77.628	88.332	12.680	306.104	135.765
Tuberculosis control	12263	0.157	28.242	9.762	51.284	14.901	46.430	14.183	42.085	24.378

\* Official Development Assistance

### **III. Part B: Description of a selection of individual projects or initiatives by EU Institutions and EU Member States for the period since the BWC Seventh Review Conference in 2011**

#### **EU Institutions**

5. The EU has identified in its Non-Proliferation Strategy the increasing threat emanating from biological weapons. Thus, since 2006, the Council of the EU has committed in order to fund projects in support of the BWC more than EUR 6 million.

6. The last Council Decision adopted on 18 January 2016 ensures continued support and financial contribution to increased adherence to, and promotion of the implementation of the BWC through: 1) promoting universal adherence to the BWC, 2) enhancing interaction with non-governmental stakeholders on science and technology and biosafety and biosecurity, 3) developing national capacities for BWC implementation, in particular in developing countries and in areas such as Articles VII and X, 4) supporting the intersessional programme and the preparations for the Eighth Review Conference, 5) strengthening the UN Secretary General's Mechanism for Investigation of Alleged Use of Chemical, Biological and Toxin Weapons, and 6) enabling tools for awareness-raising, education and engagement. The budget allocated through this Council Decision for the aforementioned activities is EUR 2, 340 million covering a three year period starting in 2016.

7. The EU is also actively engaged in support of World Health Organisation's (WHO) activities in the area of biosafety and biosecurity. Following the 2008 Council Joint Action<sup>1</sup>, a second Council Decision, adopted on 18 November 2013 and worth EUR 1.727 million, is supporting several WHO activities aimed at: 1) promotion of laboratory biorisk management through national and regional outreach, and 2) development of national laboratory biorisk management strategies to counter biological risks. To date, the EU has allocated more than EUR 3, 8 million in support of WHO activities in the abovementioned areas.

8. The EU has also launched the CBRN Centres of Excellence (CoEs) Initiative under the Instrument for Stability (IfS) that aims at enhancing the institutional capacity of partner countries to mitigate CBRN risks, whether they are criminal, accidental or natural in origin. Under this initiative, 54 projects have been launched, more than 20 of which addressing biological issues amounting in overall to EUR 36 million. Current projects address issues such as: knowledge development and transfer of best practices on biosafety, biosecurity and bio-risk management; strengthening laboratory biosafety and biosecurity through the development of a laboratory ISO-bank system; creation of an international network of universities and institutes for raising awareness on dual-use concerns in biotechnology; development of a programme for field intervention epidemiology; integrated human and animal health management; regional management of outbreaks. In the overall context of the Instrument contributing to Stability and Peace, which succeeded in 2014 the IfS, about EUR 50 million have been spent to address biological issues.

9. In particular, a EUR 1.5 million project strengthens health security at ports, airports and ground crossings. Fostering collaboration, information and knowledge sharing;

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<sup>1</sup> In 2009, after the adoption of the Treaty of Lisbon the term "Joint Action" was replaced by "Decision".

contributing to the development of appropriate tools and routine capacities and health surveillance will be offered to a number of countries in Central Asia, the Gulf Cooperation Council region, the Middle East, North Africa and the Sahel. After the Ebola virus disease broke out in West Africa in 2014, the training toolkit was utilised with Ebola Virus Disease preparedness and response at ports, airports and ground crossings.

10. To support partner countries in fulfilling their obligations under the International Health Regulations of the WHO member states, a EUR 4.5 million project that seeks to strengthen health laboratories to minimise potential biological risks was launched. The project aims to support the development of nationally owned laboratory policies and tools to enhance biosafety and security, and quality management, and helping partner countries to detect potential threats such as emerging dangerous pathogens.

11. The Mediterranean Programme for Intervention Epidemiology Training (MediPIET) has been established to address the spread of communicable diseases. EUR 6.840 million in total has been allocated to the MediPIET training programme in intervention epidemiology. By the end of 2015, Kosovo<sup>\*</sup>, Moldova, Montenegro and Serbia have become MediPIET training sites.

12. Aiming to strengthen the prevention and control of cross-border health threats in the Southern neighbourhood, a project called MEDILABSECURE establishes networks of human and animal virology laboratories and of medical entomology (EUR 3.6 million) in 19 countries in the Mediterranean region as well as in the Black Sea region. The objectives of the project are to prevent the spread of viruses and insects (mosquitoes, ticks) that act as vectors, as well as preventing and controlling outbreaks of zoonotic viruses that are known to pose a risk to the regions (West Nile, Corona virus, Influenza viruses, Crimea Congo Haemorrhagic fever virus (CCHFV), etc.) and viruses that have the potential of becoming a risk to these regions (Dengue, Chickungunya, Yellow Fever, Rift Valley Fever, etc.).

13. In West Africa an initiative worth EUR 2.6 million has been launched to contribute to strengthening the capacity of the countries that were affected by the outbreak of the Ebola Virus Disease in 2014 (project "Establishment of a Mobile Laboratory for in situ interventions on VHF outbreak sites in combination with CBRN capacity building in Western Africa" - EUWAM-Lab). To date around 30 scientists and 15 high-level trainers have been trained in Europe.

14. As the Ebola Virus Disease has shown, public health security can be challenged by risks arising at the interface between human, animal and the environment. Therefore the One Health Project (EUR 1 million) has been set up to support collaboration between the Ministry of Health and the Ministry of Agriculture of Pakistan and make risk assessment, prevention and control of emerging zoonotic diseases more effective.

15. In South East Asia, the project "Enhancement of CBRN capacities of South East Asia in addressing CBRN risk mitigation concerning CBRN first response, biosafety and biosecurity, and legal framework" (EUR 3 million) has been launched. Under this project a variety of activities is envisaged, such as specialised emergency team training, trainings on management of biological waste, and raising awareness of national authorities and policy makers.

16. A new project worth EUR 3.5 million in which the African Atlantic Façade Centre of Excellence members can take part aims at improved regional management of outbreak

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<sup>\*</sup> This designation is without prejudice to positions on status, and is in line with UN SCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

recovery. There are notable challenges for national public health especially in Sub-Saharan Africa, such as limited funding, weak laboratory infrastructure and equipment and lack of national political attention. In the light of these challenges, the aim of this new project is to identify gaps in the regional level of preparedness and response to outbreaks, establish a regional team of CBRN experts and organise trainings for local staff.

17. The "Episouth project" (EUR 3 million) sought to increase health security in the Mediterranean region by strengthening preparedness to common health threats and bio-security risks. A Mediterranean Regional Laboratories Network was established, training modules and workshops organised, and the creation of a culture of epidemic intelligence was promoted by the project. Over 300 people from 25 countries around the Mediterranean took part in the activities.

18. To help the authorities in Sub-Saharan Africa to manage outbreaks of epidemic prone pathogens, a collaborative network for European and African institutions has been set up to operate in common mobile laboratory units during outbreaks of pathogens that threaten human health. The budget of the project was reinforced in response to the Ebola outbreak in 2014 to EUR 6.3 million in total.

19. In South Caucasus and Central Asia, the biosafety and security capabilities of Armenia, Azerbaijan, Georgia, Tajikistan and Uzbekistan have been enhanced by upgrading laboratories, providing trainings and addressing specific biosafety and security needs through twelve targeted projects. Overall the action was worth EUR 5 million.

20. Projects have been supported as well as in Thailand and Lao PDR in the field of bio-risk management (EUR 480,000) and in the Middle East with best practice on bio safety, security and risk management.

## **EU Member States**

### **Belgium**

The Institute for Tropical Medicine in Antwerp, Belgium – a partner for health professionals from the South (<http://www.itg.be/itg>).

21. For many years the Institute for Tropical Medicine in Antwerp (ITM) has been providing scholarship programmes for health professionals from the South, for training at advanced master level and for experts in specific fields of science through short courses. The majority of participating students benefit from scholarships financed by Belgian Development Cooperation. For this purpose EUR 12.9 million were available for the period 2008-2013. The ITM also receives core funding from several governmental entities. The ITM currently offers three Master tracks and nine specialised short courses covering the fields of tropical clinical sciences, public health (health systems policy & management and disease control) and tropical animal health. All Masters and short courses included in the scholarship programme are accredited through international bodies.

22. Furthermore Belgian Development Cooperation helps the ITM to cooperate with and support similar institutions in the South in order to mutually reinforce capacities and accomplish their respective scientific and societal missions in the fields of tropical medicine for humans and animals, disease control and health services management. The ITM has been cooperating with and supporting numerous institutions in Latin-America, Africa and Asia.

#### B-LiFE - Biological Light Fieldable Laboratory for Emergencies

23. The B-LiFE laboratory was deployed in Guinea (N'Zerekore) between 20 December 2014 and 22 March 2015 as part of the humanitarian assistance protocol B-FAST (Belgian First Aid and Support Team). The main goal of the laboratory was to conduct a rapid DNA-based identification (~3 hours) of Ebola virus in samples from suspected patients originating from Forest Guinea. Several scientific projects were carried out concomitantly, such as the testing of an antiviral drug. An epidemiological mapping of Ebola disease in the N'zerekore region was developed and the generated results were stored into a central database that could be consulted by World Health Organization (WHO) and European Centre for Disease Control (ECDC) experts.

#### **Bulgaria**

24. The National Center for Infectious and Parasitic Diseases (NCIPD) was designated as WHO Collaborating Center for research and training in surveillance of communicable diseases and antimicrobial resistance, among its tasks being the coordination and collaboration in this field with partners in countries in Southeast Europe, North Africa and Central Asia. The Center collaborated, inter alia, with NAMRO (Cairo) on haemorrhagic fevers, partners in the FYROM on polio and swine flu diagnosis, in Turkmenistan, Uzbekistan, Kyrgyzstan, as well as in Armenia on malaria diagnosis.

25. Through twinning projects with The Netherlands and Italy (PHARE projects) aimed at strengthening the combat capacity against infectious diseases, NCIPD received equipment for identification of highly pathogenic bacterial and viral agents. As a part of these twinning projects, an intensive post-graduate educational programme was implemented, involving epidemiologists, microbiologists and virologists working in the field of surveillance of infectious diseases with a focus on early warning.

26. The Republic of Bulgaria has collaborated with EU partners and participated in activities carried out through the Executive Agency for Health and Consumers, the European Center for Disease Prevention and Control (ECDC), the EU Early Warning and Response System, etc.

#### **Czech Republic**

27. The Czech Republic fulfils its obligations under Article X through various projects in development aid and assistance. The foreign aid projects include the health, agriculture and other related topics to the BWC.

28. The Czech Republic has been active in providing help to prevent and cure infectious diseases. Through the bilateral project the program to prevent HIV/AIDS disease in Ethiopia was launched. Other programs providing help in management of cholera epidemics in Haiti and in Zimbabwe, including prophylactic and awareness rising issues, were completed. In 2010 the Czech Republic built microbiological laboratory for drinking water analysis in Georgia. On July 14, 2011 the Memorandum of Understanding among the US Agency for International Development (USAID), the Swedish International Development Cooperation Agency (SIDA) and the Czech Development Agency (CzDA) was signed in Bosnia and Herzegovina in Sarajevo. The main goal is the participation in the long-term agricultural projects.

#### **Denmark**

29. Statens Serum Institut (SSI) prevents and controls infectious diseases, biological threats and congenital disorders. Since 1978 SSI researchers have been in charge of a major health research project in Guinea-Bissau, West Africa. The project, called Bandim, is financed primarily by external funds via Danida, the EU, the Danish National Research

Foundation and private funds such as the Novo Nordisk Foundation. The main focus of the project is demography surveillance of more than 100.000 people in 6 suburbs of the capital Bissau and additional 180 clusters of woman and their children in the rural areas. The thorough registration process provides the Bandim Health Project with a unique opportunity to study the population effects of new health interventions such as the introduction of new vaccines, vitamin A supplementation or the distribution of bednets to prevent malaria.

