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**Research on prevention of bioterrorism:
Overview of recent developments and actions at European Community level**

Submitted by the Netherlands

Introduction

1. To be capable of rapidly responding in case of a bioterrorist event, decision makers prefer a strict framework of risk assessment, risk management and risk communication. They ask for exhaustive lists of all possible hazards and the corresponding risk assessments. These can result in an objective ranking of threats according to their possible impact, likelihood of occurrence, urgency for preventive measures, state of the art of science and technology, etc. However the validity of such ranking is likely to be limited in time as it is based on known hazards whereas real threats may come from unexpected events or unexplored risks. The ranking is also relative as several elements that cannot be objectively measured such as the access of terrorist groups to training, expertise, biological source material and equipment and the pace of scientific and technological progress in certain fields in clandestine laboratories may alter the priority ranking or create new hazards (e.g., genetic engineering).

2. Bio-security research should thus:

- (a) both provide exhaustive and, ideally, readily exploitable information and scenarios for all the agents of known concern and be generic enough to allow rapid exploitation of results for other, possibly (re-) emerging threats (address issues and risks that are not yet or not anymore recognized as a risk);
- (b) be sufficiently restricted not to facilitate (dual) use of essential data, methods, protocols, agents, equipment materials, etc. by terrorist communities. But at the same time it should be sufficiently open to allow the regular research community to progress.
- (c) where possible provide spin-offs that enhance food safety, disease surveillance and control, etc.

3. The following sections clarify the European Commission's approach for filling, against the above background, some of the gaps in bioprotection-related research, for generating new knowledge and for developing new tools and platforms to improve prevention, preparedness and response in the field of bio-security.

Advice from the R&D Expert Group on Countering the Effects of Biological and Chemical Terrorism¹

4. Research in the EU is being decided upon and implemented at regional, national or European levels. The European level applies only when the complexity of an issue, the complementarity of resources or the specific field of application of the result require grouping and exploiting various regional or national resources and creating an added value that can not be obtained at the regional or national levels. This principle also applies to bioprotection-related research.

5. The R&D Expert Group has identified the existing research gaps and priority needs of research in the field of bioprotection, taking into account an inventory of work ongoing in the EU's Member States and the opportunities offered by the EU's 6th Framework Programme for Research (2002-2006).

Ongoing research of direct or indirect relevance².

6. Under the EU's 6th Framework Programme for Research (6th FP) (2002-2006), current³ activities in the field of bio-protection at the level of the European Union cover, summarized:

- (a) Scientific Support to Policies, with projects in the fields of Anthrax vaccine development, smallpox identification, vulnerability assessment, disease modelling and plant pathogens. This research aims to underpin the development, implementation and assessment of Community policies.
- (b) Research activities of possible indirect relevance in the fields biotechnology, food safety, food quality and life sciences.

7. In addition, the European Commission kick-started on 7 October 2003 the development of a European security research programme. A group of selected personalities from industry, government, academia and European Parliament defined a European agenda for security research and spearhead the development of a research program by 2006. In a first phase the implementation of a preparatory action for security research for 2004 - 2006 started in 2004. The preparatory action and the future program should enhance the EU's scientific and technological capabilities for ensuring the security of European citizens.

¹ Set up by European Commission services following a decision of Council of Research Ministers of 30th October 2001. This decision was a follow-up of the Ghent Summit of 19th October 2001, responding to the events of 11 September and calling for the preparation of a programme aiming at improving the co-operation between Member States in the fields of risk evaluation, alert and intervention, and in the field of research.

² Lists and short summaries can be found on: <http://fp6.cordis.lu/fp6/home.cfm>

³ Research on additional topics is planned for end-2004, 2005 and 2006 and will be announced in July 2004 and in October 2004 on <http://fp6.cordis.lu/fp6/home.cfm>.

Integrating, coordinating and structuring EU research.

8. Whilst specific targeted research remains essential to address specific topics or fill gaps, the EU research policy is increasingly paying attention to the establishment of durable entities which create sufficient critical mass and exploit /integrate the expertise and facilities available at a multitude of sites throughout the European territory. The 6th FP has therefore introduced 2 new “instruments”, namely the Networks of Excellence and the Integrated Projects, which aim at, amongst others:

- (a) sharing of research facilities, tools and platforms;
- (b) bjoint management of a given knowledge portfolio;
- (c) increasing staff mobility and exchanges; joint programmes for training of researchers and other key staff;
- (d) generation of new knowledge to extend the collective knowledge portfolio;
- (e) communication of results;activities encouraging knowledge transfer and innovation.
- (f) the horizontal integration of a range of multidisciplinary activities from across the full research spectrum
- (g) the sectoral integration of actors from private and public sector research organisations, and in particular between academia and industry, including SMEs.

9. The above strategy allows to exploit, integrate, harmonize, complete and add a cross-boundary and trans-disciplinary dimension to the research, expertise, laboratory facilities, methods, protocols, instrumentation, etc. that are present at a multitude of places in the EU. Eventually it should lead to an open research community, a virtual “open research market” which, by its existence, will provide an answer to a number of concerns that have been raised with regard to biosecurity research:

- (a) Internal control and peer-review;
- (b) An important critical mass;
- (c) combining/integrating at once the resources and strengths of many laboratories;
- (d) Monitoring of new developments; timely detection of emerging issues (including potential risks resulting from research results, new agents,);
- (e) Rapid information exchange;
- (f) Transfer of knowledge (methods, techniques, ...) between fields;
- (g) Harmonization, standardization of approaches;
- (h) Training;
- (i) Communication.

10. What precedes does, however, not imply that results of sensitive research (e.g., biosecurity research) are put on the public market without any restriction. Partners are also not obliged to cede control of their research to other partners. There is no obligation for partners to cede rights concerning intellectual property.

11. What precedes also implies that the “returns” in terms of increased biosecurity of the research funded at EU level, cover a much vaster field than the outputs of the R&D activities directly related to bioterrorism.

Summary

12. The European Union's biosecurity-related research is embedded in a multidimensional frame allowing specific research on threat identification and countermeasures, the exploitation and integration of the wide variety of resources existing in its Member States, the harmonisation and standardisation of methods and data and the creation of an open research area also in the field of biosecurity. The benefits of this frame are not limited to its scientific or technological outputs as such: it contributes to strengthen the scientific bases of policy decisions and it also creates a scientific community and environment with a mass, capacities and pace of scientific developments that compare favourably with the ones of smaller entities or communities.
