



Kingdom of Morocco

Ministry of Education, Higher Education, Training and Scientific Research

# IMPROVING BIOSAFETY AND BIOSECURITY IN THE MENA REGION


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Knowledge  
without  
conscience is  
simply the ruin of  
the soul.

F. Rabelais, 1532

# Spectrum of the Biological Risks considered in this presentation

*Minimizing risks rather than wasting time on definitions !!*



Naturally  
Occurring  
Diseases

Re-emerging  
Infectious  
Diseases

**Unintended  
consequences  
of Research**

Laboratory  
accidents

Lack of  
awareness

Negligence

**Deliberate  
misuse**



Biosciences (biotechnologies) are used primarily for good, but can also be used for harm.

The term “dual-use” is used to describe this phenomenon.

## Points of consensus from the First Round Table on DURC (Bethesda february 2007): 7 countries

- 1- **Life sciences research** is essential to improve the health and wellbeing of mankind, but some of its tools could be misused for **harm**
- 2- We must maintain a productive life-sciences enterprise while **minimizing the risk of harm** coming from our legitimate laboratories.
- 3- There is a need for increased **awareness** of the dual-use research issue throughout the scientific community.
- 4- We must work to strengthen a **culture of responsibility**.
- 5- Life sciences are a **global endeavor**; therefore, our efforts to address the dual-use issue must be global as well.

## Second Round Dable (October 2007). Internal

- Scientific research is a **social contract between scientists and society**.
- The terms 'dual-use', biosafety and biosecurity themselves may be **perceived differently in different regions of the world**. (clarify definitions and goals).
- **Education and training** regarding dual-use issues must be **global** and **multidisciplinary**.
- Communication between and among stakeholders, globally, is critical; therefore, **networks are needed**
- Solutions in various countries and regions will differ, international consensus '**guidelines**' should be developed to serve as a basis for **national oversight**.
- Because incidents of misuse of biotechnology will be relatively rare, **success will be difficult to measure**, but some **metrics** are needed.

## The third international roundtable: more than 130 scientists from 37 countries

(November 2008)

1. Science and society are inseparable; the public wants and needs assurance that **scientists are committed to mitigating risks** that might arise from scientific advances.
2. Risks associated with the life sciences enterprise---whether accidental or intentional---follow a continuum; therefore, a **spectrum of risk management strategies is necessary**.
3. Existing frameworks---**educational, professional and research review mechanisms**---should be leveraged as we attempt to deal with dual-use risks.
4. **Awareness raising, training and education** efforts must seek a broader dialogue in order to reach the very diverse audience in academe, industry and government.

## The third international roundtable: continued

5. **Codes of conduct**, tailored for the audience, are a useful means of instilling awareness regarding scientists' ethical obligations to reduce misuse of their research.
6. **Review of research** must occur across the life-cycle from proposal through publication.
7. **Journal editors** should work together to standardize the approach for the **identification of dual-use research** and to share experiences and best practices.
8. There is a critical need to develop formal and informal---web-based---mechanisms for **sustained dialogue and communication among all the stakeholders** in the dual-use dilemma.
  - [http://oba.od.nih.gov/biosecurity/biosecurity\\_documents.ht](http://oba.od.nih.gov/biosecurity/biosecurity_documents.ht)



# DURC

- **Misuse of dual use research is a serious potential risk for development of biological weapons and bioterrorism**
- **A mix of policies that both enhance security and enable continuing scientific advances is needed**
- **Scientific community has a key role in helping to reduce the risks of misuse**

# Kingdom of Morocco

[www.maroc.ma](http://www.maroc.ma)

MAROC

<http://www.Voyager-au-Maroc.com>



# National Reform of Public Scientific Research

## (2025 Strategy)

- Reform of the graduate studies system in Morocco (Law: 00-01) : CED and Doctoral Thesis Charter (article 17)
- Public funding of peer reviewed research projects is decided at different levels (Ministry and Universities Presidency): National commission
- To be eligible for Ministry's funding, Universities must abide to the national research priorities aimed at resolving local, regional or national issues . These are: Environment, Health, Competitive entrepreneurship and industry, Water management, Land preparation and management, Cultural heritage, Information technology, Agriculture
- **Research Labs and Units must be accredited in order to receive funding. A peer review process is a determining step for accreditation.**