30. The registering of the population in the area has meant that the project returns valuable research results and health statistics to the population. One of the most important findings was that a new measles vaccine used in low-income countries was associated with a twofold increase in mortality among girls. The discovery led to the withdrawal of the vaccine. In addition, the participants are offered free health consultations and essential medicine. So far, the project has educated 12 local graduates (MAs) and six local PhDs. Another and major part of SSI's research focus has been on "forgotten and overlooked" diseases such as tuberculosis, malaria and HIV, which threaten mainly developing countries. The vaccine research program at SSI has special expertise in the production of synthetic vaccines that in contrast to live, but inactivated vaccines cannot trigger a disease outbreak. The vaccines are of special interest because they are safe, cheap to produce and potentially flexible. E.g. SSI's inactivated polio vaccine has been prequalified by the WHO, which means that the vaccine will be considered when UN organizations purchase vaccines. Since 1988, WHO's goal has been to eradicate the disease.

### **Estonia**

31. Estonia fulfils Convention article X obligations partly through Ministry of Social Affairs (MoSA) and its competent authority Health Board, Estonia (HB).

32. HB is performing communicable disease surveillance, including the surveillance of diseases with epidemic potential, epidemiologic intelligence, early warning and response activities and microbiology laboratory biorisk management under WHO and ECDC recommendations. HB has established the early warning and response system, including rapid response teams of epidemiologists, for the purposes of alerting, assessing public health risks, recognition of biological emergency situations, including public health emergency of international concern in accordance with the International Health Regulations (IHR), and a serious cross-border threat to health. HB shall notify an alert in the EU Early Warning and Response System (EWRS) if the emergence or development of a serious cross-border threat to health fulfils the established criteria.

33. Estonia has close collaboration with WHO and EU partners carried out by ECDC. HB is using diagnostic capacity of WHO Collaborating laboratory centres for poliomyelitis, influenza, measles, and rubella. Estonia provided additional financial support in fighting Ebola and poliomyelitis to international partner organizations (WHO, UNICEF, OCHA) contributing in total EUR 580 000.

34. According to national legislation HB has responsibility to check and issue a license for the management of biorisk materials to laboratories with the objective a) ensuring safety and security of microbial, viral and other biological agents in laboratories, including during transportation in order to prevent contamination of staff and unauthorized access to and removal of agents, b) promoting biosafety, biosecurity and preparedness against intentional misuse of biological agents, c) recovery, investigation and containment of outbreaks and epidemics of communicable diseases.

35. Estonia has well-developed national immunization programme which has warranted high vaccination coverage of 11 vaccine-preventable diseases among children and adolescence in accordance with WHO recommendations.

36. MoSA and HB are responsible for the implementation of the Decision No 1082/2013/EU of the European Parliament and Council of 22.10.2013 on serious cross-border threats to health.

#### **Finland**

37. Strengthening the Management of Public Health Emergencies in Vietnam - with focus on the Prevention and Control of Diseases of Epidemic Potential including Highly Pathogenic Avian Influenza (HPAI).

38. The United Nations system agencies (FAO, WHO, UNICEF, UNDP) in Vietnam have worked together with local ministries (Ministry of Agriculture and Rural Development, Ministry of Health, Ministry of Education) in implementing the Joint Government-UN Programme "Strengthening the Management of Public Health Emergencies in Vietnam - with a focus on the Prevention and Control of Diseases of Epidemic Potential including Highly Pathogenic Avian Influenza (HPAI).

39. Phase I of this Joint Government-UN Programme provided emergency support to control HPAI in poultry and respond to the threat of a human pandemic. The objectives were to reduce risk of a global pandemic of Highly Pathogenic Avian Influenza (HPAI) emanating from Vietnam and enhance national and local capacity to manage outbreaks of diseases of epidemic potential caused by human and animal pathogens. This was done by controlling the disease in poultry population at risk through vaccinations and by strengthening the national and local epidemiological and surveillance capacities.

40. Phase II of the Joint Programme supports Vietnam's transition to a sustained response through implementation of activities within the Vietnam Integrated National Operational Program for Avian and Human Influenza, 2006-2010 (the OPI, also known as the "Green Book"). The OPI was prepared by a Government taskforce established under the National Steering Committee for Avian Influenza (NSCAI), with support from UN agencies, the World Bank and other donors. It was adopted by the Government on 31 May 2006 as the framework for mobilization of national resources and international support to fight HPAI. It was also broadly endorsed by the international community at a Government-Donor meeting on 2nd June 2006 as a basis for harmonised support following the principles of the Hanoi Core Statement (HCS).

41. Finland has supported both phases of the programme.

42. Strengthening Biosafety and Biosecurity in Tanzania; a project worth EUR 830 000 launched in October 2014 and funded by the Finnish Ministry for Foreign Affairs.

43. This project aims at preventing unintentional and intentional spread of infectious diseases by supporting biosecurity projects in Tanzania. The existence and outbreaks of diseases that are dangerous to life place great strains to the national healthcare system. Efforts to identify microbes that cause infectious diseases are vital to any nation's public health care system. The goal of the programme is to train Tanzanians of the know-how of making diagnosis of infectious diseases. The goal is also to train Tanzanians to operate related equipment which enables rapid diagnosis of infectious diseases. Local expertise, detection abilities and developing of biosecurity know-how reduces potential biothreat. This project is conducted in bilateral collaboration between The Finnish Center for Biothreat Preparedness (BUOS)/Centre for Military Medicine (SOTLK) and Tanzania Veterinary Laboratory Agency (TVLA), Ministry of Livestock and Fisheries Development, United Republic of Tanzania.

## France

44. France fulfils its obligations under Article X through many projects, among which two organizations' activities might be highlighted:

### The Institut de Recherche pour le Développement (IRD)

45. The IRD is a French research institute which, working with Southern partners, addresses international development issues. The aims underpinning all its work are to improve health and public health with a view to achieving the global Millennium Development Goals. Through partnership-based research, training and innovation, it is present in more than 50 countries in Africa, the Mediterranean basin and Latin America. Its projects are jointly run with partners and are based on an interdisciplinary approach. They address questions vital for Southern countries, such as tropical diseases, the links between health and environment, water resources or food security.

46. One emblematic project conducted by IRD, in the field of biological research, is RISA (Résistance Insecticide Santé Agriculture), a team working on insecticide resistance, health and agriculture, formed in 2009 and following a thesis funded by the IRD. It unites regional efforts to assess the impact of pesticide use in Africa on insecticide resistance in the malaria vector *Anopheles gambiae* and the plant pests *Bemisia tabaci* and *Plutella xylostella*. Research is conducted in Benin, Burkina Faso and Togo. The aim, at a time when food resources are strained, is to introduce crop protection programme management strategies that will limit the ecotoxicological risks connected with large-scale pesticide use.

### The Institut Pasteur International Network (RIIP)

47. The RIIP is a partnership of 33 research and public health institutes on five continents. With its global presence and the top-level expertise of its scientists, the RIIP is well positioned to perform infectious disease surveillance and participate in the global response to major epidemics. The Network hosts several Reference Centres and WHO Collaborating Centres, which carry out constant surveillance for diseases with epidemic potential such as influenza, cholera, dengue, yellow fever and emerging infectious diseases. As such, RIIP member institutes provide technical advice at the national and international level. The RIIP interacts with local and international public health authorities and works closely with health ministries, the WHO's Global Outbreak Alert and Response Network (GOARN) and the Institut Pasteur's Laboratory for Urgent Response to Biological Threats (CIBU).

48. Research is conducted on several infectious diseases, among which: HIV/AIDS, tuberculosis, malaria, influenza, dengue, rabies, viral hepatitis, bacterial meningitis, antibiotic resistance, leishmaniasis, diarrheal diseases. The RIIP also strives to improve scientific capabilities and human resources around the world. To achieve this, the RIIP develops training programs in partnership with universities and local stakeholders. Over 100 RIIP trainees come every year to complete their training by taking courses or serving traineeships in Paris.

49. The Institut Pasteur and the Institut Pasteur International Network provide international grants for traineeships and courses taken in Paris.

## Germany

50. Under the 7th Framework Programme, which was conducted from 2007 to 2013, direct funding was made available for "International Cooperation" as an integral part of the thematic area "Health", which is of particular significance in areas with a bearing on global health problems, such as resistance to microbicides, HIV/AIDS, malaria, tuberculosis, neglected diseases and international health systems. The calls for proposals and expressions

of interest also cover topics of international relevance, which are tailored to the international partners' R&D needs and which, for example, are specifically intended to be implemented in collaboration with African partners.

51. Following the first two rounds of the call for proposals and expressions of interest, 25 African states have been involved in projects in the thematic area "Health". African scientists were collaborating with German institutions in 18 projects which have an African input. An example is the Poverty Related Diseases College: International Programme on BioMedicine and Development (PRD College) project, which will help to close educational gaps between the bio-sciences and the health and development sector in Africa. The creation of a training and exchange programme for African doctors and young scientists has been supported. The project is coordinated by the University of Yaoundé in Cameroon.

52. The network includes African partners in Cameroon, South Africa, Zambia, Uganda and Tanzania and European institutions, including the Department for Infectious Diseases and Tropical Medicine of the University of Munich and the Max Planck Institute for Infection Biology in Berlin.

53. Since 2007, partnerships between German universities and clinics on the one hand and medical schools and clinics in developing countries on the other have been supported as part of Germany's development cooperation policy. These partnerships have, among other things, facilitated exchanges in the field of applied and clinical research with a view to improving medical treatment for HIV/AIDS sufferers. In Cameroon, for example, the aim is to optimize the treatment of HIV by means of early diagnosis and research into the causes of resistance to treatment, in cooperation with a German research institute. Universities and hospitals in African partner countries will benefit from the know-how of German scientific institutions and will learn to adopt the necessary quality standards required for implementing clinical trials, etc.

54. In cooperation with the Kwame Nkrumah University of Science and Technology (KNUST), the Bernhard Nocht Institute for Tropical Medicine (BNI) in Hamburg operates the Kumasi Centre for Collaborative Research in Tropical Medicine (KCCR) in Kumasi (Ghana) as a joint venture. The KCCR provides a platform for collaborative research projects involving Ghanaian scientists and has acquired an international reputation as a teaching and research centre which is open to scientists from around the world. The collaboration is based on a long-lasting contract. In the first years of the collaboration the research projects at KCCR were financed predominantly by the BNI. The project financing by the BNI has decreased and financing of projects by other resources increased. This demonstrates that KCCR is now established and acknowledged in a way which makes investment in research for other donors more and more interesting, and thus creating an element of sustainability.

55. In 2013, the Federal Foreign Office launched the German Partnership Program for Excellence in Biological and Health Security. The programme is part of Germany's preventive security policy and a contribution to the Global Partnership against the Spread of Weapons and Materials of Mass Destruction. It is offered to selected partner countries in Africa, Central Asia, South America and Eastern Europe. Its objective is to support partner countries in minimising biological security risks, such as the misuse of biological agents or the outbreak of dangerous diseases and pandemics. A further objective is to strengthen public health and to promote a responsible approach to research and research findings in the partner countries. The programme's projects encompass six thematic areas: awareness raising, networking, capacity development, detection and diagnostics, surveillance, and biosafety and biosecurity. It was built around the Global Partnership's Biological Security Deliverables and is implemented by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH, the Robert Koch Institute (RKI), the Bernhard Nocht Institute for Tropical Medicine (BNI), the Friedrich Loeffler Institute – Federal Research

Institute for Animal Health (FLI), and the Bundeswehr Institute of Microbiology (IMB) in cooperation with leading institutions from the partner countries. By the end of 2016 the programme's overall financial volume will have reached almost 27 million Euros.

56. In April 2016, the international 15th Medical Biodefense Conference was held in Munich. The Bundeswehr Institute of Microbiology hosted more than 500 military and civilian experts in the fields of biodefence, biosecurity, public health and emerging infectious diseases from 51 nations. The renowned meeting was organised in cooperation with the German Society for Military Medicine and Pharmacy. Presentations and poster sessions were compiled from almost 300 scientific submissions and an accompanying trade show was held. The conference's scientific programme addressed the whole range of medical biodefence topics, ranging from political to scientific issues, from theoretical to practical matters, and from mass casualties to casuistic. With regard to the recent Ebola outbreak in West Africa, the lessons learned were assessed. Moreover, numerous speakers addressed the recent developments related to the Zika virus epidemic in the Americas and gave updates on MERS, plague, anthrax, tick-borne encephalitis and other diseases caused by agents of concern. A session was dedicated to the activities of the German Partnership Program for Excellence in Biological and Health Security.

