



EUBARNet
European Biosecurity Awareness Raising network



**European Biosecurity Awareness
Raising Network**

Interim Report

July 2012

Prepared by

Giulio Mancini (LNCV)
Project Manager

Project Coordinator: Maurizio Martellini (LNCV)

FOR INTERNAL USE OF THE NETWORK



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European Biosecurity Awareness Raising network

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About the European Biosecurity Awareness Raising Network

The European Biosecurity Awareness Raising Network (EUBARnet) connects universities and organizations in the EU that are working on raising the awareness of life scientists on biosecurity and dual-use concerns. It aims at promoting information for students and young scientists, increasing the participation of scientists in policy debate, and appraise the European Commission on the status of education on biosecurity.

This is pursued through the preparation of multidisciplinary informational materials and organization of events and seminars. The Partner Organizations and Experts are from various backgrounds and provide expertise on the scientific, ethical, policy, legal and environmental aspects of biosecurity, in a multidisciplinary approach.

EUBARnet is Coordinated by Landau Network Centro Volta (LNCV) and partnered by the Faculty of Science and Technology of the University of Coimbra, the Department of Animal and Human Biology of the University of Turin, the Faculty of Science and Technology of the University of Uppsala and the Department of Biology of the University of Milan.

www.eubarnet.eu

www.biosecurityeducation.eu

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With financial support from the Prevention of and Fight against Crime Programme of the European Union European Commission - Directorate - General Home Affairs



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Executive Summary

This report describes activities and results of the project European Biosecurity Awareness Raising Network (EUBARnet) (HOME/2010/ISEC/AG/CBRN-001) in the period June 2011 – July 2012, and updates on the plans until the end of the project in December 2012. The project is funded by a grant from the ISEC Programme of the European Commission.

EUBARnet aims at promoting information for young scientists on, and increasing the participation of scientists in policy debate on biosecurity in the EU. It also implements the recommendations of the 2009 EU CBRN Action Plan.

Activities of the project include:

- Assessment of the considerations on biosecurity-related topics in university curricula and professional associations of life sciences in seven EU Member States, through online investigations and surveys;
- Multidisciplinary review of current thinking and context of biosecurity, with four Thematic Working Groups (Policy, Ethics and Security; Science; Law; and Safety & Environmental Aspects);
- Production of informative materials, in particular for young scientists and notably in the format of a website and booklets;
- Organization of multidisciplinary seminars on biosecurity, hosted by Partners and other Universities in Europe.

Regarding the Assessment, the research on Universities focused on educational opportunities and opinions of educators in three scientific areas (neuroscience, ecotoxicology and synthetic biology) in a sample of 184 courses in 35 high ranked institutes in the Netherlands, Italy, Poland, Portugal, Spain, Sweden, and the UK. The online investigation looked for references to security, ethics and safety in syllabi and learning objectives, finding that 7,1% of analyzed courses clearly included references to “security”, 30,6% to “ethics”, and 18,2% to “safety”. The

nature of references varies from specific modules on bioethics, to content in textbooks, risk assessments, lectures and seminars within larger modules. An online survey on professors and course coordinators of the sample of courses asked more details on educational opportunities, as well as opinions on biosecurity policy; however to date responses are too few to draw any conclusion. Also data collected so far on the engagement of, and considerations by, professional associations is largely incomplete, and these remain tasks to complete in the last months of the project.

Thematic Working Groups of experts from the Partner organizations have been and are producing “Thematic Reviews” on multidisciplinary aspects of biosecurity. The Reviews are constituted by series of papers and lectures and address in a modular way a range of biosecurity aspects such as history of biological weapons; European standards on environmental biosecurity; the Biological and Toxin Weapons Convention; ethical and moral perspectives; and legislation. The Thematic Reviews would contribute to both constituting a multidisciplinary overview of the current status of biosecurity and to materials for educational activities.

Informative materials will be produced (not least relying on the work of the Thematic Working Groups) in the next months of the project, namely in the format of short introductory booklets in English. The Network’s website (www.eubarnet.eu; www.biosecurityeducation.eu) has been developed to host a range of contents and services, including a collection of reference materials (a “Library”) and video lectures for the visitor, information and interaction related to the Seminars, a blog, file sharing and integration with social networks. Since April 2012, the website had roughly 400 unique visitors, with visitors increasing around the days of EUBARnet seminars.

The EUBARnet Seminar Series organized five seminar so far, and three more are planned for 2012. Each Seminar has been tailored to the needs and interests of the local University and students, however they have in general been multidisciplinary and including considerations of biosecurity and dual use aspects in life sciences. Available feedback from participating students so far indicates a generally positive impression among young scientists, with 86,1% of them who “would recommend it” to colleagues. Questionnaires from students also gave positive indications regarding learning outcomes, as well as the perceived importance of a “culture of responsibility”; students also gave useful practical comments on format and contents of the Seminars. The Report describes in detail each Seminar and outlines the schedule for upcoming ones, including the planned travel plan for Partners.

Finally, the Report lists a number of occasions in which EUBARnet has been presented to policy audiences internationally so far, before turning to some administrative issues. The Coordinator is collecting from Partners administrative documents in support of expenses incurred by the Partners in preparation of the Final Reports, and calls on the Partners which have not done so already, to submit original copies of supporting documents for eligible expenses as soon as possible.

Summary of Action Points

Assessment Phase

- The Online Survey on Universities needs additional responses from professors/course coordinators. **The Assessment Team will send a third set of invitations to the survey in September; national members of EUBARnet are asked to facilitate the participation to the survey by colleagues in each country's universities by forwarding the link to relevant contacts. We hope to have at least 10 respondents from each of the 7 countries;**
- The Assessment on Professional Associations will benefit from contacts in associations in the countries. **EUBARnet members are invited to facilitate the Assessment Team with contacts in the professional associations, if possible.** Also this completion of the Assessment Phase will take place in September.

Thematic Working Groups

- The Thematic Reviews (overview of the current thinking and knowledge of multidisciplinary aspects of biosecurity), in the agreed form of series of thematic papers, is one of the key deliverable. It is fundamental that all the thematic papers are **finalized and collected soon. Working Groups are invited to submit the final drafts of review papers left by end of August 2012.** The various review papers will serve as a base for the editing of multidisciplinary booklets, part of the Informative Materials (Activity 3.6).

Translation

- EUBARnet National contact Points in Italy, Netherlands, Spain, Poland, Portugal and Sweden will produce a **short cover summary of the booklets to introduce, present or advertise the material in the national language** (October 2012).

Editing, Printing and Binding

- **Partners will edit/print copies of informative materials as indicated in their Action Plan and Budget;** however copies of the booklets will be in English only (October 2012).

Website

- Relevant documents and bibliographies on the various specialist thematic fields are to be added to the **Library**. Further suggestions from EUBARnet thematic experts on sources (documents, articles, legislation) to add for readers are most welcome.
- EUBARnet Members are invited to submit, propose or discuss with the Coordinator on **short posts for the Website's blog**. The blog should publish two posts a month for each of the four thematic categories.

- Hosting coordinators for the organization of the EUBARnet **seminars in fall 2012** are invited to use the Live Feedback section of the website, if useful.

Seminars

- The **planning of the last three seminars of 2012** should continue between the hosting parties, the participating EUBARnet members and the Coordinator.
- In preparation of the fall 2012 EUBARnet seminars, it is advised that also a **pre-seminar (short) questionnaire** is used with students to assess progress on learning objectives.
- In the fall 2012 EUBARnet seminars, it is recommended that **national professional associations and societies** are invited along participants from the hosting university (faculty and students).

Administrative Issues

- Partners should continue (or start with urgency) sending as soon as possible to the Coordinator the **supporting documents of the expenses** incurred so far; please follow the EC Guide for Applicants and the reminder in this Report.

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Introduction

The European Biosecurity Awareness Raising Network (EUBARnet) is a project (HOME/2010/ISEC/AG/CBRN-001) funded by the Prevention of and Fight Against Crime (ISEC) Programme of the DG Home Affairs of the European Commission. The project started on June 6th, 2011 and lasts 18 months until December 6th, 2012.

The project's Consortium has **5 Partners**:

- Landau Network Centro Volta (LNCV) (Coordinator);
- Faculty of Science and Technology of the University of Coimbra;
- Department of Animal and Human Biology of the University of Turin;
- Faculty of Science and Technology of the University of Uppsala;
- Department of Biology of the University of Milan.

The project also involves a larger **Network** of Universities (institutes which offered availability to host seminar(s), support the assessment or other activities of the project): University of Bradford; University of Granada; Delft University of Technology; Jagiellonian University of Krakow.

Activities

Activity 1: Kick Off Meeting

The Kick Off Meeting was held on July 26th, 2011 at the LNCV premises in Villa Olmo, Como (Italy). A Report of the Kick Off Meeting was prepared as of August 3rd, 2011 and circulated among the Consortium and the Network. The Report included the agreed decisions and the updates from the Meeting, and Action Points to be implemented in the first months of the Project.

Activity 2: Assessment Phase

The Assessment Phase aimed to investigating the existence and nature of educational opportunities, awareness and opinions on biosecurity and dual use, and on biosecurity education, in universities and professional associations. The Assessment is being carried by the **Assessment Team** coordinated by James Revill.

The Assessment Phase focuses on **Universities** and **Professional Associations** of seven EUMS: **Italy, Netherlands, Spain, Poland, Portugal, Sweden, UK.**

The Assessment Phase articulates in two parts: an Online Investigation on Contents; and an Online Survey of Course Coordinators/Association Members.

The original timetable of the Assessment Phase (August – December 2011) was expanded in order to facilitate responses to the online survey.

2.1 Online Investigation

Universities

The Kick Off Meeting decided that the assessment in universities would focus on courses and professors in three specific disciplines: **neurosciences**, **ecotoxicology** and **synthetic biology**. Since these fields may exist in different countries under different labels, they have been looked for according to the following guidelines:

Guidelines for inclusion of University courses in Assessment Sample

Neurosciences

Essentially covers Neurology, so a search term of course with Neuro-* is a good starting point. The following is a logical list of terms to seek in course titles: Neuroscience, Neurophysiology, Neuroanatomy, Neuropathology, Neuromuscular.

Synthetic Biology

It is so difficult to define SB (we need to be explicit in the final report on the difficult of conceptualizing this term). A useful starting point for a broad search could be “syn* bio*” however this include “Synbiotics”, i.e nutritional supplements, which might be a distraction. Accordingly the following are a useful list to think about: Biological engineering; Gene Synthesis; Synthetic genomics; Recombinant Biosynthesis; Synthetic biotechnology; Bioengineering; Biosynthetics; Genome engineering and Bioprocessing.

Eco-Toxicology

Consider courses and materials on aquatic toxicology, ecotoxicity, environmental toxicology (as well as toxicology).

Then, the sample has been defined as those universities (3 to 6 universities in each of the 7 EUMS) scoring highest in international rankings for specific disciplines. One of the challenges encountered was the difficulty in finding many specific degree courses (BS, Masters, or PhD) dealing with the three areas. In some cases it has been decided to broaden the scope of the research (for example, toxicology for ecotox, or biotechnology for synbio). Eventually, 184 courses (degree courses/curricula) were included in the sample.

The list of included courses:

Field	University	Original University Unit: Faculty/School/Department	Area of the University Unit: Faculty/School/Department	Country	Level	Context/Offer: full title of course/module/degree and link	In original language
1	N	UNIMI	Medicine and Surgery	IT	M	Medical Biotech and Molecular Medicine, track Neuroscience	Biotecnologie mediche e Medicina molecolare, curriculum Neuroscienze
2	BT	UNIMI	Medicine and Surgery	IT	M	Medical Biotech and	Biotecnologie mediche e

							Molecular Medicine, track Transplantology, Medical Immunobiotech and Tissue Engineering	Medicina molecolare, curriculum TRAPIANTOLOGIA, IMMUNOBIOLOGIE MEDICHE E INGEGNERIA TISSUTALE
3	BT	UNIMI	Medicine and Surgery	Medicine	IT	B	Medical Biotech	Biotechnologie Mediche
4	BT	UNIMI	Medicine and Surgery	Medicine	IT	M	Biomedical Laboratory Techniques	Tecniche di Laboratorio Biomedico
5	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	B	Industrial and Environmental Biotech	BIOTECNOLOGIE INDUSTRIALI E AMBIENTALI
6	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Molecular Biotech for the Industry and Environment	Biotechnologie molecolari per l'industria e per l'ambiente
7	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	B	Biological Sciences	Scienze Biologiche
8	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	B	Biological Sciences	Scienze Biologiche
9	T	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	B	Biological Sciences	Scienze Biologiche
10	T	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	B	Biological Sciences	Scienze Biologiche
11	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	B	Biological Sciences	Scienze Biologiche
12	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biodiversity and Evolutionary Biology	Biodiversità ed Evoluzione biologica
13	T	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biodiversity and Evolutionary Biology	Biodiversità ed Evoluzione biologica
14	T	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biology applied to Research in Biomedicine	Biologia applicata alla ricerca biomedica
15	N	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biology applied to Research in Biomedicine	Biologia applicata alla ricerca biomedica
16	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Cell Molecular biology	Biologia Molecolare della Cellula
17	T	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biology applied to Nutritional Sciences	Biologia applicata alle scienze della nutrizione
18	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biology applied to Nutritional Sciences	Biologia applicata alle scienze della nutrizione
19	BT	UNIMI	Faculty of Sciences and Technology	Department of Life Sciences	IT	M	Biology applied to Nutritional Sciences	Biologia applicata alle scienze della nutrizione
20	BT	UNIMI	Scuola di Dottorato	Department of Life Sciences	IT	D	School in Earth, Environment and Biodiversity- Doctorate in Animal Biology	Scuola:Terra, Ambiente, Biodiversita'- Dottorato: Biologia Animale
21	T	UNIMI	Scuola di Dottorato	Pharmacy	IT	D	Pharmaceutical Sciences	SCUOLA DI DOTTORATO IN SCIENZE FARMACOLOGICHE
22	T	UNIMI	Scuola di Dottorato	Pharmacy	IT	D	Pharmacology, Chemotherapy and Medical Toxicology	FARMACOLOGIA, CHEMIOTERAPIA E TOSSICOLOGIA MEDICHE
23	N	UNIMI	Scuola di Dottorato	Medicine	IT	D	Neurological and Pain sciences	SCIENZE NEUROLOGICHE E DEL DOLORE
24	N	UNIMI	Scuola di Dottorato	Medicine	IT	D	Physiopathological Sciences, Neuropsychobiology and Life cycles	Scienze fisiopatologiche, neuropsicobiologiche e assistenziali del ciclo della vita
25	BT	UNIMI	Scuola di Dottorato	Department of Life Sciences	IT	D	Biological and Molecular Sciences (with a track in genomics and	DOTTORATO IN SCIENZE BIOLOGICHE E MOLECOLARI
26	BT	UNIMI	Scuola di Dottorato	Natural_Sciences	IT	D	Biological and Molecular Sciences (with a track in genomics and	DOTTORATO IN SCIENZE BIOLOGICHE E MOLECOLARI
27	Other	UNITO		Humanities	IT	M	Bioethics and applied Ethics	Bioetica e Etica applicata
28	Other	UNITO		Humanities	IT	M	Bioethics and applied Ethics	Bioetica e Etica applicata