# Awareness raising and oversight

- **Awareness at universities** among faculty and graduate students (Colloque National de Bioéthique: Training Workshop on “Scientific Research and Ethics”. School of Medicine of Fes. June 2005).
- **Human capacity building:** Biological and chemical security curricula at only few schools in the country
- National biosecurity and bioethics associations:
  - **Comité d'éthique pour la recherche biomédicale**
  - **Association marocaine pour la bioéthique.**
- Intensifying meetings with Faculty colleagues and Ministry Staff

***Assessment is still not based on DURC criteria! A gap to be filled !***

# National Scientific Research System survey (2006/2007): Who is doing what

?? First phase of a national survey on SR activities and funding sources

- National GDP expenditure for Scientific Research is only **0.64%**. the objective of the National strategic plan is to reach **1% by 2010**
- Most the Scientific Research is performed under **government /Academia control**
- National S R funding: Gov :**73%**; private sector : **22%**; International Cooperation: **3%**; public/public partnership : **1%** and public/ private partnership: **1%**.
- Universities funding : Gov :**95%**; International Cooperation : **3%**; public/public partnership: **1%** and public/ private partnership: **1%**.

# Morocco and Biotechnology. Ref.

National survey on scientific research (2006/2007)

National Biotechnology Research activity is very poor: 12 universities out of 15 have a Biotech activity; 33 accredited research teams out of 445 (7.41%) and 25 University laboratories out of 488 (5.12%) conduct research in biotechnology around classical themes.

# Containment Labs in Morocco

- **Maroc Pasteur Institute**: Reference Laboratories: virology (BSL<sub>2</sub> and BSL<sub>3</sub>) operational 2006
- **Gendarmerie Royale** (BSL<sub>3</sub> in Rabat)
- **Mohamed V Military Hospital** (BSL<sub>3</sub>)
- **Biopharma Laboratory** in Rabat (BSL<sub>3</sub>): vaccine development
- **NIH (have BSL<sub>2</sub> and BSL<sub>3</sub> in project)**
- A project of a BSL<sub>3</sub> in the south
- No classification yet for University labs

**Department of Virology is a WHO reference center for poliomyelitis and measles and WHO reference centre for influenza.**



# Toward National Codes of conduct

The Permanent Inter-Ministerial committee on Scientific and technological Research Policy chaired by the Prime Minister will meet this year. With two important decisions on the agenda:

- 1) **National Commission of Science Ethics**
- 2) **Biosafety and Biosecurity National Committee**

Projects: A code of Science Ethics and a code of conduct for researchers.





## Cooperative NAS/MHESR study on B&B progress in Morocco (October 2008)

- Help **assess Morocco's capabilities to control potential biological threats** (highly dangerous pathogens)
- Learn more about programs of Moroccan government agencies and international organizations that attempt to **reduce local biological threats**
- The **Moroccan perspectives on the potential for intentional or unintentional releases of dangerous pathogens (DURC)**
- **Highlighting the progress Morocco has made with regard to biosafety and biosecurity** and recommend relevant issues on which future U.S.-Moroccan collaboration in the form of training, capacity building, and technology transfer could be useful