57. The Ebola crisis in West Africa has shown the devastating impact that weak health systems can have not just for the countries concerned but for entire regions and even on a global scale. Germany has committed funding to strengthen health systems in countries and regions in Africa in order to capacitate the health sector and regional organisations (EAC, ECOWAS, CEMAC) to take appropriate actions against the international spread of diseases through adequate early warning and diagnosis capacities, public education campaigns, disease surveillance, diagnostics and well-equipped laboratories. The programme focuses e.g. on education of health personnel and development of laboratories contributing to improved preparedness and crisis response.

#### **Greece**

58. Mediterranean Zoonoses Control Programme of the World Health Organization and its Coordinating Centre in Athens, Greece The Mediterranean Zoonoses Control Centre (MZCC) started its operation in February 1979 following a special agreement between WHO and the Greek Government. During the last years, the activities of the MZCP coordinated by the MZCC and with the support and contribution of the Greek Government, have been as follows: besides the regular MZCP activities development, the Greek Government provided an extraordinary financial contribution to implement 2 projects in Syria and Jordan on the inter-sectoral epidemiological surveillance of Brucellosis in humans and animals. Both were successfully concluded. The Government of Greece is available to further support the MZCP and its Coordinating Centre in Athens, financially and technically. This will permit further expansion and enrichment of the capacity building activities of this regional programme. To this end, negotiations are on the way with WHO and other International Organizations.

#### National Reference Laboratory for Arboviruses and Haemorrhagic Fever Viruses, Aristotle University of Thessaloniki, School of Medicine, Dept. of Microbiology

59. Training of scientists from the Central African Republic, Nigeria, Iran, China, Albania and Bulgaria on the rapid diagnosis and molecular epidemiology of viral haemorrhagic fevers. Their expenses were jointly covered by EU Research Programmes (INCO), WHO and the Greek Government.

60. Ministry of Rural Development and Food (MRDF) - General Veterinary Directorate

(a) Programme TAIEX. Study visit on Protection and Control Strategies, monitoring and reporting system of Echinococcosis and Hydatidosis (May 2011 with the participation of Greece and Turkey).

(b) Control and eradication programmes of Bovine Brucellosis, Sheep and Goat Brucellosis and Bovine Tuberculosis (July 2009 with the participation of Greece and Armenia).

(c) Control of Foot and Mouth Disease (FMD) Includes activities such as serosurveillance, vaccination campaigns and training workshops.

(d) Monitoring of Zoonoses and Zoonotic agents, antimicrobial resistance of zoonotic agents and food borne outbreaks. Zoonoses Monitoring - Implementation of National control and eradication programmes based on European Veterinary Legislation (Directive 2003/99/EC). Covers mandatory monitoring for the major zoonoses: Brucellosis, Tuberculosis, Echinococcosis, Salmonellosis, Campylobacteriosis, Listeriosis, Trichinellosis, Verotoxigenic Escherichia coli. Participation of the the Balkan Tripartite (EuFMD/EC/O.I.E) Group of Bulgaria, Greece and Turkey.

Ministry of Foreign Affairs

61. Greece contributes to the Global Fund to Fight AIDS, Tuberculosis and Malaria and supports EU activities in the area of HIV/AIDS, whilst it also contributes to UNAIDS.

Ministry of Health and Social Solidarity

62. The Hellenic Center for Disease Control and Prevention, Athens, Greece (Zoonoses and Foodborne diseases Bureau), coordinated the WP8 Zoonoses of the EpiSouth from 2006 to 2010, for the 27 Mediterranean and Balkan countries participating to the network. The aim was the construction of a firm network of public health institutes, epidemiologists and laboratory experts, for the exchange of epidemiological data and the diffusion of public health alerts concerning infectious and non-infectious agents.

63. From 2010 to 2013 the Hellenic Center for Disease Control and Prevention, Athens, Greece is participating in the EpiSouthPlus, as member of the steering committee of the WP5, co-led by the Instituto de Salud Carlos III (Spain) and the Institut National de Santé Publique (Algeria) Public Health Preparedness and Response, and the WP7 co-led by the World Health Organization - Lyon office (WHO-LYO) and the Italian National Institute of Health (ISS), aimed to facilitate IHR implementation in the EpiSouth Region.

**Hungary**

64. Hungary facilitates the exchange of equipment, materials, scientific and technological information concerning the use of bacteriological (biological) agents and toxins for peaceful purposes. Hungary also supports the development and application of scientific discoveries in the field of bacteriology (biology) for the prevention of disease and for other peaceful purposes.

65. Hungarian medical system often provides medical help in different parts of the world in cases of natural disasters, including the prevention of epidemics. For example: At the end of last year a Hungarian group of doctors with appropriate equipment and the necessary drugs provided support for the treatment and for the prevention of the outbreak of dangerous epidemics in flood stricken Thailand. In such cases Hungarian specialists use "the available best technology", and in conjunction with that they also provide assistance to the local experts on how to apply that technology. In addition to providing assistance for

the diseased people, the National Centre of Epidemiology has further developed its international relations in the area of the prevention of different epidemic diseases.

66. Several thousand of foreign students study at Hungarian universities and follow courses in foreign language (English and German), thus foreign students can study without knowing Hungarian. Accordingly universities and the academia provide ample opportunities for them to familiarise themselves and learn about the latest developments in the scientific technical field.

67. A number of young foreign PhD students and high academics are involved in scientific research and studies at the Hungarian universities and scientific research institutes of the Hungarian Scientific Academy. The themes of these studies and research programmes in the field of biology (bacteriology, viruses), biochemistry, chemistry (toxins), and related engineering disciplines (equipment), or medical sciences (epidemics) may be relevant in the context of the BWC.

## **Ireland**

### Ireland Vietnam Blood Borne Initiative (IVVI)

68. UCD & NIHE: Irish Aid contribution € 2.5 million

69. Bringing Vietnamese research capacity to a new level: Laboratory Facility and Skills Development.

70. The Ireland-Vietnam Blood-Borne Virus Initiative (IVVI) began in 2007 with funding from Irish Aid and Atlantic Philanthropies. The goal was to develop the infrastructure and capacity needed to better diagnose viral diseases such as HIV, Hepatitis B and C, and the Human T Lymphotropic Virus (HTLV). The project also aimed to improve Vietnam's health policies, which will in turn reduce the burden of infectious diseases.

71. Ireland's National Virus Reference Laboratory in University College Dublin and the Vietnam's National Institute of Hygiene and Epidemiology (NIHE), are the two driving forces behind IVVI.

72. Through IVVI, 33.000 individuals representing a large cross-section of the population, including blood donors, renal dialysis patients, blood transfusion patients, pregnant women and the general population have been tested. Along with large scale testing, IVVI has also provided virus testing for outbreaks, such as measles in northern Vietnam and swine influenza (H1N1). To help IVVI achieve its targets in training and testing, financial support went towards building a modern diagnostic laboratory at NIHE in Hanoi. New approaches have cut the cost of tests. In addition to construction of a high tech facility, nine NIHE staff members have completed a Master's degree in clinical and diagnostic virology in University College Dublin and now have the capacity to manage the NIHE/IVVI laboratory and implement studies that will help improve healthcare in Vietnam. Joint research work between the University College Dublin and NIHE will continue with these trained researchers.

73. The NIHE/IVVI laboratory has been recognised as a reference laboratory by the Ministry of Health. It has received international ISO accreditation and was formally accredited by WHO as a National Laboratory for HIV Anti-Retroviral Drug Resistance testing in August 2012. The Laboratory will shortly begin studies with WHO and the Vietnam Administration for AIDS Control (VAAC) of the Ministry of Health in Vietnam to evaluate HIV Drug Resistance in Northern Vietnam

74. The IVVI was enrolled in the Treat Asia Quality Assurance Scheme (TAQAS) for HIV-1 genotypic Antiretroviral Drug Resistance Testing and accreditation by the NRL was achieved in March 2012.

Chemical, biological, radiological and nuclear (CBRN) training course for humanitarian workers.

75. In September 2015, the Irish Defence Forces conducted a week long Survive to Function course for humanitarian workers to enable them to recognise and survive the effects of chemical, biological, radiological or nuclear (CBRN) agents. The course was run by the Defence Forces School of Military Engineering for 14 International Committee of the Red Cross (ICRC) personnel, largely medical, from Ireland, Norway, Denmark, Italy, Canada, the UK, Croatia, Israel and France. Survivability and decontamination were central to the training and the ICRC students were taught to use their own equipment and in order to survive in a hazardous environment, while continuing to perform their primary function of providing humanitarian assistance.

Ireland- Response to the Ebola crisis

76. In 2014 Ireland provided over €18.5 million to the affected countries in West Africa, through NGO and UN partners. Some €10 million was provided for our annual development programmes in our partner countries, Sierra Leone and Liberia. A primary focus of these programmes was on strengthening health systems in the two countries, which had been significantly impacted by the Ebola outbreak.

77. Funding of over €6 million was provided for Ebola treatment facilities in both Sierra Leone and Liberia, as well as for contact-tracing, community sensitisation, Ebola-response fleet management and child nutrition programmes, among other activities. This included a contribution of €1 million to the UN Ebola Response Multi-Partner Trust Fund established by the UN Secretary General to ensure coherent involvement by the UN system in the overall response to the Ebola outbreak. The contribution to the Trust Fund was earmarked for Sierra Leone and Liberia.

78. In 2015, the Irish Aid programme in Sierra Leone and Liberia continued to focus on the effects of the Ebola outbreak. Programme funding of €5.4 million for Sierra Leone and €5.4 million for Liberia was disbursed. A key focus of this funding programme was to strengthen the country's health systems and basic primary health care services. The largest proportion of funding is channelled through the Liberian Ministry of Health & Social Welfare's Health Sector Pool Fund.

Gain of Function - Experimental Applications Relating to Potentially Pandemic Pathogens report by the EASAC with input from the Royal Irish Academy.

79. The Royal Irish Academy is one of Ireland's leading bodies of experts in the humanities and sciences.

80. In October 2015, The Royal Irish Academy, as a member of the European Academies Science Advisory Council (EASAC), hosted a briefing seminar on the latest EASAC Report on 'Gain of Function: Experimental Applications Relating to Potentially Pandemic Pathogens'.

81. This report was produced by a working group of 17 expert scientists nominated by EASAC member academies across 10 European countries, which also included input from RIA experts. In the specific context considered by this report, "gain of function (GoF)" refers to the experimental modification of the influenza virus, particularly the H5N1 variant, to alter its transmission potential with the aim of better understanding the factors

that determine its pandemic potential to spread from animals to human, and between humans through an aerosol route.

82. This report is particularly timely, as it considers current controversies about the possible impact of GoF research with regard to biosafety (i.e. the safety of researchers conducting this research and the general public) and biosecurity (i.e. the potential for use as a biological weapon). This report emphasises a layered approach to biosafety with integration of responsibilities and action at researcher, research institution, research funder, national EU, and global levels.

83. A link to the report can be found at the following link: [https://www.ria.ie/sites/default/files/easac\\_gof\\_web\\_complete\\_centred\\_2.pdf](https://www.ria.ie/sites/default/files/easac_gof_web_complete_centred_2.pdf)

84. In addition, a link to the RIA briefing seminar can be found at the following link: <https://www.ria.ie/news/policy-and-international-relations/breakfast-briefing-gain-function-experimental-applications-0>

### **Italy**

85. Over the last years (2011-2016), the Italian Development Cooperation and its national partners have designed interventions in the health sector, following the strategic guidelines included in the policy document "Global health: leading principles of the Italian Cooperation", which was first approved in 2009 and reviewed in 2014.