29	Other	UNITO		Humanities	IT	M	Bioethics and applied Ethics	Bioetica e Etica applicata
30	T	UNITO	Interfacoltà Biotecnologie	Pharmacy	IT	M	Chemistry and Technology in Farmaceutics	Chimica e Tecnologia Farmaceutiche
31	BT	UNITO	Interfacoltà Biotecnologie	Biotechnology	IT	M	Molecular Biotech (track Imaging)	biotecnologie molecolari (Indirizzo Imaging) - C.I. Fisiologia e Biochimica
32	BT	UNITO	Interfacoltà Biotecnologie	Biotechnology	IT	B	Biology -Molecular Biology and Bioinformatics	Biologia C.I. Biologia molecolare e Bioinformatica
33	BT	UNITO	Scienze MM.FF.NN.	Natural_Sciences	IT	M	Mater in Industrial Biotechnology	Laurea Specialistica in Biotecnologie Industriali
34	BT	UNITO	Medicine and Surgery	Medicine	IT	M	Medical Biotechnologies	Corso di Laurea Magistrale in Biotecnologie Mediche
35	BT	UNITO	Scuola di Dottorato in Scienze della Natura	Natural_Sciences	IT	D	PhD in Biological Sciences and Applied Biotechnology	Dottorato in Scienze Biologiche e Biotecnologie applicate
36	T	UNITO	Scuola di Dottorato in Scienze della Vita e della Salute	Biology	IT	D	Pharmaceutical Sciences and Biomolecular	Dottorato in Scienze Farmaceutiche e Biomolecolari
37	BT	UNITO	Scuola di Dottorato in Scienze della Natura	Natural_Sciences	IT	D	PhD in Molecular Medicine	Dottorato in Medicina Molecolare
38	N	UNITO	Scuola di Dottorato in Scienze della Vita e della Salute	Biology	IT	D	Phd in Neurosciences	Dottorato in Neuroscienze
39	N	SAPIENZA	Scienze MM.FF.NN.	Natural_Sciences	IT	M	Neurobiology	Neurobiologia
40	BT	SAPIENZA	Scienze MM.FF.NN.	Natural_Sciences	IT	M	Genetics and Molecular Biology	Genetica e Biologia Molecolare
41	T	SAPIENZA	Scienze MM.FF.NN.	Natural_Sciences	IT	M	Industrial and Environmental Biotech	BIOTECNOLOGIE INDUSTRIALI E AMBIENTALI
42	T	SAPIENZA	Scienze MM.FF.NN.	Natural_Sciences	IT	B	Industrial and Environmental Biotech	BIOTECNOLOGIE INDUSTRIALI E AMBIENTALI
43	T	SAPIENZA	Scienze MM.FF.NN.	Natural_Sciences	IT	M	Biological Sciences	Scienze Biologiche
44	T	SAPIENZA	Farmacia e Medicina	Medicine	IT	M	Pharmaceutical Biotech	Biotecnologie Farmaceutiche
45	T	SAPIENZA	SCUOLA DI DOTTORATO IN PATOLOGIA UMANA E SCIENZE DEL FARMACO	Pharmacy	IT	D	Toxicology	PhD in Tossicologia
46	BT	SAPIENZA	SCUOLA DI DOTTORATO IN BIOLOGIA E MEDICINA MOLECOLARE	Biology	IT	D	GENETICA E BIOLOGIA MOLECOLARE [GENETICS AND MOLECULAR BIOLOGY]	GENETICA E BIOLOGIA MOLECOLARE [GENETICS AND MOLECULAR BIOLOGY]
47	N	SAPIENZA	SCUOLA DI DOTTORATO IN NEUROSCIENZE	Biology	IT	D	NEUROSCIENZE CLINICO/SPERIMENTALI E PSICHIATRIA [CLINICAL/EXPERIMENTAL NEUROSCIENCE AND PSYCHIATRY]	NEUROSCIENZE CLINICO/SPERIMENTALI E PSICHIATRIA [CLINICAL/EXPERIMENTAL NEUROSCIENCE AND PSYCHIATRY]
48	BT	UNINA	Biotech Sciences	Biotechnology	IT	B	Biomolecular and Industrial Biotech	Biotecnologie Biomolecolari e Industriali
49	T	UNINA	Biotech Sciences	Biotechnology	IT	M	Agro-biotech	Agrobiotecnologie
50	BT	UNINA	Biotech Sciences	Biotechnology	IT	M	Medical Biotech	Biotecnologie Mediche
51	BT	UNINA	Biotech Sciences	Biotechnology	IT	M	Medical Biotech	Biotecnologie Mediche
52	BT	UNINA	Biotech Sciences	Biotechnology	IT	M	Molecular and Industrial Biotech	BIOTECNOLOGIE MOLECOLARI E INDUSTRIALI
53	T	UNINA	Scienze MM.FF.NN.	Natural_Sciences	IT	B	S&T for Nature and Environment	Scienze e tecnologie per la Natura e per l'Ambiente
54	T	UNINA	Scienze MM.FF.NN.	Natural_Sciences	IT	M	Pharmaceutical Biotech	Biotecnologie del farmaco
55	T	UNINA	Farmacia	Pharmacy	IT	M	Chemistry and Technology in Farmaceutics	Chimica e tecnologia farmaceutiche

56	N	AMSTERDAM	Biomedical Sciences	Biomedicine	NL	M	Neurobiology	\
57	T	AMSTERDAM	Biological Sciences	Biomedicine	NL	M	Green Life Sciences	\
58	BT	AMSTERDAM	Biology	Biology	NL	B	Biology	Biologie
59	BT	AMSTERDAM	Biomedical Sciences	Biomedicine	NL	B	Biomedical Sciences	Bio-medische wetenschappen
60	BT	AMSTERDAM	Biomedical Sciences	Biomedicine	NL	M	Medical Biology: track medical Biology	\
61	N	AMSTERDAM	Biomedical Sciences	Biomedicine	NL	M	Medical Biology: track Neuroscience	\
62	BT	UTRECHT	Life Sciences	Biology	NL	D	Biomembranes	\
63	T	UTRECHT	Life Sciences	Biology	NL	D	Environmental Biology	\
64	T	UTRECHT	Life Sciences	Biology	NL	D	Toxicology and Environmental Health	\
65	BT	UTRECHT	Life Sciences	Biology	NL	M	Molecular and Cellular Life Sciences	\
66	N	UTRECHT	Life Sciences	Biology	NL	M	Neuroscience and Cognition	\
67	BT	LEIDEN	Biology	Biology	NL	M	Molecular and Cellular Biosciences	\
68	N	LEIDEN	Bio-Pharmaceutical Sciences	Pharmacy	NL	M	Bio-Pharmaceutical Sciences	\
69	BT	LEIDEN	Life Science and Technology	Biology	NL	B	Life Science and Technology	\
70	BT	DELFT	Life Science and Technology	Biology	NL	M	Cell Factory	\
71	BT	DELFT	Life Science and Technology	Biology	NL	M	Biochemical Engineering	\
72	T	DELFT	Civil Engineering	Engineering	NL	M	Public Hygiene and Epidemiology	\
73	T	DELFT	Civil Engineering	Engineering	NL	M	Ecology in Water Management	\
74	BT	DELFT	Life Science and Technology	Biology	NL	B	Life Science and Technology	\
75	T	LODZ	Biotech	Biotechnology	PL	M	Microbial Biotechnology	Biotechnologia mikrobiologiczna
76	N	LODZ	Medicine	Medicine	PL	D	MD Medical Doctor	\
77	BT	JAGELLONIAN	Biochem, Biophysics, Biotech	Biotechnology	PL	D	Cellular Biology	
78	BT	JAGELLONIAN	Biotech	Biotechnology	PL	B	Biotechnology	Kierunek Biotechnologia
79	BT	WROCLAW	Biotech	Biotechnology	PL	M	Biotechnology	\
80	T	LODZ	Biology and Environment	Biology	PL	D	Ecology and Environmental issues	ekologii i ochrony środowiska
81	Other	Universidade do Porto	Faculty of Biology	Biology	PT	B	Science and Society, optional 5 ects module in biochemistry bachelor	Ciências e Sociedade in Bioquímica mestrado
82	T	Universidade do Porto	Faculty of Pharmacy	Pharmacy	PT	M	Ecotoxicology module, 4 ects, in Integrated Master in Pharmaceutical Sciences	Ecotoxicologia module, in Mestrado Integrado em Ciências Farmacêuticas
83	T	Universidade do Porto	Faculty of Sciences	Biology	PT	M	Master in Contamination and Environmental Toxicology	Mestrado em Contaminação e Toxicologia Ambientais
84	BT	Universidade do Minho		Engineering	PT	M	Integrated Master in Bioengineering	
85	BT	Universidade do Minho		Natural_Sciences	PT	M	Master in Biophysics and Bionanosystems	Mestrado em Biofísica e Bionossistemas
86	BT	Universidade do Minho		Biotechnology	PT	M	Master in Molecular Biology, Biotechnology and Bioentrepreneurship= in Plants	Mestrado em Biologia Molecular, Biotecnologia e Bioempreendedorismo em Plantas
87	BT	Universidade do Minho		Biology	PT	M	Master in Applied Biochemistry	Mestrado em Bioquímica Aplicada
88	BT	Universidade do Minho		Engineering	PT	D	PhD in Bioengineering	Doutoramento in Bioengenharia
89	BT	Universidade do Minho		Engineering	PT	D	PhD in Biomedical Engineering	Doutoramento em Engenharia Biomédica
90	BT	Universidade		Engineering	PT	D	PhD in Chemical and	Doutoramento em Engenharia

		do Minho					Biological Engineering	Química e Biológica
91	Other	Universidade de Aveiro		Biology	PT	B	Biology	Licenciatura em Biologia
92	T	Universidade de Aveiro		Biology	PT	B	Biology and Geology (ecology)	Licenciatura em Biologia e Geologia
93	Other	Universidade de Aveiro		Biology	PT	B	Biochemistry	Licenciatura em Bioquímica
94	BT	Universidade de Aveiro		Biotechnology	PT	B	Biotechnology	Licenciatura em Biotecnologia
95	Other	Universidade de Aveiro		Biomedicine	PT	B	Biomedical Sciences	Licenciatura em Ciências Biomédicas
96	T	Universidade de Aveiro		Biology	PT	M	Applied Biology	Maestrado em Biologia Aplicada
97	BT	Universidade de Aveiro		Biology	PT	M	Molecular and Cellular Biology	Maestrado em Biologia Celular and Molecular
98	T	Universidade de Aveiro		Biology	PT	M	Biochemistry	Maestrado em Bioquímica
99	T	Universidade de Aveiro		Biotechnology	PT	M	Biotechnology	Maestrado em Biotecnologia
100	BT	Universidade de Aveiro		Biomedicine	PT	M	Biomolecular Methods	Maestrado em Metodos Biomoleculares
101	Other	Universidade de Aveiro		Medicine	PT	M	Microbiology	Maestrado em Microbiology
102	T	Universidade de Aveiro		Biology	PT	M	Toxicology and Ecotoxicology	Maestrado em Toxicologia em Ecotoxicologia
103	Other	Universidade de Aveiro		Biology	PT	D	Biology	PhD in Biology
104	T	Universidade de Aveiro		Biology	PT	D	Plant Biology	PhD in Biologia das Plantas
105	T	Universidade de Aveiro		Biology	PT	D	Biology and Ecology of Global Changes	Biologia e Ecologia das Alterações Globais
106	Other	Universidade de Aveiro		Biology	PT	D	Biochemistry	PhD in Bioquímica
107	Other	Universidade de Aveiro		Engineering	PT	D	Chemical engineering	PhD in engenharia química
108	T	Universidade de Aveiro		Biology	PT	D	Pollution and Environmental Management	Poluição e Gestão Ambiental
109	Other	Universidade de Coimbra	Department of Life Sciences	Biology	PT	B	Biology	Licenciatura em Biologia
110	Other	Universidade de Coimbra	Department of Life Sciences	Biology	PT	B	Biochemistry	Licenciatura em Bioquímica
111	Other	Universidade de Coimbra	Faculty of Pharmacy	Pharmacy	PT	B	Bioanalytical sciences	Licenciatura em Ciências Bioanalíticas
112	T	Universidade de Coimbra	Faculty of Pharmacy	Pharmacy	PT	B	Biomedical Pharmacy	Licenciatura em Farmácia Biomédica
113	T	Universidade de Coimbra	Department of Life Sciences	Biology	PT	M	Biotechnology and biodiversity	Mestrado em Biodiversidade e Biotecnologia Vegetal
114	T	Universidade de Coimbra	Department of Life Sciences	Biology	PT	M	Biology	Mestrado em Biologia
115	N	Universidade de Coimbra	Departamento de Ciências da Vida	Biology	PT	M	Biochemistry	Mestrado em Bioquímica
116	N	Universidade de Coimbra	Faculdade de Farmácia	Pharmacy	PT	M	Pharmaceuticals Biotechnology	Mestrado em Biotecnologia Farmacêutica
117	T	Universidade de Coimbra	Departamento de Ciências da Vida	Biology	PT	M	Ecology	Mestrado em Ecologia
118	T	Universidade de Coimbra	Faculdade de Farmácia	Pharmacy	PT	M	Food Security	Mestrado em Segurança Alimentar
119	T	Universidade de Coimbra	Departamento de Ciências da Vida	Biology	PT	D	Biosciences with Toxicology specialization	Doutoramento em Biociências - Especialização em Toxicologia
120	N	Universidade de Coimbra	Departamento de Ciências da Vida	Biology	PT	D	Biosciences with Neurosciences specialization	Doutoramento em Biociências - Especialização em Neurociências