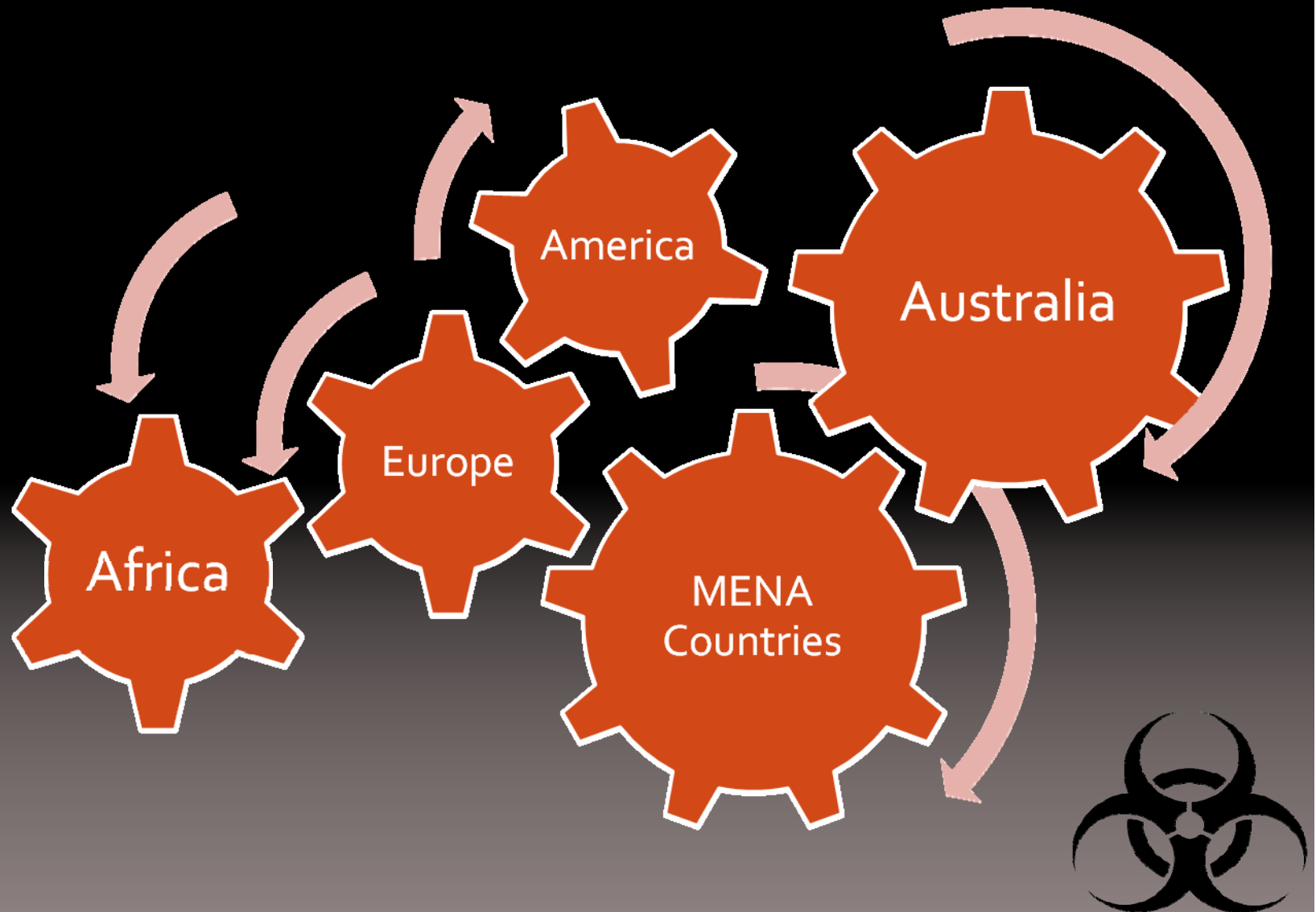
*(Report to be released in the spring of 2009)*

# Participation to Regional and International Activities

## Related to Biosecurity and DURC

- **BBIC-07** : Biosafety and Biosecurity Intl Conference. Abudhabi Nov 2007
- **Second International Forum on Biosecurity** March 30-April 2008 Budapest
- Meeting of the **MENA Core group on Biosafety and Biosecurity**: Mai 2008
- **Joint US-Morocco Conference** on B&B, 3-5 November 2008
- Planning meeting for an upcoming **workshop on Biosecurity Education**: November 4, 2008 Washington DC
- Participation to **3rd International Roundtable** : Sustaining Progress in the Life Sciences: November 5-6, 2008 Bethesda
- Discussion with **VERTIC** on legislative aspects for **BTWC** implementation
- **NabNet** Workshop in Tunis December 2008
- Alexandria **Biosecurity Workshop for the MENA Region** (22-24 february 2009)
- **BBIC-09** : Biosafety and Biosecurity Intl Conference for the MENA Region. Casablanca April 2-4, 2009. (coordinating committee)

# At the Regional level



# MENA Countries and BTWC

## States Parties

1. Algeria
2. Bahrain
3. Iran (Islamic Republic of)
4. Iraq
5. Jordan
6. Kuwait
7. Lebanon
8. Libyan Arab Jamahiriya
9. Morocco
10. Oman
11. Qatar
12. Saudi Arabia
13. Sudan
14. Tunisia
15. Yemen

## Signatories

- Egypt  
Syrian Arab Republic  
16. United Arab Emirates

## States not members

Mauritania



# Some dates of ratification of the BTWC

- Morocco : Ratified/acceded 21 march 2002
- Algeria : Ratified/acceded 22 july 2001
- Libya: Ratified/acceded 19 January 1982
- Jordan: Ratified/acceded 18 june 1982
- Lebanon: Ratified/acceded 26 March 1975
- Iraq: Ratified/acceded 19 June 1991
- Iran: Ratified/acceded 22 August 1973
- Oman: Ratified/acceded 31 March 1992
- United Arab Emirates: Ratified On 19 June 2008