86. The document defines the fight against infectious and tropical diseases - HIV/AIDS, tuberculosis, malaria, polio, viral hepatitis and bacterial meningitis - as a policy priority, aiming at providing prevention and immunization measures, medical treatment and social assistance to affected communities. The document sets the framework of reference for those initiatives primarily intended to offer assistance to developing countries in order to improve their policies and practices in fields such as: organization and management of basic social and health services, control of infectious diseases, environmental health, medical and surgical emergencies and fight against mother and infant mortality.

87. In 2015 Italy has assigned about 11% of its Official Development Assistance (ODA) to interventions in the health sector for an overall amount of EUR 70 million. Out of this amount, EUR 3,280,000 have been allocated for specific projects in the field of control of infectious and tropical diseases. Additional financing has been mobilized for emergency interventions. On average, over the last years, the Italian Cooperation has annually earmarked EUR 100 million for projects in the field of health and sanitation.

88. Italy has a long-standing tradition of commitment in the fight against large scale pandemics, as demonstrated by its regular contribution to the Global Fund to Fight Against AIDS, Tuberculosis and Malaria, which amounts to EUR 100 million for the period 2014-2016. Thanks to programs financed by the Fund in 140 countries, over 8.7 million lives have been saved from diseases.

89. Italy is part of the Global Health Security Agenda (GHSA), a growing partnership of nearly 50 nations, international organizations and non-governmental stakeholders to help build countries' capacity to respond to infectious disease threats. Under the GHSA framework, Italy has been a frontrunner in the immunization sector, acting predominantly in the Mediterranean basin and developing common epidemic identification mechanisms for the benefit of the health system of partner countries.

90. In the field of infectious diseases, activities of major interest have been implemented by the Italian National Institute of Infectious Diseases "Lazzaro Spallanzani", which is internationally recognized as a leading biosafety provider, able to apply the most advanced standards in the treatment of patients and to conduct research with innovative equipment, including a Bio Safe Level 4 (BSL 4) laboratory. In Tanzania, the Institute set up a BSL 3

laboratory in Bagamoyo, which has later become one of the most advanced laboratories in East Africa for control of highly infectious diseases such as viral haemorrhagic fevers (Ebola, Marburg, Dengue Fever, etc.). Furthermore, in the framework of a series of emergency projects launched by the Italian Cooperation to help Sierra Leone, Liberia and Guinea in the response against Ebola during 2015, the medical team from the Institute supported evacuation operations and addressed the needs of the population with prophylactic treatments and training for local health operators. The intervention has been carried out in coordination with Italian NGOs already operating on the ground and engaged in the provision of medical supplies to local communities. Already some time before, the World Health Organization (WHO) gave Italy the task to elaborate an evacuation plan for UN staff in African countries with a high risk factor for infectious diseases. The plan was to be implemented in conjunction with the Spallanzani Institute, relying on its wide-ranging experience in medical treatment and research.

91. To support the international response against the 2015 Ebola outbreak, Italy has also financed the World Food Programme to ensure access to basic nutrition for the affected communities; the WHO to implement the comprehensive Ebola response roadmap and UNICEF to undertake information campaigns about contagion risks and protection measures. The Italian Cooperation has also mobilized the International Federation of the Red Cross to support the Sierra Leone Red Cross Society for awareness messaging, contact tracing and case treatment.

92. Further in Africa, the Italian Cooperation funded three relevant projects in fields related to Article X interventions: (i) the program to support the Ministry of Health of South Africa in the implementation of a global response to HIV & AIDS, in particular the experiment of a therapeutic HIV vaccine in conjunction with the Italian National Institute of Health; (ii) the support for the National Plan of Burkina Faso for Health Development through a capacity building initiative, implemented by the Department of Public Health of the University of Rome "La Sapienza" and focused on the response against malaria; (iii) a capacity building initiative in Ethiopia to reverse the spread of communicable diseases, notably the HIV/AIDS, by improving the retention in care of the affected patients.

93. In Iraq, notably in the Autonomous Region of Kurdistan, an epidemiological monitoring and surveillance system is currently being set up in order to update data on diseases' trend with standardized procedures. The project, implemented by the Biomedicine Department of the University of Rome "Tor Vergata", includes training activities for 150 specialized operators in the field of biomedical treatment and management of epidemiological surveillance programmes.

94. In Vietnam, notably in the city of Hue, in collaboration with the University of Sassari, the Italian Cooperation has set up a centre for control of viral diseases, including the construction of a BSL 3 laboratory for diagnosis and an intensive care unit for treatment of patients. In the framework of the project, the Italian Cooperation has also funded the launch of a two years master course on microbiology and virology in public health, to which students from the region (Vietnam, Laos, and Myanmar) can apply.

### **Netherlands**

95. The Netherlands attaches great importance to cooperation and assistance under Article X of the Biological and Toxic Weapons Convention (BWC) and remains committed to facilitating and participating in the exchange of equipment, materials, and scientific and technological information for the use of bacteriological (biological) agents and toxins for peaceful purposes. The Netherlands fulfils its obligations under Article X through contributing individually and in cooperation with other states, international organizations, non-governmental organization and other relevant partners.

Dutch contributions to relevant organizations and initiatives

96. The Netherlands has a strong tradition in international cooperation on biosafety and biosecurity and belongs to the world's largest donors to the specialized UN agencies that are relevant for implementing Article X of the BWC. In this regard, the longstanding Dutch support to the World Health Organization (WHO) is particularly worth noting. The Netherlands seeks to support the WHO's work with a sizeable contribution, of which a large part is un-earmarked. The WHO undertakes various initiatives, including guiding public health responses to biological (and chemical) weapons, as well as ensuring access to quality and use of medical products and technologies.

97. Moreover, the Netherlands plays an active role in the Global Health Security Agenda (GHSa). This initiative, which is joined by over 50 countries, should be seen as an accelerator to implement the International Health Regulations of the WHO. The Netherlands, together with the UK, Germany, Sweden, Canada and Japan, is coordinating the work package on antimicrobial resistance. Moreover, the Netherlands is participating in the work package on zoonotic diseases. The GHSa also addresses issues regarding biosafety, workforce / capacity-strengthening and monitoring. It aims to better align both multilateral and bilateral support activities, based on voluntary Joint External Evaluations. The Netherlands will be hosting the next High Level meeting of the GHSa in October 2016.

98. In addition, the Netherlands has, since the Global Alliance for Vaccines and Immunisation (GAVI) was launched in 2000, contributed EUR 200 million between 2011-2015 and EUR 250 million between 2016-2020 to this global public-private partnership for immunization. GAVI aims at enlarging the "standard package" of vaccination with relatively expensive vaccines, such as vaccines against yellow fever, hepatitis B and pneumonia. Research is planned on new vaccines against AIDS, tuberculosis and malaria. In this context, the Netherlands donates bilaterally to the Global Fund to Fight AIDS, Tuberculosis and Malaria and to the WHO. With contributions totalling over EUR 900 million the Netherlands is the tenth-largest public donor to the Global Fund. NL also contributed EUR 252 million to the WHO in the period 2000 – 2010, of which EUR 126 million for the termination of polio, and around EUR 140 million between 2011 – 2016. In addition, the Netherlands has, since 2011, committed more than EUR 170 million to the development of new drugs, vaccines and diagnostics through international product development partnerships and the European Developing Countries Clinical Trials partnership.

Dutch contribution to the fight against Ebola

99. Since the Ebola outbreak in West Africa, the Netherlands has been an active partner in the fight against Ebola. The Netherlands offered the services of the Joint Support Ship "Karel Doorman" twice to ship in-kind assistance to the affected countries. The Netherlands donated EUR 5 million of humanitarian goods which consisted of for instance ambulances, beds and gloves. The vessel also transported in-kind aid donated by EU member states and UN agencies.

100. The Netherlands provided additional financial support in fighting Ebola to important partners such as the WHO, UNICEF, the Dutch Red Cross and Médecins sans Frontières. Also a consortium of Dutch NGOs was funded in order to alleviate suffering of the people in the three affected countries. Because of the shortage of medical capacity, the Netherlands deployed 60 laboratory workers to analyse blood samples in the donated mobile laboratories. In total, the Netherlands contributed around EUR 62 million of humanitarian aid to support the fight against Ebola.

101. The Netherlands long term contribution to recovery after the Ebola crisis consisted of two important pillars: economic recovery for the affected countries and strengthening

health systems, both in the affected countries and through the strengthening of international emergency medical response. To strengthen health systems, a flexible and effective medical emergency response is crucial in crises like Ebola. Therefore, the Netherlands facilitates, through a contribution of EUR 2, 2 million, a trilateral collaboration between Ghana and Sierra Leone on one side, and Rwanda and Guinea on the other, in order to contribute to the establishment of a robust preparedness system. Furthermore, the Netherlands has been a strong advocate for reforms of the WHO to develop capacity on emergency preparedness and response. The WHO's Contingency Fund for Emergencies is an important mechanism that can quickly provide funds to outbreaks to prevent an epidemic. The Netherlands has contributed EUR 1 million to this WHO fund. During the Ebola crisis, there was a lack of medical capacity. The WHO has founded the Global Health Emergency Workforce to create a worldwide network of medical capacities. The Netherlands has offered its medical evacuation capacity and hospital beds to this pool. Awaiting further development of the Workforce, the Netherlands is exploring options to contribute through medical and emergency experts. The Dutch contribution is channelled through the EU-led European Medical Corps. As member of the WHO Executive Board, the Netherlands will maintain her active role in the discussions around reforms in the WHO.

#### International cooperation projects on biosafety and biosecurity

102. The Netherlands is also active in several international cooperation projects to enhance biosecurity and biosafety, strengthen information sharing on national biosecurity measures, enhance awareness raising and promote responsible bioscience.

103. In April 2016, the Netherlands Biosecurity Office organized the third meeting of the European Biosecurity Regulators Forum (EBRF). This Forum has its origin in work conducted by a group of six European countries in the context of the EU CBRN Action Plan (Action B2), which aimed to share best practices and examples of national implementation of biosecurity measures in a guideline document and thereby to strengthen European biosecurity. The group is reconvened in the EBRF with an expanded focus, including the securing of biological substances, awareness raising and responsible science in relation to dual-use technologies. During the meeting, the outcomes of the CBRN Action Plan were presented by a representative of European Commission, DG Migration and Home Affairs, and risks and economics of intentional releases of plant pathogens were presented and discussed. Moreover, the group discussed the issue concerning technologies with misuse potential. The EBRF is planning to present a working paper on this topic at a side event at the BTWC Review Conference in November 2016.

104. The Centre for Infectious Disease Control at the Netherlands Institute for Public Health and the Environment (RIVM) is involved in several international initiatives to enhance biosafety and biosecurity, and CBRN first response. Within the framework of the Global Partnership against the Spread of Weapons and Materials of Mass Destruction, the Netherlands funded several projects under the Biosecurity Engagement Programme of the US Department of State in Uganda. The Centre for Infectious Disease Control at the RIVM is implementing a biosecurity project in Uganda, funded by the Dutch Ministry of Foreign Affairs as part of the Global Partnership. The project has been initiated in 2014 with the aim to contribute to the biosafety and biosecurity situation in Uganda, and to develop a suitable training program for local partners with specific needs in this direction. In addition, the project focuses on initiatives including biosafety and biosecurity curriculum development at Ugandan Universities and the implementation of a plague laboratory in the Arua border district. Furthermore, the RIVM participates in the EU CBRN Centres of Excellence project "Strengthening CBRN first response capabilities and regional cooperation in South East Europe, Southern Caucasus, Moldova and Ukraine", including the preparedness and first response in case of intentional and non-intentional release of biological agents. Lastly, the European Framework 7 project (GIFT), coordinated by the

Netherlands Forensic Institute (NFI), aims to develop and provide a forensic toolbox focusing on procedures, practices and guidelines for common CBRN forensic measurements and handling instructions on a European level. In relation to biological agents, the RIVM participates in the development of biologically safe procedures for forensic investigation of CBRN contaminated exhibits.