121	BT	Universidade de Coimbra	Departamento de Ciências da Vida	Biology	PT	D	Biosciences with Biotechnology Specialization	Doutoramento em Biociências - Especialização em Biotecnologia
122	T	Universidade de Coimbra	Departamento de Ciências da Vida	Biology	PT	D	Biosciences with Ecology Specialization	Doutoramento em Biociências - Especialização em Ecologia
123	N	Universidade de Coimbra	Instituto de Investigação Interdisciplinar	Other	PT	D	Experimental Biology and Biomedicine with specialization in Neurosciences and Diseases	Doutoramento em Biologia Experimental e Biomedicina - Especialização in neurociências e Doença
124	BT	Universidade de Coimbra	Faculdade de Farmácia	Pharmacy	PT	D	Experimental Biology and Biomedicine with specialization in Pharmaceutical Biotechnology	Doutoramento em Ciências Farmaceuticas - Biotecnologia Farmacêutica
125	T	Universidade de Coimbra	Faculdade de Farmácia	Pharmacy	PT	D	Experimental Biology and Biomedicine with specialization in Toxicology	Doutoramento em Ciências Farmaceuticas - Toxicologia
126	N	Karolinska Institutet	Karolinska Neuroscience department	Medicine	SE	M	Advanced course in neuroscience (2QA216)	Advanced course in neuroscience (2QA216)
127	Other	Karolinska Institutet	Department of Laboratory Medicine	Medicine	SE	M	Bio-security and sustainable development in the laboratory	
128	T	Karolinska Institutet	Institute of Environmental Medicine (IMM)	Medicine	SE	M	Master's Programme in Toxicology	Masterprogrammet i toxikologi
129	BT	Karolinska Institutet		Medicine	SE	0		
130	Other	Karolinska Institutet	Institutional level	Medicine	SE	0	One day Basic Laboratory Safety Course for staff	
131	N	Karolinska Institutet	Department of neuroscience	Medicine	SE	M	Neuroscience part 1 - from ion channels to behaviour	
132	Other	Karolinska Institutet	General Doctoral education	Medicine	SE	D	Doctoral Education	
133	N	Karolinska Institutet	Department of neuroscience	Neuroscience	SE	M	Neuroscience part II: from behaviour to cognition	
134	T	LUND	Faculty of Science	Biology	SE	D	Graduate Research School in Genomic Ecology	
135	N	LUND	Dept of medicine	Medicine	SE	M	Molecular and Experimental Neurobiology part of the Master Programme in Biomedicine	
136	N	LUND	Faculty of Science	Biology	SE	0	BIOR58 Neurobiology - Foundation in Neurobiology	
137	T	LUND	Faculty of Science	Biology	SE	M	Ecotoxicology, 15 credits BIO	
138	T	UPPSALA	Faculty of Science	Biology	SE	M	Master Programme in Biology 2012/2013 with ecotoxicology specialisation.	
139	BT	UPPSALA	Faculty of Science and Technology	Biology	SE	M	Master Programme in Applied Biotechnology	
140	T	STOCKHOLM	Institutionen för biologisk grundutbildning	Biology	SE	M	Masters Program in Toxicology	Masterprogram i toxikologi
141	N	STOCKHOLM	Department of Neurochemistry	Biology	SE	M	Master's Programme in Neurochemistry with Molecular Neurobiology, 120 credits	Masterprogram i neurokemi med molekylär neurobiologi
142	N	GOTHENBURG	Sahlgrenska Academy	Biology	SE	D		
143	BT	ROYAL INST TECHNOL		Other	SE	0		
144	T	GOTHENBURG	Environmental	Natural_Scienc	SE	M	Ecotoxicology, Master	

			science	es			Program, 120 hec	
145	N	UCL	Faculty of Life Sciences	Biology	UK	0	BSc Neuroscience	
146	N	UCL	UCL Institute of Cognitive Neuroscience	Biology	UK	M	Msc In Cognitive Neuroscience	
147	N	UCL		Biology	UK	D	PhD Programme	Gatsby Computational Neuroscience Unit
148	N	UCL	Faculty of Life Sciences	Biology	UK	M	Msci Neuroscience	
149	BT	UCL	Division of Biosciende	Biology	UK	M	MRes in Synthetic Biology	
150	BT	UNIV LONDON IMPERIAL COLL SCI TECHNOL MED	Department of Life Sciences	Biology	UK	M	MSc in Bioinformatics and Theoretical Systems Biology	
151	BT	UNIV LONDON IMPERIAL COLL SCI TECHNOL MED		Biology	UK	M	MRes in Systems and Synthetic Biology	
152	T	KINGS COLL LONDON	School of Biomedical Sciences	Biomedicine	UK	0	Neuroscience BSc	
153	N	KINGS COLL LONDON	institute of Psychiatry	Medicine	UK	M	Neuroscience MSc	
154	BT	KINGS COLL LONDON	Department of Bioengineering	Engeneering	UK	D	PhD programme	
155	N	KINGS COLL LONDON	Institute of Psychiatry	Medicine	UK	M	Clinical Neuroscience MSc	
156	N	UNIVERSITY OF CAMBRIDGE	Natural science	Natural_Sciences	UK	0	NST IB Neurobiology	
157	BT	UNIVERSITY OF BRISTOL		Biology	UK	0	<u>Synthetic Components Network</u>	
158	BT	UNIVERSITY OF BRISTOL	www.bris.ac.uk/biochemistry	Biology	UK	B	<u>BSc Biochemistry with Molecular Biology and Biotechnology</u>	
159	N	UNIVERSITY OF BRISTOL	<u>School of Biological Sciences</u>	Biology	UK	D	<u>Wellcome Trust 4-year PhD Studentships Neural Dynamics: from synapses to systems in health and disease</u>	
160	N	UNIVERSITY OF BRISTOL	<u>Physiology and Pharmacology</u>	Biology	UK	B	<u>BSc Neuroscience (B140)</u>	
161	N	UNIVERSITY OF BRISTOL	<u>Physiology and Pharmacology</u>	Biology	UK	M	<u>MSci Neuroscience with Study in Industry (B140)</u>	
162	T	UNIVERSITY OF BIRMINGHAM	<u>School of Biosciences</u>	Biology	UK	M	Toxicology MSc	
163	Other	UNIVERSITY OF BIRMINGHAM	<u>School of Biosciences</u>	Biology	UK	D	Biosciences PhD/MPhil	
164	N	UNIVERSITY OF OXFORD	Medical Sciences Office, John Radcliffe Hospital, Oxford, OX3 9DU	Medicine	UK	M	MSc Course in Neuroscience	
165	T	JOHN MOORE UNIVERSITY	Faculty of Science	Biology	UK	B	Biomedical Science BSc (Hons),	
166	T	JOHN MOORE UNIVERSITY			UK	D	Postgraduate Research - Faculty of Science MPhil or PhD Postgraduate Research - Faculty of Science MPhil or PhD	
167	Other	UNIV BARCELONA	Facultat de Biologia	Biology	ES	0	Biology	
168	N	UNIV	Facultat de Biologia	Biology	ES	M	Neuroscience MSC	

		BARCELONA						
169	BT	UNIV BARCELONA	Facultat de Biologia	Biology	ES	M	BIOMEDICAL ENGINEERING Msc.	
170	N	UNIV BARCELONA	Biochemistry and Molecular Biology (Pharmacy)	Biology	ES	D	Biomedicine doctoral program	
171	BT	CSIC	The Instituto de Ciencia de Materiales de Madrid (ICMM) is an institute of the Consejo Superior de Investigaciones Cientificas (CSIC) (Spanish National Research Council)	Biology	ES	0		
172	T	CSIC	The Instituto de Ciencia de Materiales de Madrid (ICMM) is an institute of the Consejo Superior de Investigaciones Cientificas (CSIC) (Spanish National Research Council)	Biology	ES	0		
173	N	CSIC	The Instituto de Ciencia de Materiales de Madrid (ICMM) is an institute of the Consejo Superior de Investigaciones Cientificas (CSIC) (Spanish National Research Council)	Biology	ES	0		
174	BT	UNIV POLITECN VALENCIA		Engineering	ES	M	Master en Ingeniería Biomédica	Masters in Biomedical Engineering
175	T	UNIV POLITECN VALENCIA		Other	ES	M	Master en Seguridad Industrial y Medio Ambiente	Master's Degree in Industrial Safety and Environment
176	BT	UNIV POLITECN VALENCIA		Biotechnology	ES	D	Doctorado: Biotecnología	Doctorate in Biotechnology
177	BT	UNIV MURCIA	Facultad de Biología	Biology	ES	M	Máster Universitario en Gestión de la Biodiversidad en Ambientes Mediterráneos	Master's Degree in Molecular Biology and Biotechnology
178	Other	UNIV MURCIA	Facultad de Biología	Biology	ES	B	Licenciatura en Biología	
179	BT	UNIV MURCIA	Facultad de Biología	Biotechnology	ES	D	Ph.D. in Molecular Biology and Biotechnology	
180	N	UNIV AUTONOMA MADRID	Facultad de Ciencias	Biology	ES	B	Licenciatura en Biología	
181	Other	UNIV AUTONOMA MADRID	Comité de Ética del Centro	Other	ES	0	Central Ethics Committee for UB	
182	T	UNIV AUTONOMA BARCELONA		Biology	ES	M	Biomedical Sciences (EHEA Degree)	
183	T	UNIV AUTONOMA BARCELONA		Biology	ES	M	Environmental Biology (EHEA Degree)	
184	N	UNIV AUTONOMA		Biology	ES	M	Neuroscience Masters	

The online investigation has been carried looking for **references (or specific courses)** to biosecurity, biosafety, dual use and bioethics in the courses. Data collection included **reading syllabi, keyword mining** (with terms such as “safety”, “security”, “prevention”, “risk”, “misuse”, “terrorism”, “responsibility” etc), **analysis of reading materials, stated learning outcomes or objectives**.

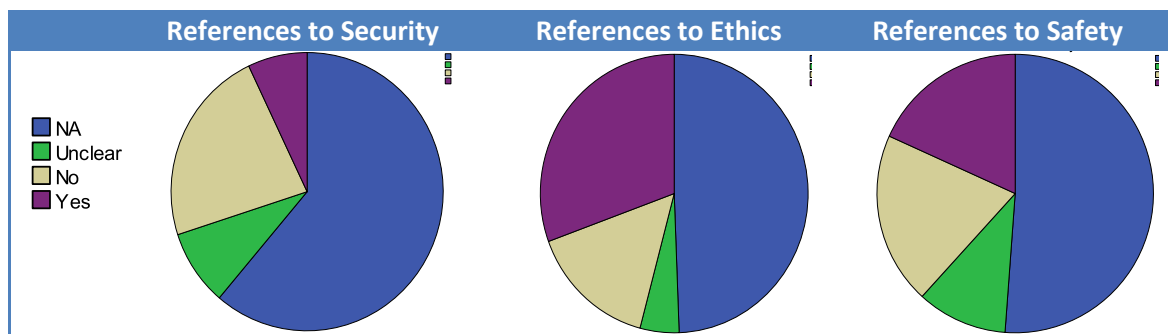
Results were categorized under “biosafety content”, “biosecurity content” and “bioethics content” variables, with YES/NO/UNCLEAR values.

The Online Investigation on Universities has been completed in February 2012. See the document **“EUBARnet Online Investigation on Universities”** for detailed results.

A summary of preliminary results suggests that 7,1% of the analyzed courses clearly include some reference to “security”; the majority of them (9 out of 12) are in graduate-level courses. We found references in courses of ecotoxicology (toxicology), while none in neuroscience courses.

References to ethics were clearly present in one third (30,6%) of courses. In this case there is a higher percentage of undergraduate courses including ethics, than graduate.

Safety-related topics are clearly mentioned in 18.2% of courses. Roughly one-fifth of ecotoxicology (toxicology) courses mention them in their materials/presentations, while this is less advertised in the other two areas.



The online investigation proved useful to collect names and contacts of professors and course coordinators of curricula (as well as directors of departments) to be targeted for the next phase. A list of 197 contacts was collected; these were merged with contacts suggested to include in the survey (Activity 2,2) by members of the Network.