Opened for signature in 1972 and entered into force in 1975. (162 countries)





# IAP Statement on Biosecurity

(2005)

Principles to guide individual scientists and local scientific community that may wish to define a code of conduct for their own use

- Awareness
- Safety and Security
  - Education and Information
  - Accountability
    - Oversight



# Principles endorsed by the following MENA National Academies

*(68 Academies in total)*

- Academy of Scientific Research and Technology (Egypt)
- Academy Hassan II des Sciences et Techniques (Morocco)
- Palestine Academy of Science and Technology

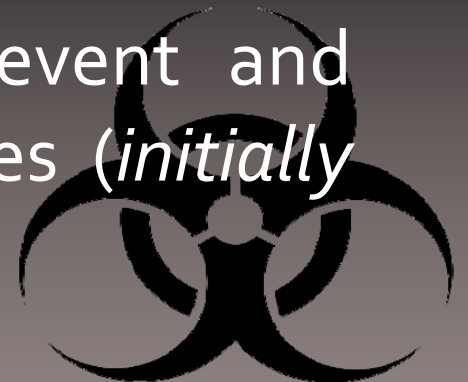


# The MECIDS Initiative

Middle East Consortium on Infectious Disease  
Surveillance (2003)

<http://www.mecids.org/>

currently involves public health leaders, academic institutions, and private health care facilities in **Jordan, Israel**, and the **Palestinian Authority** working together to prevent and reduce the risk of infectious diseases (*initially salmonella outbreaks*).





# Development Strategy for Biotechnologies in the Islamic World



- ❑ Biotechnology is welcomed in the Islamic world provided ethic codes of conduct are implemented
- ❑ Agriculture, Health and Industry are the three Biotech top priorities for MENA world
- ❑ Food demand will increase in the MENA region by 40 % in the next 25 years: ➡ Consensus on the need of Biotechnology for increasing productivity of Agriculture in the Islamic world (food security)
- ❑ ex.: Developing transgenic crops varieties with resistance to diseases, insects and herbicides
- ❑ Capacity building, university curricula's and creation of regional research center in biotechnology
- ❑ the need to establish an infrastructure for stem cell research to meet local needs in terms of treatment of a wide range of human pathologies.
- ❑ Develop medicinal and aromatic plants

# International Development Research Center

## IDRC Regional Workshop on Biotechnology in the Middle East and North Africa

Sept 29-30, 2004

Cairo, Egypt

Background working document:  
Health Biotechnology in MENA

*Pr. Dahmani M. Fathallah (Institut Pasteur de Tunis)*

Biosafety and Biosecurity International Conference  
**BBIC-2009**

Casablanca

Morocco

April 2-3, 2009



# Key elements of the strategy

## Healthier and more secure communities in the Mena region

strategic objectives:

- Biological Risk Control
- Bio Preparedness (including Detection and Response)

strategic elements:

- **Capability and capacity building**
- Legislation, regulation (international and national)
- **Governance, scientific responsibility, ethics-based codes**
- Coordination
- Awareness
- Partnership and collaboration
- Border inspections
- Surveillance
- Emergency response
- Diagnostics
- Monitoring

**Core group meeting in Abudhabi  
May 2008**





# Perspectives for International Cooperation

- Set-up mechanisms at universities that help increase awareness among the academic community specially when engaging in international scientific cooperation (ex. EU 7FP; binational cooperation commissions)
- There is still great need of implementation of Biosafety and Biosecurity curricula's at the 15 National Universities. We believe the International Cooperation might be of great help to overcome this issue.
- Morocco is ready to play active roles at the MENA level in areas that relate to biosecurity, including the development of Regional Networks
- It is desirable for us to set-up international standards in the field of DURC that takes into consideration freedom of mobility of scientists and of legitimate research materials
- Morocco will continue to share and learn from best practices of other countries

# Finally

The dual-use dilemma is global, but solutions will depend on:

- the nation's and region's priorities,
- the maturity of the biotechnology industry,
- the state of public health capabilities (infrastructure and diagnosis capabilities)
- socio-economic status
- human and national security experience.



THANKYOU



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