105. Lastly, the Royal Netherlands Academy of Arts and Sciences (KNAW) has been involved, in cooperation with various ASEAN Academies of Science and the U.S. National Academy of Sciences (US-NAS), in a number of biosecurity meetings in the ASEAN region during the past years. In Bogor Indonesia (August 2014), the KNAW organized a successful workshop together with the Indonesian Academy of Science (AIPI) on relevant scientific and technical developments from a biosecurity perspective, such as gain of function research and the need of education and awareness raising. The aim was to bring together stakeholders from relevant institutions, academies of science, industry and government (from Indonesia, Singapore, Malaysia, Thailand, Vietnam and the Philippines) to share methods and experiences regarding education and awareness raising. A follow-up workshop in Jakarta in May 2015 mainly focused on the relevance of gain of function research for the ASEAN region. Furthermore, the Indonesian Code of Conduct on Biosecurity was presented which is inspired by and partly based on the Dutch Code of Conduct. More workshops on responsible science related to biosecurity were held in 2015 in Yogyakarta and in Kuala Lumpur.

106. To showcase these biosecurity-related developments in science and technology in the ASEAN countries to a wider audience, the US-NAS and the KNAW organized two meetings during the Meeting of States Parties (MSP) of the BWC in December 2015. Relevant issues in the field of S&T, which should be dealt with during the 8th Review Conference, were identified and highlighted by participants from Malaysia, Indonesia, the Philippines, Thailand and Vietnam. Moreover, the meetings provided an opportunity for these scientific experts to become acquainted with the BWC and interact with governmental experts on biosecurity activities in the ASEAN region.

## **Poland**

107. Poland facilitates the exchange of equipment, materials and scientific and technological information concerning the use of bacteriological (biological) agents and toxins for peaceful purposes. Poland also supports the development and application of scientific discoveries in the field of bacteriology (biology) for the prevention of disease and for other peaceful purposes.

108. National Institute for Public Health-National Hygiene Unit (Narodowy Instytut Zdrowia Publicznego-Państwowy Zakład Higieny) is actively contributing to the international cooperation related to maintenance of diagnosis research's readiness as well as of their high quality conduct. These efforts are part of the EMERGE project "Efficient response to highly dangerous and emerging pathogens at EU level" – under the EU Joint Action, Consumer, Health, Agriculture and Food Executive Agency (CHAFEA). These activities, within the scope of BTWC Article X, concern improvement of identification's methods of selected biological agents that are embraced by the BTWC, with the aim to improve protection of public health. The General Karol Kaczkowski Military Institute of Hygiene and Epidemiology is engaged in similar efforts related to strengthening overall capacities in CBRN event response, including biological.

109. Polish universities and research institutes are actively engaged in the international exchange of knowledge in the field of health and bacteriology, including through participation in international research projects and hosting international seminars and symposiums. In this context, it is worth noting the Polish Academy of Science (PAN)

which has been actively contributing to the work of the InterAcademy Panel Biological Working group, organizing numerous seminars and workshops.

110. The Government of Poland has been providing scholarships programmes for students and trainees from the developing countries pursuant to bilateral agreements. For example, more than 1200 foreigners from developing countries participated in study programmes and fellowships at undergraduate, graduate and post-graduate levels funded by the Polish government in the period from 2011 to 2016. These programmes covered the fields of medicine, health, physical education and biology. It is estimated that the related costs as well as the value of grants paid by the Ministry of Science and Higher Education and the Ministry of Health amounted to more than EUR 3.3 million.

111. The following study programmes are available for the holders of the scholarships of the Republic of Poland:

(a) Bachelor studies (1st cycle studies) – duration of 3 to 4 years; a student receives Bachelor title;

(b) Master's studies (2nd cycle studies) – duration of 2 years; designed for students with Bachelor degree; a student receives Master's degree;

(c) Master's long-cycle studies – duration of 5 to 6 years; a student receives Master's degree or a medical doctor title in case of medical studies;

(d) PhD studies (3rd cycle studies) – duration of 2, 3 or 4 years depending on a subject; available to students with Master's degree; a student receives PhD degree;

(e) Medical specialization, the period of training is 4 to 6 years, depending on the requirements of the specialization.

112. Foreign students can also take part in the post-doctoral internships, science internships, specialization courses and medical internships.

### **Portugal**

113. Portugal fulfils its obligations under article X, partly through the Ministry of Health and two of its institutions: the Directorate-General of Health, and the National Institute of Health "Dr. Ricardo Jorge" (INSA), which is the Portuguese National Laboratory of Reference for disease surveillance and detection.

114. The Directorate-General of Health fosters the development and transfer of best practices on biosafety, biosecurity and biorisk management, and has, since 2012:

(a) Supported the Ministry of Health of Cape Verde on capacity-building activities regarding virology, bacteriology, and development of national public health laboratory network;

(b) Shared information with African Portuguese Speaking Countries within vector borne diseases – surveillance, control and response - a goal also promoted by the Ministry's National laboratory of Reference (please, see below);

(c) Shared documentations with African Portuguese Speaking Countries within the implementation of IHR with regards to airports and ports monitoring systems. Other projects are implemented through INSA. For INSA, the responsible dissemination of technical and scientific information is a priority. Indeed, acknowledging that only through scientific exchange and collaboration with other Partners is it possible to strengthen laboratory response and enhance national capacities as well as those of Partners, INSA has been developing a sustained collaboration with its counterparts in many countries, namely in Europe and in Africa. For this reason, INSA continues to work within the framework of relevant international networks and international organizations, such as:

(i) the World Health Organization, with whom INSA collaborates for more than 20 years - The Portuguese Reference Centre for tuberculosis is a reference centre of the WHO;

(ii) those inscribed in European projects connected to biosafety and biosecurity in microbiological laboratories and emergency response and biopreparedness as Establishment of Quality Assurances for Detection of Highly Pathogenic Bacteria of Potential Bioterrorism Risk (EQADeBa); Quality Assurance Exercises and Networking on the Detection of Highly Infectious Pathogens (QUANDHIP, both virus and bacteria) [http://www.quandhip.info/Quandhip/EN/Home/Homepage\\_node.html](http://www.quandhip.info/Quandhip/EN/Home/Homepage_node.html); Establishment of Quality Assurance for the Detection of Biological Toxins of Potential Bioterrorism Risk (EQUATOX) <http://equatox.net>; European Research Infrastructure on Highly Pathogenic Agents (ERINHA) <http://www.erinha.eu>; and Iberian network of laboratories of biological alert (IB-Bioalernet). – These projects envisage Quality control schemes involving detection of highly pathogenic microorganisms, early detection of biological threats, development of methods for rapid laboratory diagnosis of biologic agents and simulation of emergency situations in case of a bioterrorism event;

(iii) the Global Outbreak Alert & Response Network (GOARN), of whom INSA is a founding member;

(iv) the CBRN Centres of Excellence (CoEs) Initiative, since 2011.

(v) INSA has also invested in the training of human resources, the improvement of infrastructures and the development of standard operating procedures applied to investigation and research. The following are examples of those activities:

a. Every year, INSA organizes a course on Biosafety and Biosecurity in BSL-3 laboratories, open to other institutions, raising awareness on biological risks and biocontainment measures, where the principles of the BWC are extensively explained to the attendees.

b. INSA also organizes annually one course on Transport of Infectious substances, which follows the instructions of the World Health Organization.

c. INSA is the coordinator of the national surveillance program of vector and vector borne diseases, improving of disease surveillance and outbreak investigation, namely through close cooperation with animal health departments and other human health authorities. All these actions were optimized through the participation in international exercises and trainings.

115. Article X goals are also pursued by other Research and Development (R&D) institutions, such as the Institute of Hygiene and Tropical Medicine (IHMT) of the New University of Lisbon (<http://www.ihmt.unl.pt/> and <http://cmdt.ihmt.unl.pt>)

116. The IHMT is highly recognized both nationally and internationally for its research, postgraduate training, and support to the community, namely in various specialized diagnosis, environmental impact studies, partnerships and joint ventures with industry, IHMT has also an important role in the dissemination and translation of knowledge on tropical diseases and its determinants to students and general society. IHMT is a national reference institution for cooperation and development in health promotion areas and a privileged interlocutor of the Portuguese speaking countries. IHMT courses are certified and evaluated by National Accreditation Agency and cover the fields of Tropical Clinical Sciences, Tropical Animal Health and Public Health, Medical Parasitology and Medical Microbiology, Biomedical Sciences, Infection and Genetics:

- Master programs:
  - Medical Parasitology
  - Medical Microbiology
  - Biomedical Sciences
  - Tropical Health
  - Health and Development
  - Epidemiology
- PhD programs:
  - Biomedical Science
  - Tropical Medicine
  - International Health
  - Human Genetics and Infection

117. IHMT also offers e-learning courses, and in loco, courses in African Portuguese speaking countries. These courses vary from basic laboratory techniques, to Health workforce empowerment. IHMT is a Collaborating Centre for Human Resources of the World Health Organization. IHMT is collaborating with WHO AFRO to develop the following areas:

- (a) Enhancement of epidemiological surveillance and response with focus on training of rapid response team of experts;
- (b) Preparedness and response to vector borne disease outbreaks through capacity building in medical entomology;
- (c) Strengthening of local laboratory capacity;
- (d) Human Resources for Health.

118. IHMT has institutional cooperation protocols, among others, with the National Institute of Health, in Mozambique, Ministry of Health and University "Agostinho Neto" in Angola, and Fundação Oswaldo Cruz, in Brazil. IHMT integrates a network of European and African TB laboratories, currently being extended to North America, South America, and India laboratories. These networks focus the training of human resources, and control of multi-drug resistant (MDR) and extensive drug resistant (XDR) strains of *Mycobacterium tuberculosis*.

119. IHMT is a collaborating partner in Research/ Development projects on Control of Malaria in Angola, Cape Verde, Kenya, Mozambique and São Tomé e Príncipe. IHMT integrates Research projects in African Trypanosomosis in Kenya, Mozambique, South Africa, Uganda and Republic of Congo. Surveillance of tick and mosquito-borne arboviruses in high-risk at Portuguese and Lusophone countries areas, in particular dengue in Cape Verde, South Africa and Portugal;

120. The Faculty of Sciences of University of Lisbon (FCUL) is another public higher education and research centre in the field of life sciences, with a a long history of international cooperation. FCUL has ongoing collaboration with Portuguese speaking countries such as Mozambique, Angola, Cape Verde and Brazil. Students of those countries have been taking FCUL courses throughout the years and this number is rising due to recent cooperation agreements, in particular, we are in the process of receiving about sixty students from Brazil.

121. In addition, Master degree courses in the field of chemistry are developed at the University "Agostinho Neto", in Angola, and at the University "Eduardo Mondlane", in Mozambique, in partnership with the FCUL. Both degrees include Safety as one of the subjects. Furthermore, FCUL is very keen in the exchange of scientific and technological information concerning several aspects of biological agents and toxins for peaceful purposes. FCUL, in close collaboration with its R&D units, provides its researchers with a wide range of multi-user facilities (e.g. computing, microscopy, mass spectrometry, cell cultures, greenhouses, etc.), fostering interdisciplinary experimentation.

## **Spain**

### Through the Instituto de Salud Carlos III

122. The Instituto de Salud Carlos III is the main Public Research Entity funding, managing and carrying out biomedical research in Spain. Its key mission is to support the development of scientific knowledge in the health sciences and to contribute to innovation in healthcare and the prevention of disease.

The Instituto de Salud Carlos III collaborates and provides technical advice on the design of internationalisation policies and strategies for Spanish research in health sciences and on establishing partnerships, in coordination with the Ministry of Economy and Competitiveness. In this regard, it is a leader in Spain and in European and international policies, initiatives and programmes in the area of biomedical and health science research.

It is responsible for national and international representation, coordination and cooperation in many international fora related to biological research and health sciences. For more than twenty years, the Institute has been involved in cooperation projects and international programs aimed at supporting the sustainable development of biological sciences.