Examples of details of references

Reference to	Language used	Where
Security	Programs of development and surveillance of biotechnologies considering ethical, technical and legal issues	Biotechnology Master, University of Naples
	Environmental epidemiology and ecotoxicology, protective measures and legislation and rules	Public Hygiene and Epidemiology Master, Delft Technical University
	Main course reading is Casarett and Doull's toxicology: <i>"The new seventh edition features is updated throughout and includes many new contributors and new content on chemical terrorism."</i>	Toxicology Master, Karolinska Institute
Ethics	Deontology and bioethics	Biodiversity and Evolutionary Biology Master, University of Milan
	Mention of "Freedom and ethics in biotechnology" in the module "Principles of management of biotech companies"	Molecular Biotech (track Imaging) Master, University of Turin
	Ethics and regulations: 1) ethical concepts and philosophy; 2) ethical, legal and social aspects and implications of life sciences and biomedicine; 3) Universal Declaration on Bioethics and Human Rights (UNESCO, 2005); 4) Case Studies: a) experiments on animals; b) cloning; c) human enhancement; d) access to genetic information; e) patents and intellectual property.	Biology Bachelor, University of Porto
	In objectives "scientific-technical aspects, environmental, ethical and social". Also a specific optional module on "ética e protocolos"	Biotechnology Master, University of Aveiro
	"Demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work"	Molecular and Experimental Neurobiology track, Master in Biomedicine, University of Lund
	Ethics and the law including: Ethical issues in contemporary genetics and patent law. In addition to the taught syllabus, practicals will be used to explore related issues more deeply. These practicals will focus on issues of direct relevance to industrial genomics/pharmaceutical practice including expression mapping, positional cloning, homology searching,	Systems and Synthetic Biology Master, Imperial College

	sequence annotation, and pharmacogenomics.
Safety	environmental epidemiology and Public Hygiene and ecotoxicology, protective measures and legislation and Epidemiology, Delft Technical rules University
	Toxicology in Practice: Safety Assessment in Industry and the Environment Toxicology Master, University of Birmingham

Professional Associations

Regarding professional associations, the Online Investigation proved more difficult, mainly due to the scarcity of online available materials on the websites of the associations included in the sample.

The Online Investigation on Professional Associations is currently continuing to get more information. As agreed in the Kick Off Meeting, the Professional Associations to assess are not in specialized fields, but more generally on biology, biotech and the life sciences.

The Associations currently included in the Assessment are:

	Association	Country
1	Polish Academy of Science	POLAND
3	Royal Netherlands Academy of Arts & Science (KNAW)	NETHERLANDS
5	Spanish Society for Biochemistry and molecular Biology	SPAIN
6	Royal Academy of Exact, Physical and Natural Sciences of Spain	SPAIN
7	Italian Association for the Development of Biotechnology	ITALY
8	National Research Center	ITALY
9	Lincei Academy	ITALY
10	Society of Biology	UK
11	Royal Society	UK
12	Royal Swedish Academy of Science	SWEDEN
13	Swedish Society for Biochem and molecular biology	SWEDEN
14	Academy of Science of Lisbon	PORTUGAL
15	European Association of BioIndustries	EU

2.2 Online Survey & Interviews

The second part of the Assessment Phase is devoted to carry a survey on relevant contacts in Universities and professional associations to expand and clarify previous data; have a picture of the current levels of awareness on policy and biosecurity education; and gain an understanding of the opinions of scientists on these issues.

Universities

The Survey is being carried mainly with an online-based questionnaire. Contacts have been contacted via email explaining the scopes of the project, the policy discussions at the European Union, and inviting to take the survey online on the project's website.

Professors have been contacted via email, with a personalized message introducing the project and inviting to take the survey. An attached letter included more details, on the objectives and policy of the European Commission (see box below).

Participants were directed to a secure page of the EUBARnet Website, where they could fill the questionnaire (20 questions for about 5-10 minutes of completion time).

The questionnaire is accessible from the link www.eubarnet.eu/survey/?get_password=biosec. Questions include on educational opportunities on biosecurity and dual use; levels of awareness among professors; and opinions and attitudes towards both biosecurity policy and education.

As of July 2012, the survey has been completed by 20 respondents, for a very low response rate of around 10 per cent:

Replies to the Online Survey on Universities	
Italy	7
Netherlands	2
Spain	0
Poland	1
Portugal	9
Sweden	1
UK	0
Total	20

Letter of invitation to participate to the Online Survey on Universities



Dear Professor,

We invite you to participate to a quick survey on **education and opinions about biosecurity** among life science communities in a number of European countries. The survey is carried by the European Biosecurity Awareness Raising Network (EUBARnet) with the support of the European Commission aimed to the implementation of the EU CBRN Action Plan adopted by the Commission in 2009.

With the Action Plan, the Commission organized its policy on chemical, biological and radio-nuclear risks. Among the recommended Actions there are "the development in conjunction with universities and professional associations, of minimal requirements for **academic formation and training of students**" to raise "correct knowledge and **awareness on real risks and danger of potential misuse of information and biological tools and appropriate consciousness of related bioethical implications**"; and "the identification and spread of good practices on **academic training on potential misuse of information**".

We believe that for these Actions, the involvement of scientists is fundamental. This survey is a component of an assessment aiming to evaluate the **current educational opportunities and considerations regarding the education on biosecurity**. Your participation to the survey is fundamental to generate a feedback and input in EU policies that closely regard scientists, and we are extremely grateful for the time you will dedicate to participate to this research. **Please follow the link you have received and complete the quick survey online**. We would also be glad to keep you updated on EUBARnet activities, something you can express interest on the website.

EUBARNet connects **universities and organizations in the EU** that are working on raising the awareness of life scientists on biosecurity and dual-use concerns. It aims at promoting **information for students and young scientists**, increasing the participation of scientists in policy debate, and appraise the European Commission on the status of education on biosecurity. The Partner Organizations and Experts are from various backgrounds and provide expertise on the scientific, ethical, policy, legal and environmental aspects of biosecurity, in a multidisciplinary approach.

Sincerely,

The EUBARnet Team



The screenshot shows the EUBARNet website interface. At the top, there is a navigation bar with social media icons (RSS, Twitter, Facebook, YouTube) and a search bar. The main header features the EUBARNet logo and the text "European Biosecurity Awareness Raising network". Below the header is a navigation menu with links: Home, Libraries, Seminars, Blog, Live Feedback, Objectives, Team, and Partners.

The main content area is titled "Home > Survey" and contains a sidebar with a list of items: Survey, Introduction, and a partially visible "Presentation and structure of the questionnaire". The "Introduction" section is expanded and contains the following text:

Presentation and structure of the questionnaire
Welcome to the Survey on education and opinions on biosecurity and dual use issues, realized by the European Biosecurity Awareness Raising Network. The information on educational opportunities, opinions and comments you may provide will be crucial to the results of the research which could provide feedback to the European Commission on Actions recommended in the EU CBRN Action Plan including "the development in conjunction with universities and professional associations, minimal requirements for academic formation and training of students" to raise "correct knowledge and awareness on real risks and danger of potential misuse of information and biological tools and appropriate consciousness of related bioethical implications", and "the identification and spread of good practices on academic training on potential misuse of information".

The Survey consists of 20 questions, divided in three sections: profile questions, here below; questions on current considerations in curricula; and opinions and comments. Click on "Next" at the end of each section to proceed.

Completing the whole questionnaire should take around 5 minutes. Any response will be treated **anonymously**; also, the purpose of the research is not to single out institutes or individuals but rather to gain a general understanding of the extent to which these issues are dealt with within the life science curriculum, and of the opinion of life scientists in universities.

The right sidebar is titled "Events and News" and contains three items:

- 10 May 2012 – EUBARNet Seminar in Milan, Italy**
"Biosecurity and Environmental Risks" is organized by the Department of Life Sciences of Università di...
- 27 April 2012 – EUBARNet Seminar in Coimbra, Portugal**
"Biosecurity, Safety and Environmental Impacts" of the Centro de Ecologia Funcional of Universidade de Coimbra.
- New website online**
New website of the European Biosecurity Awareness Raising Network.

At the end of the questionnaire, you will be also able to indicate your interest in being informed on developments regarding European policy on biosecurity, or on further initiatives.

Thank you for participating to the survey!

Q 1/20: Which country are you from?

- France
- Italy
- Netherlands
- Poland
- Portugal
- Spain
- Sweden
- UK

Q 2/20: What is the area of your Institute or Faculty of Affiliation?
(Please choose the field closest to your Institute or Faculty)

- Biology
- Biomedicine
- Biotechnology
- Engineering
- Humanities
- Natural Sciences
- Medicine
- Natural Sciences
- Other

Our Google Docs

Our Media Bank

TAGS

Biological Weapons BWC dcm Codes dual
 use ecotoxicology education environmental
 ethics course networks dugwash safety
 security standards weapons
 website

Q 7/20: Could you provide more detail (title of the courses, study time, ECTS etc)?

Q 8/20: If you replied "no" above, could you indicate the main reason of non inclusion?

- Because we don't think this is relevant for our course
- Because of lack of teaching time in the curricula
- Because of lack of expertise and resources
- None of the above
- I don't know

Q 9/20: Are students trained on biosafety (as defined below)?

Biosafety refers to "containment principles, technologies and practice that are implemented to prevent unintentional exposure to biological agents and toxins or their accidental release".

Source: WHO/CDS/EPR/2006

- Yes, in courses I teach
- Yes, in other courses
- No
- I do not have such information

Current Consideration on Biosecurity

Q 5/20: Does the University include considerations on biosecurity (as defined below) in the education of life scientists?

Biosecurity refers to the "Protection, control and accountability measures implemented to prevent the loss, theft, misuse, diversion, or intentional release of biological agents and toxins and related resources, as well as unauthorised access to, retention, or transfer of such material".

Source: WHO/CDS/EPR/2006 and CWAL5702; not limited to biosecurity within the laboratory.

- Yes, in courses I teach
- Yes, in other courses
- No
- I do not have such information

Q 6/20: If you replied "yes" above, could you provide more information on the context of such education?

- There are mentions in the recommended readings and textbooks
- There are references during lectures
- There are dedicated institutes organising seminars or mentoring
- There are one or more specific course(s) in the syllabus
- I don't know

Q 7/20. Could you provide more detail (title of the courses, study time, ECTS etc)?

Q 8/20. If you replied "no" above, could you indicate the main reason of non inclusion?

- Because we don't think this is relevant for our course
- Because of lack of teaching time in the curricula
- Because of lack of expertise and resources
- None of the above
- I don't know

Q 9/20. Are students trained on biosecurity (as defined below)?

Biosecurity refers to "containment principles, technologies and practices that are implemented to prevent unintentional exposure to biological agents and toxins or their accidental release".

Source: WHO/CDS/EPH/2006

- Yes, in courses I teach
- Yes, in other courses
- No
- I do not have such information

Q 10/20. If you replied "yes" above, could you provide more information on the context of such education?

- There are mentions in the recommended readings and textbooks
- There are references during lectures
- There are dedicated institutes organizing seminars or mentoring
- There are one or more specific course(s) in the syllabus
- I don't know

Q 11/20. Could you provide more detail (title of the courses, study time, ECTS etc)?

Q 12/20. If you replied "no" above, could you indicate the main reason of non inclusion?

- Because we don't think this is relevant for our course
- Because of lack of teaching time in the curricula
- Because of lack of expertise and resources
- None of the above

Q 13/20. Are students educated on bioethics?

- Yes, in courses I teach
- Yes, in other courses
- No
- I do not have such information

Q 14/20. If you replied "yes" above, could you provide more information on the context of such education?

- There are mentions in the recommended readings and textbooks
- There are references during lectures
- There are dedicated institutes organizing seminars or mentoring
- There are one or more specific course(s) in the syllabus

Q 15/20. Could you provide more detail (title of the courses, study time, ECTS etc)?

Q 16/20. If you replied "no" above, could you indicate the main reason of non inclusion?

- Because we don't think this is relevant for our course
- Because of lack of teaching time in the curricula
- Because of lack of expertise and resources
- None of the above

Next >

Your Opinion and Comments

Would you agree to the following statement:

"Awareness raising on dual use concerns among life scientists is important"

The term "dual-use" has been used in recent years by members of the scientific and security policy communities to indicate research with the potential for misuse of knowledge, tools and techniques for purposes of malign usage, and specifically in the form of biological weapons or bioterrorism. The term is used because, although the research is intended only for beneficial purposes, it could be misapplied.

Source: adapted from *A Survey of Attitudes and Actions on Dual Use Research in the Life Sciences: A Collaborative Effort of the National Research Council and the American Association for the Advancement of Science*, Washington, DC: The National Academies Press, 2010. For a discussion on the various meanings of the term, see also Atlas, R., and M. Corio, 2005. The dual use dilemma for the life sciences: Perspectives, circumstances, and global solutions. *Biosecurity and Bioterrorism: Defensive Strategy, Practice, and Science* 4:276-286.

Strongly Disagree Disagree No Opinion Agree Strongly Agree

Would you agree to the following statement:

"Universities should set minimal requirement for training of students to raise awareness on risks and danger of potential misuse of information and biological tools"

Strongly Disagree Disagree No Opinion Agree Strongly Agree

Q 19/20. Would you have any comment, consideration or suggestion on European policy on biosecurity, "dual use concerns", education on these subjects, or indeed this survey?
(Please use the box below)

Q 20/20. Are you interested in being involved in activities aimed at raising awareness on biosecurity and/or providing the European Commission with feedbacks on its biosecurity policy (meetings, workshops, assessments)?

Yes
 No

Please indicate your email address if you are interested in receiving updates on EUBARnet activities, results of the survey and for International Conferences on this subject:

Privacy terms

This survey is realized in the frame work of the "European Biosecurity Awareness Raising Network", a Project funded by the **Prevention of and Fight Against Crime of the European Union Commission – DG Home Affairs** under reference: HOME/2010/INSEC/AG/CBRN-001. The results of the survey are used for the purpose of producing reports to the European Commission and other academic work. **All the results of the surveys will be kept anonymous and no information apart that explicitly given by respondents will be used.** Results will be treated in accordance with EU and National (both of Italy and of the country of residence of the respondent) regulations on privacy. The responsible of the collection of data is Centro di Cultura Scientifica A. Volta.

I agree with the terms

Professional Associations

The online survey on professional associations will follow up to the collection of information and contacts on the same institutions (see above). Given the shift in timetable and the reduced availability of respondents during summer time, this survey is expected to take place starting September. As we expect a smaller number of contacts than from universities, and given the low response rate of the online questionnaire, we plan to conduct this part of the assessment with simpler e-mail questions.