123. Among the projects that can be named, Spain would like to underline:

(a) The long-term collaboration activities with the Pan American Health Organization (PAHO) supported by the Spanish Agency for International Development Cooperation (AECID) of the Ministry of Foreign Affairs and Cooperation. This programme is implemented by workshops, seminars, training, funding and direct support to education and training projects, as well as the support to a system of early alarm on the spread of infectious diseases.

(b) The collaboration with the World Health Organization since more than 20 years. Two laboratories of the National Centre for Microbiology have been designated as WHO Collaborating Centers. They act as National Reference Laboratory for HIV infection and Leishmaniasis and carry out quality control programs and field activities in developing countries (Ethiopia, Sudan, etc.).

(c) InfoSaludLaboral: Activity of international cooperation between the National School of Occupational Medicine of the Instituto de Salud Carlos III and PAHO within the framework of the cooperation Agreement between the Kingdom of Spain, through the AECID, and PAHO / WHO.

It is a website (<http://new.paho.org/isl/>) aimed to the scientific community and practitioners of health promotion and prevention of occupational hazards of Spain and the Latin American countries. It is integrated within the framework of action of the PAHO / WHO, facilitating access to and dissemination of information on quality of life and working conditions, prevention and health promotion in the workplace.

(d) The Red Iberoamericana Ministerial de Aprendizaje e Investigación en Salud (Latin American Ministerial Network for Learning and Research on Human Health,

RIMAIS) is the result of a commitment by the Costa Rican Ministry of Health at the Fifteenth Ibero-American Summit of Heads of State and Government.

RIMAIS basic goal is to strengthen the ability of Latin American Ministries of Health to perform a guiding function in learning and research in public health based on the socialisation of information and the know-how generated and disseminated via various regional initiatives.

Cooperation with and support for the RIMAIS network forms part of the strategic plans of the Instituto de Salud Carlos III to internationalize Spanish research in health and encourage scientific and technical cooperation with Latin America. It also aims to increase the amount of research and improve its quality and foster policies based on scientific evidence in the countries covered by the network in the light of the challenges currently faced by public health in the Region.

One of the activities envisaged in this connection is cooperation between the RIMAIS and the European Union.

(e) The Instituto de Salud Carlos III is a member of the International Association of National Public Health Institutes (IANPHI), a worldwide initiative of the Bill and Melinda Gates Foundation to strengthen public health systems and to improve their coordination. Set up formally in 2006, the Association seeks joint coordinated responses to the challenges and possible risks of public health in the world today. IANPHI also acts as a platform for collective action by the directors of more than sixty public health institutes all over the world, encouraging and facilitating communication and cooperation between them.

124. Spain is also part of many multilateral programs. Among those, Spain would like to mention:

(a) The TDR (WHO), a worldwide programme of scientific cooperation for research and training in tropical diseases. It has a double mission: To carry out research into the diseases of poverty and develop new, improved approaches to them and to strengthen and develop research skills in the countries where these diseases are prevalent. The Health Institute Carlos III represents Spain in this programme, which is financed by the AECID.

(b) ISCIII and other Spanish institutions are committed to implementing projects to strengthen international cooperation and collaboration in fields related to health and life sciences. Among those, Spain would like to mention:

(i) MediPIET: Further Development and Consolidation of the Mediterranean Programme for Intervention Epidemiology Training (2014-2017).

MediPIET is a EuropeAid-DEVCO funded project under the Instrument contributing to Stability and Peace, linked to the Chemical, Biological, Radiological and Nuclear Centres of Excellence initiative – CBRN CoE. The project is led by the Consortium FIIAPP (International and Ibero-American Foundation for Administration and Public policies) – ISCIII (Instituto de Salud Carlos III), with the scientific leadership of ECDC.

This project has been established under a regional perspective to contribute to the overall objective of enhancing health security in the Mediterranean basin by supporting capacity building for prevention and control of natural or man-made health threats posed by communicable diseases and other threats through a sustainable training programme in intervention epidemiology.

The MediPIET project is aimed at consolidating a competent workforce in intervention epidemiology to carry out essential public health functions for prevention and control of national and cross-border challenges posed by

communicable diseases and other health threats enhancing the biological aspect of CBRN CoE.

The main objectives are:

- Establishing a network of epidemiologists and trainers in field epidemiology among Public Health institutions of the participating countries in order to contribute to the reinforcement of the prevention and response to health threats
- Training field epidemiologists in charge of the essential activities of public health for the prevention and control of communicable diseases and other risks, with a common language in the region
- Promoting the collaboration, the exchange of experiences and knowledge between the countries of the Mediterranean and the commitment at the sustainability at national and regional levels
- Reinforce institutional capacity at national and regional levels

(ii) ViroRed project (2010-2016): ViroRed is a laboratory network involving many countries from Latin America, Spain and Portugal financed by CYTED. The activities of ViroRed are mainly focused in implementing and improving diagnostic capacities of emerging viral pathogens. This project is being implemented with regional workshops, and direct communication among laboratories, researchers and scientists.

(iii) DengueTools (2012-2016): Innovative tools and strategies for surveillance and control of dengue. This project, funded by EC under the Health theme of the FP7, endeavours to achieve better diagnosis, surveillance, prevention, prediction and/or prevention of the spread of Dengue fever to previously uninfected regions (including Europe) in the context of climate change. The project address three main research areas: i) Novel diagnostic and monitoring tools and strategies for dengue surveillance and early warning systems; ii) Novel strategies for the prevention of dengue in children; and iii) Risk of global spread of dengue and introduction into Europe.

(iv) MediLabSecure (2014-2017): Preventing vector-borne diseases around the Mediterranean and Black Sea regions by creating new networks.

The MediLabSecure project, funded by the European Union DEVCO/EuropeAid, aims at consolidating a Laboratory Network on the emerging viruses that are pathogens for humans and/or animals. It will represent a cluster for awareness, risk assessment, monitoring and control of these vector borne diseases. This cluster will require the interaction of four laboratory sub-networks, one for human health, one for animal health, one for entomology and one for public health reinforcement.

The MediLabSecure network will encompass partner countries around the Mediterranean and Black Sea Regions (19 non-EU countries) by means of a collaborative execution of the stated work packages to address public health-related national needs.

(v) IB-BIOALERTNET (2013-2015): Iberian network of laboratories of biological alert. Accreditation of methods for detection of highly pathogenic agents.

IB-BIOALERTNET is a project supported through the Prevention of and Fight against Crime (ISEC) Programme of EC (DG-HOME). The overall aim of the project was to establish an Iberian Network of laboratories of biological alert enabling the exchange of information, training, technology transfer, standardization

and accreditation of procedures to become an effective tool to respond rapidly and efficiently to biological threats.

(vi) International Cooperation with the Ministry of Health from Equatorial Guinea: Technical Assistance to National Programmes for Endemic Diseases Control of Ministry of Health, Equatorial Guinea funded by AECID (2015-2016):

This project supports Strategic Programmes of Malaria, Neglected Tropical Diseases, HIV/AIDS and TB.

(vii) World Organisation for Animal Health (OIE) Laboratory Twinning Contract between the Universidad Complutense de Madrid (OIE Reference Laboratory for African Swine Fever) and the Central Veterinary Laboratory-Kabete (Kenya) (2013-2015).

The objectives of the project were to study new challenges and measures to prevent African swine fever spread and the development of new diagnostic methods.

(viii) Translational Research to Combat Antimicrobial Resistance in India (2012-2015). The Spanish Ministry of Science and Innovation funded this project implemented by the Universidad Complutense de Madrid. The main objective was to link antimicrobial resistance seen in animals, food and man, including samples of the environment and wildlife.

(ix) Universidad Complutense de Madrid service related to African swine fever epidemiology and risk assessment capacity building in People's Republic of China (2014-2015).

Development of new diagnostic molecular methods. Development of epidemiological models on the risks of entry different infectious diseases in China, by identifying the critical points of each disease and modelling their potential spread. The diseases studied are classified in the list of notifiable to the World Organization for Animal Health (OIE).

(x) Universidad Complutense de Madrid collaboration to develop a food safety laboratory in the North region of Ghana (2012-2014) in order to improve control programs of food-borne zoonoses.

(xi) University collaboration in infectious diseases diagnosis between Universidad Complutense de Madrid and University for Development Studies (UDS) in the North region of Ghana (2011-2014). The goal is to strengthen relationships between both universities by training courses in infectious diseases, personal training and technical advice.

125. Concerning training activities, Spain would like to mention:

(a) The Escuela Nacional de Sanidad (National School of Public Health, ENS - ISCIII) provides basic and advanced training to healthcare professionals. The ENS and the National Centre of Tropical Medicine (ISCIII) offers Master's degree, Higher and Specialist Diplomas, short courses and specialized training seminars aimed at national and international staff involved in comprehensive health care, diagnosis, and treatment of tropical diseases, and/or health cooperation. Among them the following:

(i) Master in Public Health: Training programme designed to further students' careers in the field of Public Health.

(ii) Higher Diplomas: Programmes designed to complete students' professional training in a specific area of Public Health, Health Administration or related disciplines.

- Diploma in International Public Health
  - Diploma in Public Health
  - Diploma in Health Promotion
- (iii) Continuous training courses: Training programmes, with a workload of less than 120 hours, geared to the continuous training of public health professionals:
- Malaria: Clinical, Research, and Control
  - Parasitological Diagnosis of Tropical Diseases
  - Molecular Diagnosis of Tropical Diseases
  - Tropical Medicine and Communicable Disease Control for Health Personnel of International Cooperation
  - Update on Tropical Infections
  - Qualitative Research Applied to Health Research

Through the Fundación Internacional y para Iberoamérica de Administración y Políticas Públicas (FIIAPP) and the EU CBRN Centres of Excellence (CBRN CoE)

Table 2

<i>Project Title</i>	<i>CBRN 22: Provision of specialized technical training to enhance the first responder's capabilities in case of CBRN incidents</i>
Partner Country/Region	Indonesia; Morocco; Mauritania; Thailand
Implementing Country	Leader of the Project: France Expertise (France); Partners: FIIAPP (Spain) and National Crime Agency (UK).
Project Value	700.000 €
Duration	07-Jan-13 / 06-Jan-15
Description	The European Commission is seeking external support to implement technical aspects related to the EU CBRN Risk Mitigation CoE. The overall objective of this project is to reinforce interagency coordination to respond to CBRN incidents. This includes defining standard operational procedures in response to such incidents, e.g. post-incident management and site restoration.

Table 3

<i>Project Title</i>	<i>CBRN 23: Building capacity to identify and respond to threats from chemical, biological, radiological and nuclear substances.</i>
Partner Country/Region	Albania; Cambodia; Iraq; Moldova; Senegal; Tunisia
Implementing Country	Leader of the Project: FIIAPP (Spain); Partners: National Crime Agency (UK).
Project Value	499.100 €
Duration	07-Jan-13 / 06-Jan-15
Description	The European Commission is seeking external support to implement technical aspects related to the EU CBRN Risk Mitigation CoE. The overall objective of the project of which this contract will be a part is as follows:  -Counter the threat arising from chemical, biological and radioactive or nuclear agents in particular when used in a criminal or terrorist context.  -Improve the preparedness and response capabilities of states to unlawful or criminal acts involving CBRN agents.

Table 4

<i>Project Title</i>	<i>CBRN 33. Strengthening the National CBRN Legal Framework &amp; Provision of specialized and technical training to enhance CBRN preparedness and response capabilities</i>
Partner Country/Region	Burundi; Gabon; Kenya; Morocco; Mauritania; DRC; Rwanda; Senegal; Uganda
Implementing Country	Leader of the Project: France Expertise (France); Partners: FIIAPP (Spain), DGSCGC (France), Home Office (UK), ENCO, SCK-CEN (Belgium)
Project Value	2.700.000 €
Duration	15-Sep-13 / 15-Sep-16
Description	The present procedure aims at awarding a Contract that will technically implement two projects funded by the EU Instrument for Stability (Priority 1) in the framework of the Chemical, Biological, Radiological, and Nuclear - Centres of Excellence (CBRNCoE).