Assessment Phase: Action Points

- The Online Survey on Universities needs additional responses from professors and course coordinators from the Universities in the sample. To achieve so, the Assessment Team will send a third set of invitations to the survey in September; national members of EUBARnet are kindly asked to facilitate the completion of the survey by a sample of colleagues in each country's universities by forwarding the link to relevant contacts. We hope to have at least 10 respondents from each of the 7 countries;
- The Assessment on Professional Associations will benefit from preferential contacts that the Assessment Team may have in associations in the countries. EUBARnet members are invited to facilitate the Assessment Team with contacts in the professional associations, if possible.

Activity 3: Collaborative Networking

Activities 3.1 – 3.5: Thematic Working Groups

Groups have been and are addressing, analyzing and producing review materials on multidisciplinary aspects of biosecurity. During and after the Kick Off Meeting, Groups have nominated Coordinators:

- **Safety & Environmental Aspects Working Group:** Ulisses Azeiteiro (UC)
- **Law Working Group:** Angeles Cuadrado Ruiz (LNCV)
- **Science Working Group:** Margareta Krabbe (UU)
- **Policy, Ethics and Security Working Group:** Giulio Mancini (LNCV)

The Kick Off Meeting has also decided:

The Thematic Working Groups will work on a review of the existing materials, information, regulations and cases regarding the various thematic aspects. Some of the points that could go into the reviews are listed in the Project Description. Each Group will eventually produce a thematic review which will be capped by a chapter underlining the interdisciplinary nature (in a sort of “journal issue”-type of product). The reviews will be the basis for the much shorter (and simpler) “informative materials”; they will also be intended for those readers wanting more detailed information, or the Commission to use them.

One important issue of terminology and content has been debated, about terming the “Thematic Report”. These documents actually would not be reports as they don’t request a deep level of analysis, rather they are more review or overview of materials and information that would be useful to organize in an interdisciplinary way for scientists for biosecurity and dual use education.

Hence, the former (as in the 2010 Action Plan) “Thematic Reports” have been renamed “Thematic Reviews”. Further to these deliberations, the Working Groups Coordinators discussed with the Project Coordinator outlines and contents of the Thematic Reviews. It has also been agreed that the Thematic Reviews would have been constituted by:

- Series of Papers, that would be collected for the deliverables for the Commission, but also be useful materials for the beneficiaries of educational activities;
- Series of Lectures and ready-to-use Power Point Presentations (possibly based on the Papers).

Also, Thematic Working Groups would provide contents to be published on the blog of the EUBARnet website (see below).

At the moment, Thematic Working Groups have produced a total of 9 Papers for the Thematic Review series; as well as a number of Lectures and ready to use power point presentations based on the papers.

Status of Thematic Review Papers Series (Titles are indicative) (* the paper also has a accompanying power point lecture)	
Safety & Environment <ul style="list-style-type: none"> • Environmental Aspects of Biosecurity and Practice Standards in Europe* • Potential Environmental Impacts of Synthetic or Biological Substances of Deliberate or Accidental Origin 	Law <ul style="list-style-type: none"> • International Treaties (legal perspective), Humanitarian Law • National Penal Law
Science <ul style="list-style-type: none"> • Possible biosecurity aspects of Neuroscience: scientific case study • Possible biosecurity aspects of Synthetic Biology: scientific case study • Possible biosecurity aspects of Systems Biology: scientific case study 	Policy, Ethics and Security <ul style="list-style-type: none"> • Biological Weapons and the Biological Weapons Convention: the Spectrum of Risks and Measures* • Biological Weapons and the Biological Weapons Convention: History of Misuse and Assimilation into Security Apparatus* • Biological Weapons and the Biological Weapons Convention: The History of the Prohibition Regime* • Biological Weapons and the Biological Weapons Convention: Bioethics and Dual-Use • Biosecurity Policy Measures at the International, Regional and Local Levels • Private Sector and Codes • Should We Improve Human Nature? The Philosophical Debate On Enhancement • Moral Obligations for Synthetic Biology Research

Thematic Working Groups: Action Points

- The Thematic Reviews (overview of the current thinking and knowledge of multidisciplinary aspects of biosecurity, especially in the EU), in the agreed form of collection of thematic papers, is one of the key deliverable of the project. So it is fundamental that the thematic papers are finalized and collected soon. Furthermore, the various review papers will serve as a base for the editing of multidisciplinary

booklets, part of the Informative Materials (Activity 3.6). Working Groups are invited to submit the final drafts of review papers left by end of August 2012

Activity 3.6: Preparation of Informative Packages

This activity focuses on the preparation of informative and dissemination materials on EUBARnet and multidisciplinary biosecurity, such as: printed brochures, booklets, CDs and materials for the budget.

Following the discussions at the Kick-Off Meeting, Partners have decided that the main informational materials would be booklets and the website.

Booklets will be prepared and edited using contents from the Thematic Review Series. They should be an instrument to outreach and interest both young scientists and educators, and will include graphics and text. The format will be 16 or 20 A5 pages. Booklets will be edited by LNCV in September and then circulated among Partners for feedback and approval.

Activity 3.6.1: Translation

The Kick-Off Meeting agreed, amending the original Action Plan, there would be no need to translate all Informative Materials, as well as booklets, in the national languages. Instead, the Meeting agreed that only short cover summary (1-2 pages) to present or advertise the booklets and the Network will be produced.

Translation: Action Points

- EUBARnet National contact Points in Italy, Netherlands, Spain, Poland, Portugal and Sweden will produce a short cover summary of the booklets to introduce, present or advertise the material in the national language (October 2012).

Activity 3.6.2: Editing, printing and binding

This activity was envisaged to have materials to distribute among the different partners, which should have printed the booklets translated in the different languages. With the decision of keeping only English for the booklets and producing only summaries in national languages, Partners will print the same version in English (for national/local distribution) accompanied in case by the one-page summary translated in local language:

Printing and Binding of Booklets	
LNCV	400 copies
UNITO	50 copies
UC	50 copies
UU	30 copies

Editing, Printing and Binding: Action Points

- Partners will print copies of informative materials as indicated in the Action Plan and Budget; however copies of the booklets will be in English only (October/November 2012).

Activity 3.6.3: Editing and Burning of CDs

The Kick Off Meeting decided to avoid CDs as they were preferred by download by students, less practical and environmental impacting. Hence, unless the Consortium indicates that CDs (collecting all the Thematic Review Papers, and the Lectures, for example) could be useful, CDs will not be produced.

Activity 3.7: Como International Workshop

EUBARnet will be presented in a Workshop to be organized by LNCV on a topic related to similar areas and/or chemical, biological and nuclear security. The workshop will constitute part of the co-financing to the project by LNCV.

Activity 3.8: Website

The Website has been developed starting in autumn 2011 according to the decisions made by the Kick-Off Meeting. It has been launched online in March 2012 on the domains www.eubar.net and www.biosecurityeducation.eu

Sections of the Website include the **Homepage, the Library, Seminars, Blog, Live Feedback, Objectives, Team, Partners, File Sharing (Google Docs), Media Bank (Youtube Channel), as well as integration with EUBARnet Facebook and Twitter Accounts.**

Homepage

www.eubar.net/

This page reports the last posts from the blogs in each of the four thematic areas; a summary of the project and the objectives of the Network (“what we do”), the latest tweets, the News & Events, and links to the Google Docs folder and the Youtube Channel.

Library

www.eubar.net/libraries/

We would want this section to become a “library” of useful references and documents both produced by the Network and external, on the multidisciplinary aspects of biosecurity. Each resource is archived in a file with a cover, a short description and data on authors etc, and categorized basing on both the theme and the source. The original document is hosted on the website if by EUBARnet, or linked to the original source. The reader can explore the library through a dynamic directory or the search bar.

Contents to the library have been added from bibliographies, external resources (Bradford, FAS...), EUBARnet papers and video lectures, legislation and suggested references from EUBARnet Members.

Website, Library: Action Point

- Relevant documents and bibliographies on the various specialist thematic fields to be added to the Library are very important. Further suggestions from EUBARnet thematic experts on sources to add for readers are most welcome.

Blog

www.eubarnet.eu/category/blog/

The Blog has been a section not initially envisaged by the Kick-Off Meeting, added to make the Website more lively and updated. Blog posts include short text that deal with reference on news, events or comments on biosecurity and dual use issues. Also given the change in the format and nature of the deliverables by the Thematic Working Groups (“Reviews” of current thinking instead of “Reports” with critical assessments), the Coordinator agreed with the Thematic Groups Coordinators that EUBARnet Members would provide short pieces of comments, critical news report etc for the blog (max 1,000 words). Ideally, the blog should have at least two posts a month for each of the four thematic categories.

Website, Blog: Action Point

- EUBARnet Members are invited to submit, propose or discuss with the Coordinator on short posts for the Website’s blog. The blog should publish two posts a month for each of the four thematic categories.

Live Feedback

<http://www.eubarnet.eu/live-feedback/>

This section is designed to be used in connection to seminars, to open and administer surveys, polls and quizzes with students (or faculty) before, during or after the seminars. When no survey or poll is open, the section shows a static page inviting readers to report on educational opportunities on biosecurity and dual use. The Live Feedback feature has not been used in seminars organized yet, for technical reasons. We plan it can be used for EUBARnet seminars in fall 2012.

How does it work

The feature enables to create a questionnaire (with open, close and multiple questions) accessible on the “Live Feedback” page. Professors and lecturer can invite students or colleagues to that page to answer questions related to the seminar(s). Each EUBARnet Member is able to create and manage surveys on the Live Feedback page (contact Giulio Mancini for the access details!).

Website, Live Feedback: Action Point

- Coordinators for the organization of the EUBARnet seminars in fall 2012 are invited to use the Live Feedback section of the website, if useful.

Objectives, Team, Partners

<http://www.eubarnet.eu/objectives/>

<http://www.eubarnet.eu/team/>

<http://www.eubarnet.eu/universities/>

These three sections describe the Objectives of the project (as for the Action Plan), the experts' profiles and the Partners of the Consortium.

File Sharing (Google Docs)

A Google Docs (now Google Drive) account of EUBARnet has been created to host documents, large files, and to facilitate interaction among EUBARnet experts and the Consortium. Two sections of EUBARnet's Google Docs are available: a public one (https://docs.google.com/folder/d/0B_XIkFStOhoTQXE5SkIFcEtWc0U/edit?pli=1#), accessible from the website homepage, is visible to everybody and hosts public documents (largely overlapping the Library contents).

A private section (https://docs.google.com/folder/d/0B_XIkFStOhoTLUNtMzhfSGRKeDA/edit) is instead accessible only to EUBARnet members and includes: administrative documents, draft blog posts and other documents. EUBARnet members are invited to make use of the Google Docs private section, as it is a powerful tool to share and discuss documents; changes are traceable and can be notified to other members; you can also use it as a drop off for large files (such as video interviews, lectures, etc).

The Administrative Documents Folder contains guidance and references on the administration of the Project, largely from the Kick Off Meeting. Partners can use them for preparing the administrative reports, as well as forwarding to their administrative office.

Media Bank (Youtube Channel)

<http://www.youtube.com/user/EUBARnet>

We created a Youtube Channel to host all the video contributions by EUBARnet – those are mainly edited films of the lectures from the seminars.

Facebook, Twitter and RSS

<http://www.facebook.com/eubarnet>

<https://twitter.com/eubarnet>

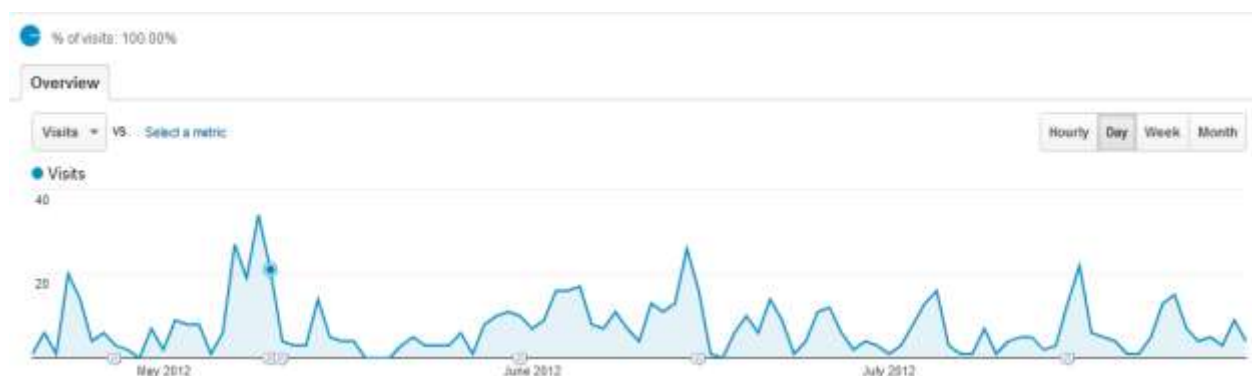
<http://www.eubarnet.eu/feed/>

Each post of the EUBARnet blog, as well as issues published on the website regarding seminars and news, are also published automatically on the Twitter account and the Facebook page. The social networks are also used to report interesting news or articles from journals, newspapers

or other users. The RSS feeds can be used to include EUBARnet in a feed reader (like Google Reader).

Website Usage

The EUBARnet website is monitored by Google Analytics since April 20th, 2012. Between April 20th and July 31th, EUBARnet had 401 unique visitors (i.e. new people that saw the website), and a total of over 700 visits (however note that “visits” also include those for administration that amount to roughly 200 in the same period); this also means that the audience has been expanding, as 52% of visits are from new visitors.



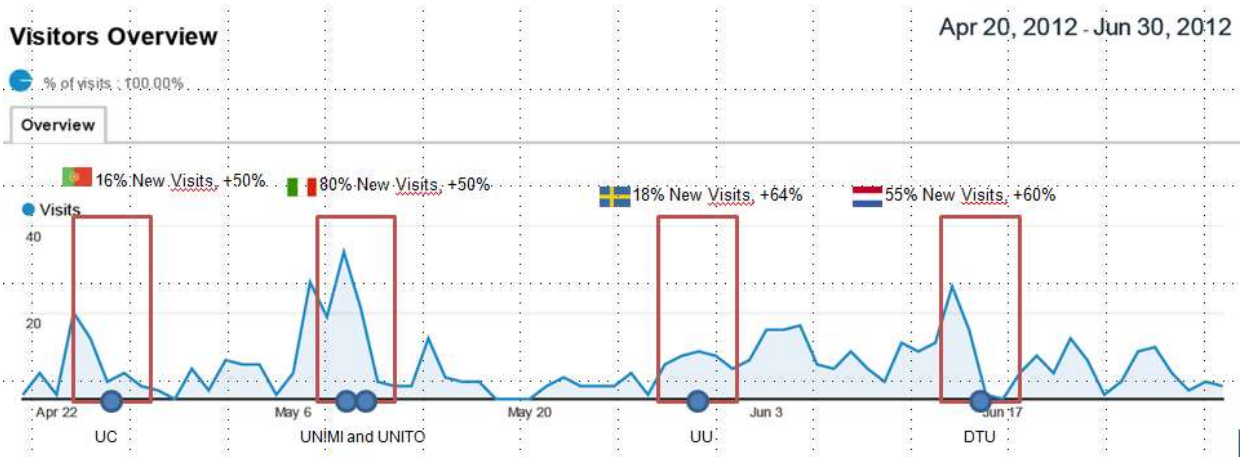
The total pageviews are close to 3,000; visitors usually stay on the website around five minutes reading 3 pages; the bounce rate (people closing the website from the homepage) is 45%. This is not a bad figure, as it means that over half visitors stay interested in the contents and continue visiting the site.

The EUBARnet website has been visited from a range of countries, largely from Europe (*NOTE: Italian visitors include also administration, which amount to roughly 200 visits in the period – we are trying to find a way to exclude them from reports*).

	Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
Italy	395	4.68	00:06:19	35.70%	38.73%
Netherlands	108	4.30	00:04:59	50.00%	41.67%
United States	42	1.83	00:00:36	92.86%	80.95%
Portugal	40	2.92	00:03:52	62.50%	17.50%
United Kingdom	28	4.46	00:03:11	71.43%	42.86%
Sweden	26	2.35	00:01:46	69.23%	50.00%
India	10	2.10	00:00:32	100.00%	60.00%
Spain	8	2.88	00:02:30	100.00%	62.50%
Switzerland	7	3.00	00:04:49	42.86%	42.86%
Germany	7	2.14	00:00:44	100.00%	57.14%
Morocco	7	4.71	00:08:47	42.86%	14.29%
Brazil	5	2.00	00:02:01	100.00%	60.00%
Canada	5	1.20	00:00:24	100.00%	80.00%
France	5	4.00	00:07:13	80.00%	40.00%

Ireland	5	1.80	00:00:13	60.00%	80.00%
Japan	5	1.00	00:00:00	100.00%	100.00%
Pakistan	5	1.20	00:00:10	60.00%	80.00%
(not set)	5	1.00	00:00:00	100.00%	100.00%
Iran	4	1.00	00:00:00	75.00%	100.00%
Philippines	4	1.25	00:02:29	100.00%	75.00%
Argentina	3	1.67	00:00:10	100.00%	66.67%
Belgium	3	1.00	00:00:00	100.00%	100.00%
Israel	3	2.33	00:00:22	100.00%	66.67%
South Africa	3	1.67	00:08:50	66.67%	66.67%
Australia	2	1.00	00:00:00	50.00%	100.00%
Poland	2	2.50	00:02:42	100.00%	50.00%
Romania	2	7.50	00:04:02	100.00%	50.00%
Thailand	2	1.00	00:00:00	100.00%	100.00%
Congo [DRC]	1	1.00	00:00:00	100.00%	100.00%
Denmark	1	1.00	00:00:00	100.00%	100.00%
Egypt	1	1.00	00:00:00	100.00%	100.00%
Finland	1	1.00	00:00:00	100.00%	100.00%
Greece	1	4.00	00:06:22	100.00%	0.00%
Croatia	1	1.00	00:00:00	100.00%	100.00%
Indonesia	1	1.00	00:00:00	100.00%	100.00%
Kenya	1	3.00	00:01:56	100.00%	0.00%
Libya	1	1.00	00:00:00	100.00%	100.00%
Mexico	1	1.00	00:00:00	100.00%	100.00%
Malaysia	1	3.00	00:13:44	100.00%	0.00%
Nigeria	1	1.00	00:00:00	100.00%	100.00%
Norway	1	14.00	00:05:23	100.00%	0.00%
New Zealand	1	1.00	00:00:00	100.00%	100.00%
Rwanda	1	2.00	00:00:33	100.00%	0.00%
Saudi Arabia	1	1.00	00:00:00	100.00%	100.00%
Turkey	1	7.00	00:01:24	100.00%	0.00%
Ukraine	1	1.00	00:00:00	100.00%	100.00%

As the website should work in cooperation with the seminars, it is interesting to note as audience from countries where a seminar has been organized increased in the period around that same seminar (hopefully students and professors seeking for information):



Regarding the **social networks**, EUBARnet twitter has published 131 tweets with news reports and other updates and has 10 followers. We are trying to promote the social accounts of the network among students participating to the seminars, using the seminars' attendance lists.

Activity 4: Seminar Series

The EUBARnet seminar series in the Partner universities and in universities participating to the Network started according to a general timetable discussed by the Kick Off Meeting. The first five seminars have been held in spring 2012, during the last part of the academic year; three more seminars are planned for the fall.



One of the main features of the seminar series is to reflect the multidisciplinary focus of EUBARnet and to bring to universities different expertise as well as stimulating debate. The seminars are "tailored" to the interests of the hosting university as well as the background and level of students. As a result, each of the EUBARnet seminar is different, both in contents and in the format, that reflect the practice and habits of the hosting faculty (for example, lectures vs workshops), and also in the language.

In the original Action Plan, the seminars should have been also an occasion to engage and invite representatives from professional associations, societies, orders etcetera. This should have been coupled with the engagement during the assessment phase. Unfortunately, even if invited to some of the seminars, we did not have participants from national professional associations in the first four seminars; hopefully, they will be more engaged in the autumn.

Feedback from Students

After the seminars, we asked the students to complete a short questionnaire on the seminar, and more generally on biosecurity and dual-use (policy and education). Questionnaires were collected from the Network by LNCV, in order to put together the results.

The questionnaires used in the different seminars were based on a common model, but with a customized part where the hosting professors can add questions on specific themes in that seminar. The questionnaire was designed basing on a similar one used in the LNCV-Bradford seminars of 2009, which was in turn derived from actually used evaluation questionnaires for regular courses of Italian Biology Departments (courtesy of Prof. Daniela Candia of Italy).

The questionnaire model generally included four types of questions: a part to comment on the seminar itself; one to evaluate learning outcomes; one on opinions more generally on biosecurity (policy and education); and one with profile/demographic questions.

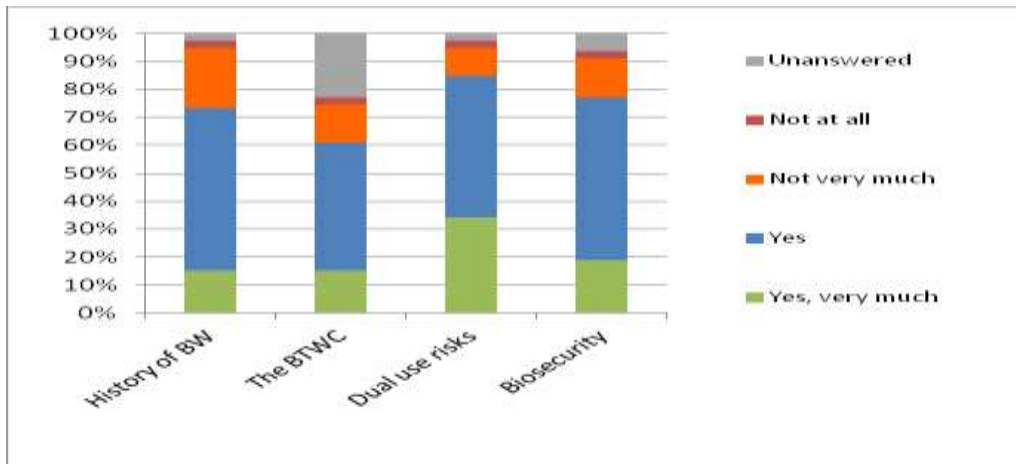
As of July 2012, we collected questionnaires from 4 of the 5 seminars held (University of Coimbra, University of Milano, University of Torino, Delft Technical University), for a total of 79 students. They mainly include graduate (in particular Master) students, from a variety of courses and background, notably ecology, biology, biotechnology, neuroscience.

At the time of this interim report, we are able to report some draft and preliminary results of the questionnaires to students participating to the four seminars; however, these may already be interesting.

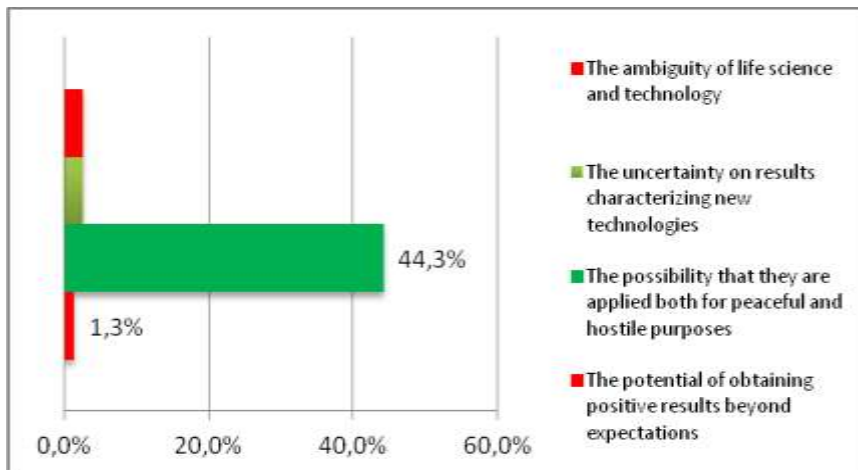
For example, almost 80% of the students mentioned to have at least some “previous knowledge” of issues of biosecurity and/or dual use; however, 45% of the same sample also reported that those issues were not mentioned at all in curricula courses (and the rest that references were very small or neglectable). This may suggest that young scientists do have some awareness of issues of security and dual use, but that information does not come from or in university formation; more probably this is derived from news or media, competing with the scientific education that may be delivered by the university.

One part of the questionnaire aimed to a “self assessment” by the participants on the knowledge acquired, and the understanding developed, during the seminar. To the question “do you think that your knowledge and understanding of the following aspects (history of biological weapons, the Biological and Toxin Weapons Convention, Dual Use Risks, Biosecurity) have developed after this seminar?”, students replied generally positively, with over 60% or 70% of them replying “yes” or “very much”. The topic on which they report a larger knowledge improvement is “dual use”, the smaller on understanding the BTWC.

Do you think that your knowledge and understanding of the following aspects have developed after this seminar?



With another question, we tried to test the correct understanding by participants of the key concept of “dual use” (something included also in the learning objectives). The question asked to select the correct definition for dual use among four possibilities; “wrong” options were taken from examples of past surveys with students carried by LNCV.

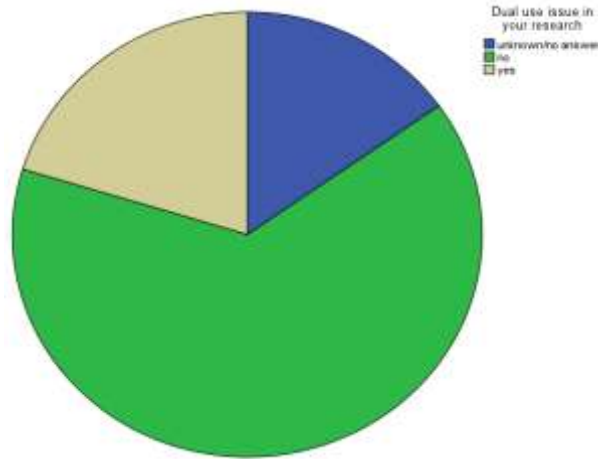


The correct answer for “dual use” was “*the possibility that [science and technology] are applied both for peaceful and hostile purposes*”, and was selected by 44,3% of students (actually the large majority of those who completed the question).

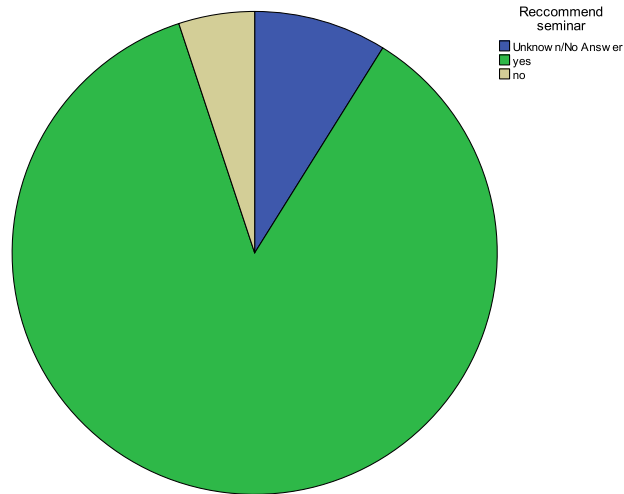
It has been noted that for a proper assessment of EUBARnet seminars’ learning outcomes, we should employ both a pre-seminar and a post-seminar survey, then compare results. We hope to be able to do this for the remaining three seminars (preparing a small group of pre-seminar questions to be repeated). However, basing on our combined preliminary results of the two questions presented above, we could argue that students’ understanding of “dual use risks”

has been improved, and that this improvement included that many could now correctly indicate how the concept is used in the biosecurity discourse.