Table 5

<i>Project Title</i>	<i>CBRN 34. Strengthening Capacities in CBRN event response and related Medical Emergency response under strengthened CBRN event preparedness</i>
Partner Country/Region	Iraq, Jordan, Lebanon
Implementing Country	Leader of the Project: Military Institute of Hygiene and Epidemiology (Poland); Partners: FIIAPP (Spain), ICIS (Italy), Military Institute of Chemistry & Radiometry, University of Rome Tor Vergata (Italy)
Project Value	3.914.034 €
Duration	10-Apr-14 / 09-Apr-17
Description	The main aim of the CBRN CoE initiative is to enhance national CBRN policies and capacities in third partner countries and to promote national, regional and international cooperation in CBRN risk mitigation. The origin of the risk can be criminal (proliferation, theft, sabotage and illicit trafficking), accidental (industrial catastrophes, in particular chemical or nuclear, waste treatment and transport) or natural (mainly pandemics). The CBRN CoE initiative supports the reinforcement of the institutional capacity needed to fight against this risk.

Table 6

<i>Project Title</i>	<i>CBRN 35. Management of hazardous chemical and biological waste in the African Atlantic Façade region</i>
Partner Country/Region	Albania; Algeria; Armenia; Bosnia and Herzegovina; Egypt; FYROM; Georgia; Jordan; Lebanon; Libya; Morocco; Moldova; Montenegro; Palestinian Territories; Serbia; Tunisia; Ukraine

<i>Project Title</i>	<i>CBRN 35. Management of hazardous chemical and biological waste in the African Atlantic Façade region</i>
Implementing Country	Leader of the Project: FIIAPP (Spain); Partners: ICIS (Italy), AENOR (Spain), GRS (Germany).
Project Value	3.871.800 €
Duration	01-Jan-14 / 01-Jul-17
Description	The objective of this project is to enhance (or initiate) best practices in hazardous chemicals and biological waste management in the AAF region and in Tunisia. In terms of content, aspects related to sampling, detection, measurement, protection, decontamination, mitigation, transport, containment, site remediation and disposal should be considered in each country (tailored approach), while keeping a regionally consistent approach as much as possible. This will include the elaboration of comprehensive standard procedures and technology solutions for CB.

Table 7

<i>Project Title</i>	<i>CBRN 36. Further development and consolidation of the Mediterranean Programme for Intervention Epidemiology Training (MediPIET)</i>
Partner Country/Region	Albania, Algeria, Armenia*, Bosnia and Herzegovina, Egypt, Georgia, Jordan, Kosovo , Lebanon, Libya, Moldova, Montenegro, Morocco, Palestine, Serbia, The former Yugoslav Republic of Macedonia, Tunisia, Ukraine. These countries belong to three CBRN Centres of Excellence regions: North Africa Secretariat, Middle East Secretariat and South East Europe, Southern Caucasus, Moldova and Ukraine.
Implementing Country	Leader of the Project: FIIAPP (Spain); Partners: Health Institute "Carlos III" (Spain)
Project Value	6.400.000 €
Duration	15-Feb-14 / 20-Dec-17
Description	This project is contributing to the overall objective of enhancing health security in the Mediterranean region by supporting capacity building for prevention and control of natural or man-made health threats posed by communicable diseases through the further roll-out of the Mediterranean Programme for Intervention Epidemiology Training (MediPIET).

Table 8

\* This designation is without prejudice to positions on status, and is in line with UN SCR 1244/1999 and the ICJ Opinion on the Kosovo declaration of independence.

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<i>Project Title</i>	<i>CBRN 46: Enhancement of CBRN capacities of South East Asia in addressing CBRN risk mitigation concerning CBRN first response, biosafety and biosecurity, awareness raising and legal framework.</i>
Partner Country/Region	Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam
Implementing Country	Leader of the Project: FIIAPP (Spain); Partners: FORMIT (Italy), RIVM (Netherlands)
Project Value	3.000.000€
Duration	10-jul.-15 / 10-jul.-18
Description	The overall objective of this project is to enhance CBRN capacities of South East Asia in addressing CBRN risk mitigation in three technical areas (i.e. first response, biosafety and biosecurity, and legal framework).

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## Sweden

### SIDA (Swedish International Development Co-operation Agency) and the Ministry for Foreign Affairs.

126. Sweden's total health aid (SIDA and MFA) amounted to 4 053 million SEK in 2012, an increase with 30 % compared to 2010 (not including health research or humanitarian support). The increase is partially a result of an extra disbursement during 2012 for MDG 4 and 5 (350 million SEK). Major areas of support are, apart from maternal and child mortality, MDG 6 and SRHR.

127. SIDA primarily works with bilateral aid (43% of the total health aid in 2012) but also regionally, and has a budget line for global programs. The Ministry for Foreign Affairs works with multilateral aid (57% of the total health aid in 2012), the GFATM and UNFPA being the two largest recipients.

128. The major areas of support regarding the bilateral health aid according to DAC classification are (2012): reproductive health care (36%), basic health care (23%) and STD control incl. HIV/AIDS (21%). These three areas together make up 80 % of the total bilateral health aid.

129. The number of countries where SIDA has bilateral programs in place for support of the health sector declined between 2006-2011 due to increased support to conflict affected countries and post-conflict countries. An increase could be seen in 2012 where Sweden had 11 on-going country programs for health aid in Bangladesh, DRC, Somalia, Sudan/South Sudan, Uganda, Zambia, Zimbabwe, Tanzania (hiv/aids), South Africa (hiv/aids), India and Guatemala.

130. SIDA has continued the work on new financial instruments to enable support for product development and innovation in the health sector. The main objective of the process is to create the conditions for mobilizing capital from the private sector, foundations, etc., for research in poverty areas. In the first pilot project, SIDA investigated the possibility of establishing a funding model, to promote the flow of capital into the research and development of pharmaceuticals and diagnostics for poverty related diseases. The model has been tested in the development of new antibiotics and/or the development of a diagnostic tool for detection of antibiotic resistance. Four guarantees are now up and running.

## **United Kingdom of Great Britain and Northern Ireland**

131. This section outlines an *illustrative* range of UK activities and programmes undertaken (or funded by) by government departments, industry, research councils and academia that give effect to our commitments under Article X; this section is not comprehensive, but is designed to give a flavour of the range and diversity of relevant activities underway. The UK programmes include many with an emphasis on addressing concerns of priority to the developing world, such as low cost vaccines/malaria prevention and treatment. Many projects are multi-sectoral and collaborative and involve partnerships between government, academia, industry, international organisations and counterparts in those countries receiving assistance.

132. It bears repeating that these programmes and activities are being conducted for their intrinsic scientific, humanitarian and developmental value; they are not separately identified as BTWC Article X projects, or conceived exclusively to satisfy an Article X requirement. And that is how it should be. However, they undoubtedly give effect to the objectives of Article X that implementation of the Convention should avoid hampering the economic or technological development of States Parties or international cooperation in the field of peaceful biological activities.

### Government departments, agencies and funded programmes

#### Antimicrobial resistance

133. In March 2015 the UK committed £195 million over five years to launch the Fleming Fund to work to counter antimicrobial resistance (AMR) and strengthen infectious disease surveillance world-wide. This fund will focus on enhancing laboratory capacity and surveillance networks in developing countries, particularly where there is no such existing or planned capacity. The UK government will work with the Wellcome Trust, the Bill and Melinda Gates Foundation, the Institute Pasteur International Network and other partners to this end. We are looking at how to use the Fleming Fund to work with countries in implementing the AMR global action plan and building sustainable surveillance capability in line with the International Health Regulations. In this context, the Commonwealth and Public Health England have joined forces to strengthen public health laboratories in low and middle-income Commonwealth countries through a twinning and partnership initiative to share expertise and knowledge. The initiative is focusing initially on the twinning of PHE with a small number of Commonwealth countries including Seychelles, Sierra Leone and Trinidad and Tobago (through the Caribbean Public Health Association, CARPHA, and linking to other countries in that region).

134. On 23 October 2015 the UK and China announced that they will establish the Global Antimicrobial Resistance (AMR) Research Innovation Fund and encourage further investment from other governments and the private sector, helping to address one of the greatest problems facing the world of medicine today. This new fund will invite bids from industry, academia and other bodies. It will aim to create international partnerships to build a global response and support new research to reduce the spread of antibiotic resistance. The Medical Research Council (MRC), the Biotechnology and Biological Sciences Research Council (BBSRC) and the Economic and Social Research Council (ESRC) are joining forces with the National Natural Science Foundation of China (NSFC) to establish a joint fund of £9M to support research on antimicrobial resistance (the UK contribution will be channelled through the Newton Fund – see paragraph 6 below). A workshop was planned for 24-26 November 2015 in Shanghai, China, to further explore the antibacterial resistance research landscape within the two countries and to establish core themes that will direct the funding.

135. Another example of UK support in this area is a Newton Fund initiative in India which focuses on research into antimicrobial resistant Tuberculosis and minimising the indiscriminate use of antibiotics. Through this initiative, Innovate UK has launched a programme of industrial R&D support with their Indian counterpart which will support collaborative R&D projects on antimicrobial resistance. In addition, major research centres on Antimicrobial Resistant Tuberculosis, and Advanced Technology for Minimising the Indiscriminate use of Antibiotics are being established with the support of the UK Medical Research Council (MRC) and the Government of India Department of Biotechnology (DBT). Significant partnerships have been developed with Indian departments on PhD exchanges, Postdoctoral training schemes and professional development.

Biosafety, Biosecurity and Infectious Disease Surveillance, Detection and Diagnosis

136. During 2013/14 and 2014/15, the UK's International Biological Security Programme, managed by the Ministry of Defence, has funded projects which have:

(a) Achieved improvements in physical security and techniques at laboratories / institutes, particularly in FSU countries including Tajikistan, Georgia and Azerbaijan; improved the safety and security of work with dangerous pathogens, for example through the installation of critical safety equipment and the introduction of laboratory techniques that reduce the need to work with live biological agent, as well as the provision of support to the development of biosafety associations e.g. the Biosafety Association of Central Asia and the Caucasus, and the Afghan Biorisk Association;

(b) Strengthened countries' ability to detect and identify disease outbreaks: this has included the introduction of, and training in, modern diagnostic techniques, as well as funding projects conducted by intergovernmental organisations as part of their established biosecurity and biosafety efforts;

(c) Re-established and strengthened, through a four year collaborative research project, basic surveillance capabilities to study key viral pathogens responsible for serious endemic diseases in the Republic of Tajikistan. This included a number of highly dangerous pathogens which appear on one or more 'select agent' lists, such as Crimean-Congo Haemorrhagic Fever (CCHF), often referred to as 'Asian Ebola'. This work underpins Tajik capacity to deal with its regular outbreaks of CCHF, and contributes to international understanding of CCHF virus aetiology and control. Through collaboration with Public Health England, modern molecular diagnostic techniques have been established in-country, reducing the requirement for handling highly infectious live virus in the diagnostic laboratory, thereby directly contributing to improved biosecurity and laboratory safety for this important research.

(d) Jointly funded with the US Biological Engagement and Canadian Global Partnership Programs the development of a regional biorisk management and molecular diagnostics training centre at the Jordan University of Science and Technology. The facility consists of a mock containment laboratory for training scientists, laboratory technicians and laboratory managers, and includes a functional heating, ventilation and air conditioning system, funded by the UK, for training these staff in the management and maintenance of such systems in containment facilities. This type of knowledge will contribute to laboratory safety by ensuring that these critical systems are properly maintained in trainees' parent laboratories.

(e) Overall, the training centre is intended to serve as a model institution, capable of providing training to scientists in the Middle East/North Africa and South Asia regions on a variety of topics related to biorisk management. There are no other dedicated training facilities in the Middle East/North Africa region capable of providing biosafety training courses which include both practical and classroom based activities. The safe and secure

practices promoted will enhance regional laboratory safety and security on a sustainable basis. Jordan is able to provide a suitable environment for conducting such training activities, including for scientists from other countries in the region, such as Libya and Yemen, where access is more difficult for security reasons. This project therefore complements training courses that the UK has previously funded at the Jordan University of Science and Technology, which were focused on modern diagnostic techniques and were delivered to scientists from across the region.