The questionnaire also asked if the students thought their current research (or field of study) could present dual use risks. A majority of respondents reported not so.



In the "opinion" section, one of the questions was on general appreciation of the seminar, and in particular if participants would suggest the seminar to colleagues or other students. The response is generally positive, with 86,1% of the students that would recommend a similar seminar.



Some students also provided more structured or general comments in the open questions, even if not many used this opportunity. Interesting comments were both on the contents and the opportunities on biosecurity (policy and education), and more practically on the seminar format.

Regarding the former, comments were generally supportive of the need to build a “culture of responsibility” as a tool to prevent misuse:

“I think it’s necessary to develop the culture of responsibility and a strong ethical protocol among life scientists. In my opinion it’s important to include programmes like (and stronger than) this one, in scientific curricula to raise the knowledge of potential dual use and biological weapons and to train people, that will become scientists, to biosecurity awareness”

[Participant from UNIMI]

“Knowledge means power, and everything can be used for good or bad issues, it’s just the way of thinking and your personal principles. So in order to avoid a hostile application work should be done in the basic level, that means changing the way people think.”

[Participant from DTU]

Regarding practical and organizational issues, students called for interactive formats (in the academic contexts where interaction and debates are widely used), and for practical references:

“Less presentations about organizations and terminology and more interaction...”

[Participant from DTU]

“More practical case studies”

[Participant from Universidade de Coimbra]

“Add laboratory biosafety and biosecurity”

[Participant from Universidade de Coimbra]

Seminars, Questionnaires: Action Point

- In preparation of the fall 2012 EUBARnet seminars, it is advised that also a pre-seminar (short) questionnaire is used with students to assess progress on learning objectives.
- In the fall 2012 EUBARnet seminars, it is recommended that national professional associations and societies are invited along participants from the hosting university (faculty and students)

Example of Questionnaire for Students participating to EUBARnet Seminars



With financial support from the Prevention of and Fight against Crime
Programme of the European Union
European Commission - Directorate-General Home Affairs

Evaluation of the Seminar Biosecurity: designing a web of prevention Delft University of Technology

1. Are the topics of the seminar interesting?

- Very interesting
- Quite interesting
- Not so much
- Not at all

2. Was your previous knowledge sufficient to follow the seminar?

- Yes
- Yes, even if having further information would have been helpful
- No, but I could follow the seminar easily anyway
- No, and this proved difficult

3. Were the topics addressed discussed in other courses?

- No
- Yes, but useful to deepen understanding
- Yes, a few
- Yes and too many

4. Did the seminar touch upon contemporary themes related to research?

- Yes and I found it interesting
- No, but this is due to the type of the seminar
- Yes, but too much
- No, this is an important aspect not addressed in the seminar

5. Had you any prior knowledge about the potential "hostile use" of life sciences?

- Yes
- No

6. Do you think that your knowledge and understanding of the following specific aspects have been developed after this seminar?

• **History of Biological Weapons**

- Yes, very much
- Yes
- Not very much
- Not at all

• **The Biological and Toxin Weapons**

Convention

- Yes, very much
- Yes
- Not very much
- Not at all

• **The problem and the risks of "dual use"**

- Yes, very much
- Yes
- Not very much
- Not at all

• **Tools and policies of "biosecurity"**

- Yes, very much
- Yes
- Not very much
- Not at all

7. What is currently meant with "dual use" in the life sciences?

- The uncertainty on results characterizing new technologies
- The potential of obtaining positive results beyond expectations
- The possibility that they are applied both for peaceful and hostile purposes
- The ambiguity of life science and technology

8. Which was the first international treaty to prohibit the use of toxic and biological weapons?

- The Hague Declaration, 1907
- Geneva Protocol, 1925
- Biological and Toxin Weapons Convention, 1972
- Chemical Weapons Convention, 1993

9. Do you think that some aspects of research that you study could present a "dual use" Issue?

- Yes
 No

- If yes, please explain what you think could be done to prevent the potential hostile applications of this research and minimize concerns over the possibility of dual use

10. What you would suggest to improve this seminar? Can you identify any other relevant topics which should be incorporated into our future seminars?

11. Would you recommend seminars or lectures like today's to other students?

- Yes No

12. The European Commission, but also the United Nations, the OECD, the WHO recommended the inclusion of considerations on BW, biosecurity and dual-use in scientific curricula. Do you think that this seminar could be used as an example to advise European universities and the European Commission on the wider implementation of biosecurity education?

- Yes No

13. Are you enrolled in a course?

- Yes No

14. What is the level of your current course/research?

- Undergraduate PhD
 Graduate (Master) Post-Doctoral

15. What is your field of study/research?

- Biology Social Science (please Indicate): _____
 Biotechnology Other (please Indicate): _____
 Microbiology
 Medicine
 Chemistry
 Toxicology
 Non-Life Science (please Indicate): _____

Upcoming Seminars Travel Schedule

Three EUBARnet seminars will be organized in the fall of 2012 (most probably between early October and early November). Those will be Bradford, Granada, and possibly one seminar in France.

Below a table reports the current arrangements on the three seminars, including travels according to updated schedules and budgets of the partners. The Consortium partners will identify the registered experts who will travel in agreement with the Hosting Parties. The latter should also identify an external invited expert to invite, in accordance with Giulio (for arranging logistics).

Note on possible seminar in France (see activity 4.7). This was originally planned in Krakow, organized by Prof. Guzik at Jagiellonian. However, the professor moved abroad and was not able to host the seminar and invite students; the EUBARnet's aims of local organization and ownership would not be fulfilled. At the same time, French universities in contact with some EUBARnet Partners expressed interest in organizing a seminar for their students; the Coordinator hence proposed the European Commission to move the activity in Bordeaux.

Seminar	Date	Hosting Party	Local Experts Area	EUBARnet Expert 1	EUBARnet Expert 2	External Invited Expert
Bradford	October 2012	Malcolm Dando	Security, Policy Dual Use	UNITO TBD	Coimbra TBD	TBD
Granada	October 2012	Angeles Cuadrado	Penal Law	Uppsala TBC	LNCV TBD	TBD
Bordeaux?	TBD	Université Bordeaux 2	Science (Neuro)	Coimbra TBD	LNCV TBD	TBD

Activity 4.1: Seminar in Milan

Title: Biosecurity and Environmental Risks

When: Thursday, 10 May, 2012

Where: Department of Biology, University of Milano

Organized by: M. Daniela Candia and Maria Pasini, Department of Biology, University of Milan

EUBARnet Members: Isabelle Perroteau (UNITO), Giulio Mancini (LNCV)

External Invited Expert(s): Henk Zandvoort, Delft Technical University, the Netherlands; Silvana Galassi, University of Milan

Format: Frontal lectures in English, followed by discussion.

Participants: Mainly Master students, Ecology, Environmental Biology, Biodiversity and Biology

Focus: Biosecurity and environmental risks (ecotoxicology, long-term environmental impacts of misuse), ethics and liability issues on bio-environmental security.

Programme

M. Daniela Candia (Department of Life Sciences of University of Milano) welcomed participants and introduced the seminar. Giulio Mancini provided an introduction to the EUBARnet project and an overview on biosecurity terminology and issues, including examples of environmental impacts and risks connected with biosecurity, misuse of life sciences for hostile purposes and dual use issues. Examples included long-term and unexpected consequences on the environment of past biological weapons programs.

Silvana Galassi (University of Milano) presented on “Ecosystem Vulnerability to Accidental Pollution by Dangerous Substances” with a particular focus on aquatic ecosystems. The presentation focused on prevention, response and impacts of environmental impacts of toxic risks of biological (but also chemical origin), and their relations with biosafety/biosecurity. Reference European regulation was presented, including the Seveso Directive, important historical examples and ecotoxicological models.

Henk Zandvoort (Delft University of Technology, Netherlands) presented on Ethics of environmental conservation and prevention, including the governance of risk, the ethical principles governing consequences of research, and the discussion over liability. He also addressed examples of both “dual use” cases and environmental accidents in the EU.

Comments

Around 50 students participated to the seminar; even if this participation (favored by professors of the Department inviting their students) was definitive positive, participation in the discussion was not particularly active, maybe for the exclusive use of English.

Activity 4.2: Seminar in Turin

Title: EUBARnet Seminars at Department of Life Sciences and System Biology

When: Friday, 11 May, 2012 13:30 - 16:30

Where: Aula Magna, via Accademia Albertina, University of Torino

Organized by: University of Torino - Department of Life Sciences and System Biology. Maurizio Balistreri, Bioethics; Tiziana Schilirò, Hygiene and Isabelle Perroteau, UNITO EUBARnet coordinator

EUBARnet Members: Maria Pasini (UNIMI), Giulio Mancini (LNCV)



External Invited Expert(s): Henk Zandvoort, Delft Technical University, the Netherlands; Alessandro Magnanensi, Risk Communication Expert

Format: Frontal lectures in English and in Italian, followed by a short discussion.

Participants: Mainly Master students, biology and neuroscience, and some PhD students, neuroscience

Focus: Dual use and bioethics, liability, introduction to misuse risks, communicating risks

Programme

After an introduction by the hosting professor Isabelle Perroteau (EUBARnet and University of Turin), Giulio Mancini introduced an overview on current policies on Biosecurity, the history of misuse of biology, past state military programmes or bioterrorism episodes.

Maurizio Balistreri (EUBARnet and University of Turin) talked about ethics related to the life sciences, ethical principles and different approaches to the issues raised by biology. He also touched on various ethical approaches to the environmental impacts of life sciences and biotechnologies, but also of S&T in general.

Henk Zandvoort (invited speaker from Delft Technical University) presented on Ethics of environmental conservation and of prevention of environmental harm, including the governance of risk, the ethical principles governing consequences of research, and the discussion over liability. He also addressed examples of both “dual use” cases and environmental accidents in the EU.

Alessandro Magnanensi (invited speaker on Risk Communication) discussed about the challenges and the responsibility for scientists in communicating risks, especially those linked with biology and its impacts on public health, society and the environment.

Comments

The seminar was attended by about 20 students (mainly Master students, from biotechnology and neuroscience). However, the small group coupled with the possibility of interacting in both English and Italian, may have helped some discussion.

University of Turin
Department of Life Sciences and System Biology

EUBARnet
European Biosecurity Awareness Raising Network

Seminari
Venerdì 11 maggio, ore 13.30-16.30
Aula Magna, Via Accademia Albertina, 13

Programma

Introduzione alla Biosicurezza
Giulio Mancini, Como

Etica, Biosicurezza e valutazione del rischio
Maurizio Balistreri, Torino

Ethics of conservation and prevention of environment
Henk Zandvoort, Delft

Comunicazione del rischio
Alessandro Magnanensi, Milano

Discussione Generale

I Seminari sono rivolti a docenti e studenti delle aree delle scienze della vita (Biologia, Biotecnologie, Scienze Naturali, Agraria e corsi affini), ma anche delle aree umanistiche interessate alla bioetica e alle politiche legislative in tema di affari sociali.

The European Biosecurity Awareness Raising Network (EUBARnet) connects universities and organizations in the EU that are working on raising the awareness of life scientists on biosecurity. It aims at promoting information for students and young scientists, increasing the participation of scientists in policy debate on biosecurity in the EU, and assisting the European Commission on the status of education on biosecurity.

www.eubar.net

Organizzato da:
M. Balistreri, docente all'Università

Il Manifesto è redatto con il finanziame-
nto della Commissione Europea

Activity 4.3: Seminar in Granada

Title: TBD

When: To Be Defined, probably October 2012

Where: University of Granada (Pena Law Department)

Organized by: University of Granada (Angeles Cuadrado)

EUBARnet Members: University of Uppsala (TBD), LNCV (TBD)

External Invited Expert(s): TBD

Format: TBD

Participants: TBD

Focus: Probably legislation and international/national legal aspects on biosecurity; plus scientific assessment and case studies presentations

Activity 4.4: Seminar in Bradford

Title: TBD

When: To Be Defined, probably October 2012

Where: University of Bradford (School of Life Sciences)

Organized by: University of Bradford (Malcolm Dando)

EUBARnet Members: University of Torino (TBD), University of Coimbra (TBD)

External Invited Expert(s): TBD

Format: TBD

Participants: TBD

Focus: Probably multidisciplinary with security, scientific cases, environmental and ethics contributions

Activity 4.5: Seminar in Delft

Title: Biosecurity: designing a web of prevention

When: Friday, 15 June, 2012 9.30-16.00

Where: Delft University of Technology, Aula Conferentiecentrum, Mekelweg 5, Room: Commissiekamer 3

Organized by: Henk Zandvoort, and Robin Pierce (Delft University of Technology)

EUBARnet Members: Andreia Jorge (University of Coimbra), Giulio Mancini (LNCV)

External Invited Expert(s): Alastair Hay (University of Leeds School of Medicine Molecular Epidemiology Unit LIGHT Laboratories); Seumas Miller (Centre for Applied Philosophy and Public Ethics, Australian Research Council Special Research Centre at



TUD-EUBARNET Seminar on biosecurity



Biosecurity: designing a web of prevention

Seminar for students in the course LMJ361: Ethical, Legal and Social Issues in Biotechnology

Delft University of Technology, June 15, 9.30-16.00.