(f) Provided funding for the joint OIE/FAO post-eradication programme to help reduce stocks and improve global security of the rinderpest virus, which is highly pathogenic, highly communicable and potentially devastating to livestock. Primarily affecting cattle, this disease poses a significant threat to food security. The sequestration and security of remaining stocks of this virus in a small number of designated holding facilities is therefore of high priority in order to minimise the risks of any further outbreaks, whether caused deliberately or otherwise. In May 2013, the OIE launched a UK funded international, multilingual media campaign highlighting the importance of the rinderpest sequestration and security programme. The OIE campaign has been successful in identifying 28 facilities which currently hold rinderpest virus; it is proposed that only five facilities should hold stocks in future, significantly reducing the associated risks. In addition, a UK funded efficacy trial is under way at the UK's Pirbright Institute involving a vaccine for Peste des petits ruminants; if the trial is successful, the use of this vaccine could further reduce the need to hold stocks of rinderpest virus, and possibly allow their eventual elimination. The UK has encouraged a joint approach by the OIE and FAO to this programme, and has helped secure funding from other donors.

#### The Newton Fund: Bioinformatics, Neglected Tropical Diseases

137. The Department for Business, Innovation and Skills administers the Newton Fund whose objective is building science and innovation capacity in developing countries. It was launched in April 2014 and will provide £375 million of funding over the course of five years. As part of the Newton Fund, the Genome Analysis Centre (TGAC) was awarded over £50,000 in August 2015 by the British Council to develop advanced bioinformatics capabilities for next-generation rice genomics in Vietnam to aid precision breeding for improvement of this staple crop by exploring 48 local rice varieties. Developing the bioinformatics capacity in Vietnam will allow research Institutes to benefit from advancements in next generation genomics, applying their computational skills to rice breeding to help maintain productivity in the face of changing climates, and potentially develop new higher value rice varieties for the global market.

138. In collaboration with the Agriculture Genetics Institute (AGI) in Hanoi (Vietnam), TGAC is working to characterise the genetic diversity of traditional rice varieties from Vietnam, aiming to develop genomic markers associated with traits of interest such as disease resistance and salt tolerance. In order to make the data accessible, TGAC will set up a public database to host the variant data within the context of the latest genome assemblies and annotation. The programme involves the exchange of scientists from Vietnam to gain expertise in bioinformatics analysis, and from UK to learn about the field phenotyping activities in Vietnam. Scientists from TGAC, AGI and other participating Institutes will host "Train the Trainer" workshops in the UK to train Vietnamese researchers in bioinformatics and genomic analysis to equip them with the skills to sustain training for researchers in Vietnam for the future.

139. The Newton partnerships between UK and Brazil are continuing to tackle global challenges including infectious and neglected diseases, ensuring a lasting legacy of closer collaboration in science and innovation. In May 2015 the Medical Research Council (MRC), the Economic and Social Research Council (ESRC), a wide range of Brazilian

State Funding Agencies and the Brazilian National Council for Scientific and Technological Development invited applications to the UK-Brazil Neglected Infectious Diseases Partnership Call as part of the Newton Fund. The launch of this call followed the success of the UK-Brazil Infectious Disease Workshop, which took place in October 2014. The workshop was convened by the funding agencies participating in this partnership and attended by eminent Brazilian and British researchers in the field of infectious diseases in order to scope the development of the call. This initiative will provide funding for collaborative research projects, focussed on neglected infectious diseases in Brazil. This includes but is not limited to Dengue fever and other vector-borne diseases (e.g. Chikungunya); Leishmaniasis; Chagas disease; Leprosy; Schistosomiasis; intestinal helminth infections; rotaviruses and emerging viruses. In total, up to £4.4m will be made available for this initiative: up to £2.2m on the UK side with equivalent effort matched by the Brazilian funders.

#### Academic and research councils

##### Combating Zoonotic Diseases, Neglected Tropical Diseases and Malaria

140. The Zoonoses and Emerging Livestock Systems (ZELS) initiative was launched in 2014 as a joint venture by the Biotechnology and Biological Sciences Research Council (BBSRC), the Defence Science and Technology Laboratory (Dstl), the Department for International Development (DFID), the Economic and Social Sciences Research Council (ESRC), the Medical Research Council (MRC) and the Natural Environment Research Council (NERC). It provides £20.5M over a 5-year period for new research and training to reduce the impact of zoonoses on poor people in developing countries and their livestock, and to enhance the scientific capabilities of developing countries for the longer term.

141. The initiative consists of 11 projects that will investigate emerging and endemic zoonotic diseases in developing countries. UK researchers will work in partnership with more than 30 overseas institutes and organisations in ten countries in Africa, south Asia and south-east Asia. The projects will generate scientific evidence to inform the selection of risk-based and cost effective prevention and control options that may contribute to decreasing the likelihood of occurrence, prevent the transmission, and reduce the impact of major zoonotic diseases such as brucellosis, Q fever and Rift Valley fever.

142. The Liberian Neglected Tropical Diseases Department (NTD) is working with the support of various partners including the African Programme for Onchocerciasis Control, the London School of Hygiene & Tropical Medicine (LSHTM), the Schistosomiasis Control Initiative (SCI), and DFID, to implement a number of training, mapping, and treatment programs in the country. DFID, the largest bilateral donor active in Liberia, is supporting an NTD control programme implemented by Liverpool's Centre for Neglected Tropical Diseases and SCI that targets Lassa Fever and schistosomiasis, and includes the delivery of drugs that treat intestinal worms.

143. African scientists working in collaboration with researchers from the London School of Hygiene & Tropical Medicine are recipients of major funding from the Wellcome Trust and DFID, to establish cutting-edge research and training programmes across the continent. The DELTAS Africa programmes establish world-class research environments at African universities with a strong focus on creating training opportunities for the next generation of researchers. In total, the scheme will award over £46 million (approximately \$70 million US dollars) over an initial period of five years. Many of the awards allow research to be carried out where the health challenges are greatest, for example genetic analysis of drug-resistant malaria across East and West Africa and locally relevant research into zoonotic infectious diseases.

144. A new compound that can kill the parasite that causes malaria is being developed by researchers as a potential treatment for the disease. If successful, it could lead to an affordable anti-malarial drug that requires only a single dose and that also reduces transmission of the disease. The discovery, published on 17 June 2015 in the journal "*Natur*", came about through collaboration between the University of Dundee's Drug Discovery Unit and the Medicines for Malaria Venture (MMV), which was supported by the Wellcome Trust. The malaria parasite *Plasmodium falciparum* has developed resistance to many current drugs, meaning that new therapies are needed to overcome this problem. The compound identified (called DDD107498) works by blocking protein synthesis within the parasite and is effective against multiple life cycles. DDD107498 has been shown to be successful in mouse models of malaria and is now beginning preclinical development. The researchers estimate that a drug developed using the compound would cost around US\$1 per treatment, which would make it affordable for patients living in low-income countries that are most severely affected by malaria.

145. In 2013 the MRC Laboratory of Molecular Biology began collaborating with the Walter and Eliza Hall Institute of Medical Research (WEHI) in Australia to determine a preliminary structure of the *Plasmodium falciparum* cytosolic ribosome by single-particle cryo-electron microscopy. The purified ribosome samples were provided by WEHI. The ribosome is essential for protein synthesis and details of the parasite's specific ribosome structure may lead to the rational design of new treatments for malaria.

146. The Liverpool School of Tropical Medicine (LSTM, Liverpool University)) has major field projects which evaluate, implement and monitor vector control activities in Africa and Asia. LSTM works closely with a range of partners to ensure that its research and educational programmes are responsive to the needs of disease endemic countries. The Liverpool-Guangdong Drug Discovery Consortium, in collaboration with University of Liverpool and Guangdong University of Technology (GDUT) in China, is focussed on the development of new drug therapies for the treatment of tuberculosis (TB), malaria, Neglected Tropical Diseases (NTDs) and other infectious diseases. The Consortium has established the Liverpool-Guangzhou drug discovery joint laboratory, located at GDUT and accommodating a drug discovery team made up of staff and students from GDUT and other parts of China.

#### Commercial, research and cross-sectoral

##### Vaccines and vectors of infectious disease

147. The UK's leading pharmaceutical companies, research centres, universities and disease experts will come together to focus on the most serious global health threats. The UK Vaccines Research and Development Network, an initiative led by the Department of Health, will bring together the best expertise across the country, with £20 million invested from the outset to focus on the most threatening diseases including Ebola, Lassa, Marburg and Crimean-Congo haemorrhagic fever, with additional investment from the private and research sector.

148. GAVI, the Vaccine Alliance, has a programme to trace children who missed out on immunisation in Sierra Leone as a result of the Ebola Virus Disease Outbreak. The objective is to ensure that they are reached through catch-up programmes. A measles vaccination campaign targeting more than 1.3 million children was undertaken in June 2015 with support from Gavi and the UK's Department for International Development (DFID).

149. The EbolaVac project is part of an international consortium comprising the Wellcome Trust, the UK government and the UK Medical Research Council which aims to accelerate collaborative multi-site trials of candidate Ebola vaccines. EbolaVac seeks to accelerate the clinical development of the GlaxoSmith Kline (GSK) Chimpanzee

Adenovirus Type 3 Ebola virus Zaire (ChAd3-EBO Z) vaccine candidate to make the vaccine available to frontline health care workers at risk and to be used in the containment of EBOV outbreaks. This will be achieved by completing Phase I development of vaccine candidate conducted in Lausanne, Switzerland, and evaluating it in (placebo)-controlled, observer-blind Phase II testing at established clinical study centres in West Africa outside of Guinea, Sierra Leone, and Liberia. The EbolaVac consortium is composed of four European partners including The University of Oxford, United Kingdom, The Bernhard Nocht Institute for Tropical Medicine, Germany, The Hospices Cantonaux / University Hospital of Lausanne, Switzerland and the multinational company, GSK, who will ensure the full exploitation of the generated output and knowledge. The project will run until October 2017.

150. GlaxoSmith Kline (GSK) announced on 24 July 2015 that the Committee for Medicinal Products for Human Use (CHMP) of the European Medicines Agency (EMA) had adopted a positive scientific opinion for its malaria candidate vaccine Mosquirix<sup>TM</sup>, also known as RTS,S, in children aged 6 weeks to 17 months. Following this decision, the World Health Organization (WHO) will now formulate a policy recommendation on use of the vaccine in national immunisation programmes once approved by national regulatory authorities. RTS,S, which was developed in partnership with the PATH Malaria Vaccine Initiative (MVI), is the first candidate vaccine for the prevention of malaria to reach this milestone. Once a WHO pre-qualification is granted, GSK intends to apply for marketing authorisation in countries in sub-Saharan Africa on a country-by-country basis.

151. GSK has committed itself to a not-for-profit price for RTS,S so that, if approved, the price of RTS,S would cover the cost of manufacturing the vaccine together with a small return of around five per cent that will be reinvested in research and development for second-generation malaria vaccines, or vaccines against other neglected tropical diseases.

152. Oxitec is a British biotechnology company pioneering an environmentally friendly way to control insect pests that spread disease and damage crops. It is currently pioneering a new solution to control harmful insect populations, including the mosquito species *Aedes aegypti* which spreads Dengue Fever and Chikungunya. Oxitec has used genetic modification to create 'sterile' male insects which seek out and mate with females. After an Oxitec mosquito has successfully mated with a wild female, any offspring that result will not survive to adulthood, so the mosquito population declines. This solution introduces a gene into the mosquitoes which stops their cells from functioning normally; this only affects the mosquito, unlike conventional insecticides or pesticides which kill insects indiscriminately. Oxitec and its collaborators have performed open field release tests of Oxitec's *Aedes aegypti* (under permit from the regulators) in several countries (including the Cayman Islands, Malaysia and Brazil) from 2009. In each trial aimed at suppressing the native *Aedes aegypti* population, Oxitec mosquitoes reduced the local population by over 90%, with no noted adverse events or effects.

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