Location: Delft University of Technology, Aula Conferentiecentrum, Mekelweg 5, building 2B on the map. Room: Commissiekamer 3. To see map see: <http://www.tudelft.nl/locatie/locatie-2b-2012>

Welcome	
9:15-9:30	Greetings and coffee
Morning session 9.30-12.30: lectures by invited experts	
9:30-9:45	Dr Henk Zandvoort, Department of Philosophy, Delft University of Technology Opening and Introduction
9:45-10:00	Mr Giulio Mancini, Research Fellow and Program Officer, Landau Network - Centro Roldi, Italy The EUBARNET project and its objectives (http://www.eubarnet.eu/)
10:00-10:30	Dr. Andreia Jorge, Center for Functional Ecology, University of Coimbra, Portugal Review on Environmental Aspects of Biosecurity
10:30-11:10	Prof. Seumas Miller, part-time professor, JTI Ethics, Delft, NL Ethical aspects of the dual use problem and institutional responses
11:10-11:20	Coffee
11:20-12:00	Prof. Alastair Hay, Professor of Environmental Toxicology, School of Medicine, University of Leeds, UK Integrating legal and non-legal frameworks
12:00-12:30	Dr Robin Pierce Goals and set up of afternoon session: design workshop
12:30-13:30	Lunch break
Afternoon session 13.30-16.00: design workshop.	
MSc students in biotechnology design elements for a web of prevention for containing biosecurity risks, with input from the invited experts	
The students work together in groups of 5 to design key elements of a "web of prevention" to prevent, contain, limit, or otherwise control bio risks including security risks from modern biological science and technology. Speakers of the morning session are available to provide specific input to the students. The student groups report on their key findings (< 5 minutes per group).	
Each student group will develop and report on two non-obvious elements for an effective "web of prevention": one institutional, and one technical. An example of an institutional element would be the Biological Weapons and Toxins Convention or a piece of regulation based on the convention. An example of a technical element would be to only develop biological organisms that cannot reproduce themselves, thereby reducing the risk of both unintentional outbreaks and malevolent use.	
The workshop will consist of three rounds. The first round is a short brainstorm session in which each group brainstorm on which institutional and which technical component for a "web of prevention" they want to develop during the remainder of the workshop. They determine their choice after having consulted one of the speakers/experts. In the second round the selected ideas are worked out. The speakers/experts can be consulted at any moment during the second round, e.g. to answer specific technical questions that may arise. In the third, plenary round the results are presented.	
16.00-17.00: informal gathering around drinks	

Charles Sturt University, Canberra; and 3TU Centre for Ethics and Technology at Delft University of Technology, The Hague)

Format: Organized as the final lecture of the regular course of Bioethics for Biotechnology Master students. The seminar followed similar structure of other topics of the Bioethics course: lectures by speakers in the morning and a workshop in the afternoon. During the workshop, MSc Students in biotechnology worked together in groups of 5 students to design key elements of a “web of prevention” to prevent, contain, limit, or otherwise control bio risks including security risks from modern biological science and technology.

Participants: A class of second year Master in biotechnology

Focus: Multidisciplinary with dual use ethics, dual use case studies, history of weapons and environmental biosecurity and safety.

Programme

Henk Zandvoort introduced the seminar with an overview on the discussion of dual use, bioethics and biosecurity. Giulio Mancini presented on the spectrum of risks, the history of misuse including weapons, and the objectives of EUBARnet. Andreia Jorge presented on some environmental aspects of biosecurity and biosafety, including agricultural safety, GMOs, and biosecurity from invasive species.

Seumas Miller (Centre for Applied Philosophy and Public Ethics, Australian Research Council Special Research Centre at Charles Sturt University, Canberra; and 3TU Centre for Ethics and Technology at Delft University of Technology, The Hague), presented about Collective Action Problems, Regulation and the Dual Use Dilemma. He discussed ethical and philosophical aspects of the dual use dilemma, in particular in the life sciences; presents case studies of dual use experiments, the range of actors and institutions involved in the discussion over dual use, as well as the range of possible integrated response measures. He also presents students with collective action problems raised by the dual use dilemma, as well as proposals and recommendations

Alastair Hay (University of Leeds School of Medicine Molecular Epidemiology Unit LIGHT Laboratories) presented on a project to discuss and raise awareness on dual use in chemistry, developed with the International Union on Pure and Applied Chemistry and the Organization for the Prohibition of Chemical Weapons. The lecture reported the discussion about two cases of “dual use” in chemistry, the role of scientists and making choices.

In the afternoon, students carried a workshop to design elements for a web of prevention for containing biosecurity risks, with input from the invited experts. The students work together in groups of 5 to design key elements of a “web of prevention” to prevent, contain, limit, or otherwise control bio risks including security risks from modern biological science and technology. Speakers of the morning session were available to provide specific input to the students. The student groups reported on their key findings (< 5 minutes per group). Each student group developed and reported on two non-obvious elements for an effective “web of

prevention”: one institutional, and one technical. Examples of proposals emerging from the discussions included provisions in codes of ethics or conduct, transportation and export controls, personnel security and background checks.

Comments

The seminar was attended by 24 students (according to the signed attendance list).

Activity 4.6: Seminar in Uppsala

Title: “Who should know my results? Science and Ethics in the Crossfire: The Case of H5N1 Influenza Bird Flu

When: Thursday, 31 May, 2012 13:00

Where: Uppsala Universitet

Organized by: Margareta Krabbe, Centre for Biology Education, Uppsala Universitet

EUBARnet Members: Giulio

Mancini (LNCV)

External Invited Expert(s): Mikael Leijon, National Veterinary Institute and Swedish University of Agricultural Sciences: Transmission of highly pathogenic avian flu;

Roger Roffey, Senior Scientist, Swedish Defence Research Agency, FOI, Stockholm. Biosecurity and risk of misuse of life sciences

Format: Organized with lectures from biologists, invited microbiologists, and colleagues

from the Uppsala University’s Centre for Research Ethics and Bioethics

Participants: Mainly master students in Biotechnology.

Focus: Starting on the case study of the H5N1 transmissibility experiments debate, from the scientific/medical point of view, the ethical and the security aspects, the seminar focused particularly on the discussion on publication of sensitive research results.

Programme

Margareta Krabbe, EUBARnet member from the Partner University of Uppsala, Centre for Biology Education, introduced the seminar, and Giulio Mancini presented an overview on the EUBARnet objectives and project.

Mikael Leijon (National Veterinary Institute and Swedish University of Agricultural Sciences: Transmission of highly pathogenic avian flu) presented on H5N1, with special attention to the 2011 experiments on transmissibility and the reasons of the debate on dual use they raised.



Open seminar Thursday 31 May 2012, B7.101a, Biomedical Centre

Who should know my results?

Science and Ethics in the Crossfire: The Case of H5N1 Influenza Bird Flu

13.00-13.15 **Introductory note Giulio Mancini**, Researcher and Program Manager at the Landau Network-Centro Volta, Coordinator of **EUBAR-NET**

13.15-13.45 **Mikael Leijon** National Veterinary Institute and Swedish University of Agricultural Sciences: Transmission of highly pathogenic avian flu

13.45-14.15 **Frida Kuhlau**, Centre for Research Ethics & Bioethics, Uppsala University: *Should science be censored?*

14.15-14.45 Complimentary coffee and tea

15.00-15.30 **Roger Roffey**, Senior Scientist, Swedish Defence Research Agency, FOI, Stockholm. *Biosecurity and risk of misuse of life sciences*

15.30-16.30 Discussion, Moderator **Stefan Eriksson**, Centre for Research Ethics & Bioethics, UU

Questions? stefan.eriksson@uu.se

Wellcome! The seminar is open to all interested!

The European Biosecurity Assessment Raising Network (EUBARnet) connects universities and organizations in the EU that are working on raising the awareness of life scientists on biosecurity and dual-use concerns. The project is financially supported by the Prevention and Fight against Crime Programme (PFC) of the European Commission - Directorate-General Home Affairs. visit: <http://www.eubar-net.eu>



Frida Kuhlau, EUBARnet member from the Centre of Research Ethics and Bioethics of the University of Uppsala, presented on dual use bioethics and the “ethical dilemma” of publishing sensitive and potentially dual use results of research.

Roger Roffey (Senior Scientist, Swedish Defence Research Agency, FOI, Stockholm) presented on Biosecurity and risk of misuse of life sciences, outlining examples from history of misuse including biological weapons, and policy and regulatory tools for bioweapons prevention.

The lectures were followed by discussion open to students, moderated by Stefan Eriksson, from the Center of Research Ethics and Bioethics.

Comments

The seminar was attended by around 30 students.

Activity 4.7: Seminar in Krakow (moved to France?)

Title: TBD

When: October 2012

Where: University of Bordeaux?

Organized by: University of Bordeaux?

EUBARnet Members: University of Coimbra (TBD), LNCV (TBD)

External Invited Expert(s): TBD

Format: TBD

Participants: TBD

Focus: Probably multidisciplinary focused on scientific cases (neuroscience misuse?)

Activity 4.8: Seminar in Coimbra

Title: Seminar on Biosecurity, Safety and Environmental Impacts

When: Friday, 27 April, 2012

Where: Centre for Functional Ecology University of Coimbra, Portugal

Organized by: Helena Freitas, Ulisses Azeteiro, Joao Loureiro (Centre for Functional Ecology University of Coimbra)

EUBARnet Members: Giulio Mancini (LNCV)

External Invited Expert(s): TBC

Format: Frontal lectures in English and Portuguese, followed by a short discussion.

Participants: Mainly Master students in Biology and Ecology

Focus: History of misuse, environmental aspects of biosecurity and dual use, agricultural biosecurity and biosafety, biosecurity and biodiversity.



Programme

The presentation by Giulio Mancini introduced an overview on current policies on Biosecurity, concurring definitions of English terminology such as “biosecurity”, “biosafety”, “biorisk”, “dual use” and “biological weapons”. The presentation also touched briefly on the history of misuse of biology, exemplifying misuse of science in past state military programmes or bioterrorism episodes. The debate over “dual use” was also introduced with discussion of more and less recent cases. Measures of prevention, prohibition and possibly regulation over history are listed, with a special focus on policy measures in Europe. The possible role of ethics, codes, “soft norms”, as well as the importance of the engagement of scientists, concludes.

Elizabeth Merchante (Centre de Ecologia Funcional of the University of Coimbra) talked about the issues of biosecurity in connection with challenges of invasive species, presenting the definitions and the categories of alien and invasive species. She also talked of policy and legal regulations at the European, international and national level in Portugal which are relevant for biosecurity in terms of prevention and mitigation of adverse effects of biological invasions.

Andreia Jorge (Centre de Ecologia Funcional of the University of Coimbra) presented on “Environmental Aspects of Biosecurity and Practice Standards in Europe”, basing on a review report prepared by the safety & environmental aspects working group of EUBARnet on the current thinking and context on environmental aspects of biosecurity. She touched upon the nature of potential risks to the environment connected to biosecurity issues, and that can be mitigated with integrated biosecurity policies and practices. She included definitions of basic terms in connection with environmental risks such as biosafety, biosecurity, quarantine, biorisk assessment, management system. The presentation also touches upon international European policies specifically relevant to biosecurity and environment (IPCC, CBD, CITES, GMOs regulations).

Comments

The seminar was attended by 20 students (according to the signed attendance list).

Seminars, Organization: Action Point

- The planning of the last three seminars of 2012 should continue between the hosting parties, the participating EUBARnet members and the Coordinator.

Outreach and Presentations

The project was presented in a number of security policy environments, governmental and non-governmental, basing on the origin of the grant (from a CBRN security affairs funding programme of the European Commission), as an example of misuse prevention tool and engagement of scientists into the security and dual use discourse.

- IWG – LNCV Biosecurity Workshop and Round Table, *“Biosecurity, Biosafety, Human Capital and the Seventh Review Conference of the Biological and Toxin Weapons Convention”*, 18-19 November 2011, Como, Italy
- Landau Network Centro Volta and University of Bradford, *“Implementing Education on Biosecurity and Dual Use”*, 12 December 2011, Side Event to the Seventh Review Conference of the Biological and Toxin Weapons Convention, United National Office in Geneva
- G8 Global Partnership and International Working Group, *“Third International Working Group Discussion: Global Partnership (GP) – 2012 and Beyond”*, 16 April 2012, Side Event to the Global Partnership Working Group Meeting, United States Southern Command, Miami, Florida, US
- International Federation of Biosafety Associations and African Biosafety Association, *“Second General Conference”*, 25 June 2012, Johannesburg, South Africa
- University of Bradford, *“Responsible Conduct of Research for Scientists and Engineers – Twin International Meeting”*, 9-11 July 2012, Bradford
- 2012 Meeting of Experts of the Biological and Toxin Weapons Convention, 16-20 July, 2012

Administrative Issues

To facilitate the administrative management of the project, as well as the respect of the guidelines of the European Commission in terms of reporting, the Coordinator started to collect from Partners the supporting documents for the expenses of the first year of the project.

Administrative Issues: Action Point

- Partners should continue (or start with urgency) sending as soon as possible to the Coordinator the supporting documents of the expenses incurred so far; please follow the EC Guide for Applicants and the reminder in this Report.

Guidelines for the supporting documents are included in the EC Guide for Applicants as well as explained in the documents in the Google Docs folder.

A short reminder on supporting documents for expenses is as follow. Please consider that all supporting documents should indicate the code of the project, and all must be in original or true copies:

For Staff Costs

- Proof of employment, such as employment contract or, if not available for the position, a substitute document from the University stating the position of the staff according to the Partner's budget;
- Proof of the working days, in the form of project's timesheets (stating name and position, code of the project, dates and number of days, number and description of project activities, signature of staff and supervisors);
- Proof of payment (bank transfer).

For Travels

- Proof of travel cost (flight or train ticket, car reimbursement – please refer to the Guide for further indications), including the cost of the ticket;
- Proof of travel: boarding passes;
- Proof of daily subsistence allowances: receipt of lump sum or detailed reimbursement, according to the usual practice of the Partner (in case of the latter, receipts of all expenses have to be attached), within the maximum in the Partner's budget;
- Proof of payment (bank transfer to the travel agency/airline for the ticket; bank transfer to the staff for daily subsistence allowance).

Other costs (for example: editing and printing of brochures)

- Proof of expenditure: invoice by the service provider with description of the service, unitary costs, number of units, etc (if applicable);
- Proof of payment (bank transfer to service provider).

Updated Organizational Chart

