

# Laboratory Twinning to improve disease security world wide

International meeting on Emerging Diseases and Surveillance  
Vienna, 2011

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World Organisation for Animal Health (OIE)



# Possible origins of animal disease outbreaks

- Natural disease events
- Deliberate release (bioterrorism)
- Breaches in laboratory bio-containment
- New and emerging diseases

**“Disease detection and control for a natural, deliberate or accidental release of animal pathogen or emerging pathogen is virtually the same”**

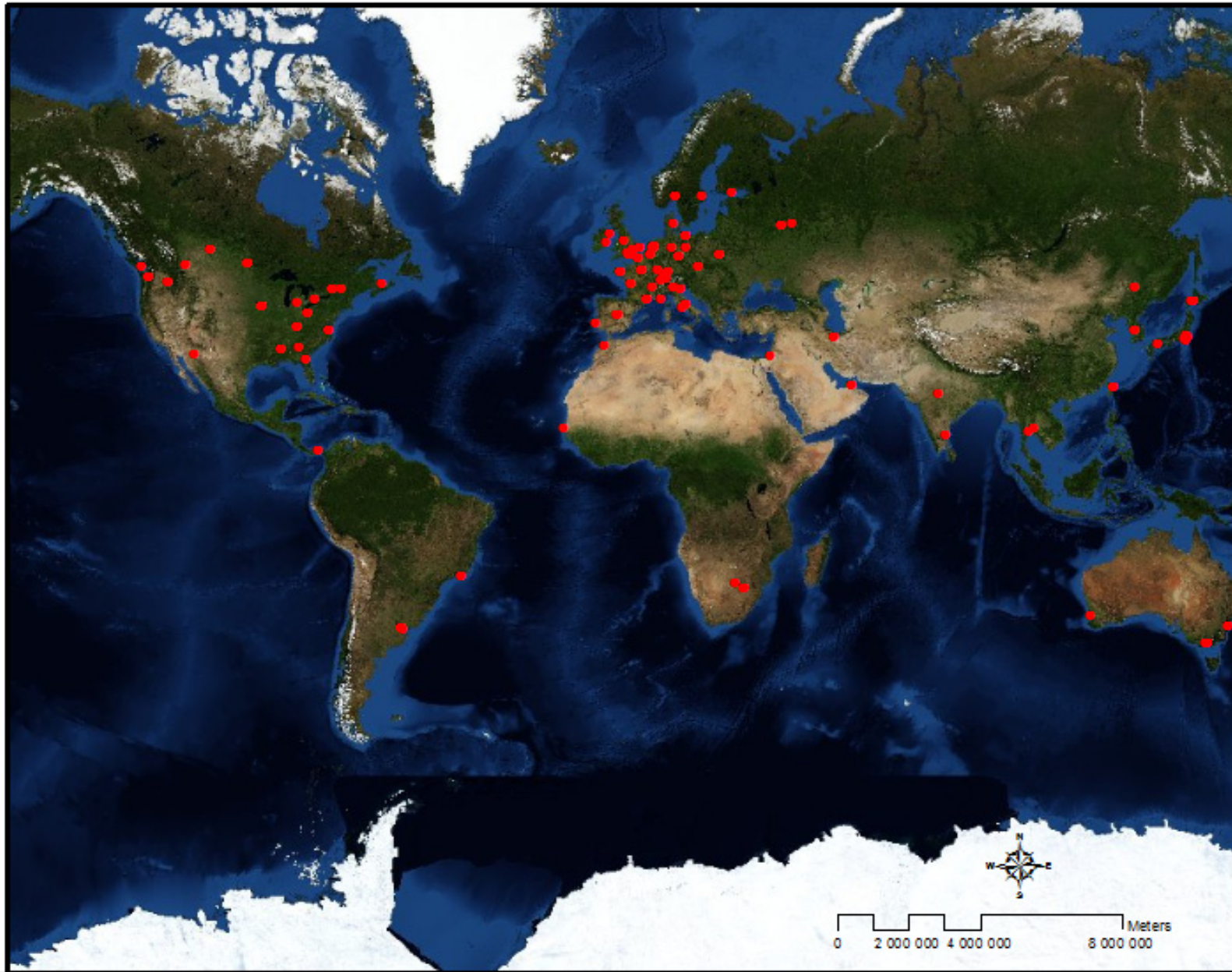
# CURRENT NETWORK OF EXPERTISE

A network supporting disease prevention, surveillance, detection, and control world wide

# Mandate of an OIE Reference Laboratory (disease based)

- Centre of expertise and standardisation
- Provide technical advice, diagnostic services, and training
- Report positive findings to OIE
- Develop new diagnostic tests
- Publish and disseminate useful information
- Place expert consultants at the disposal of OIE

# OIE REFERENCE LABORATORIES



## Legend

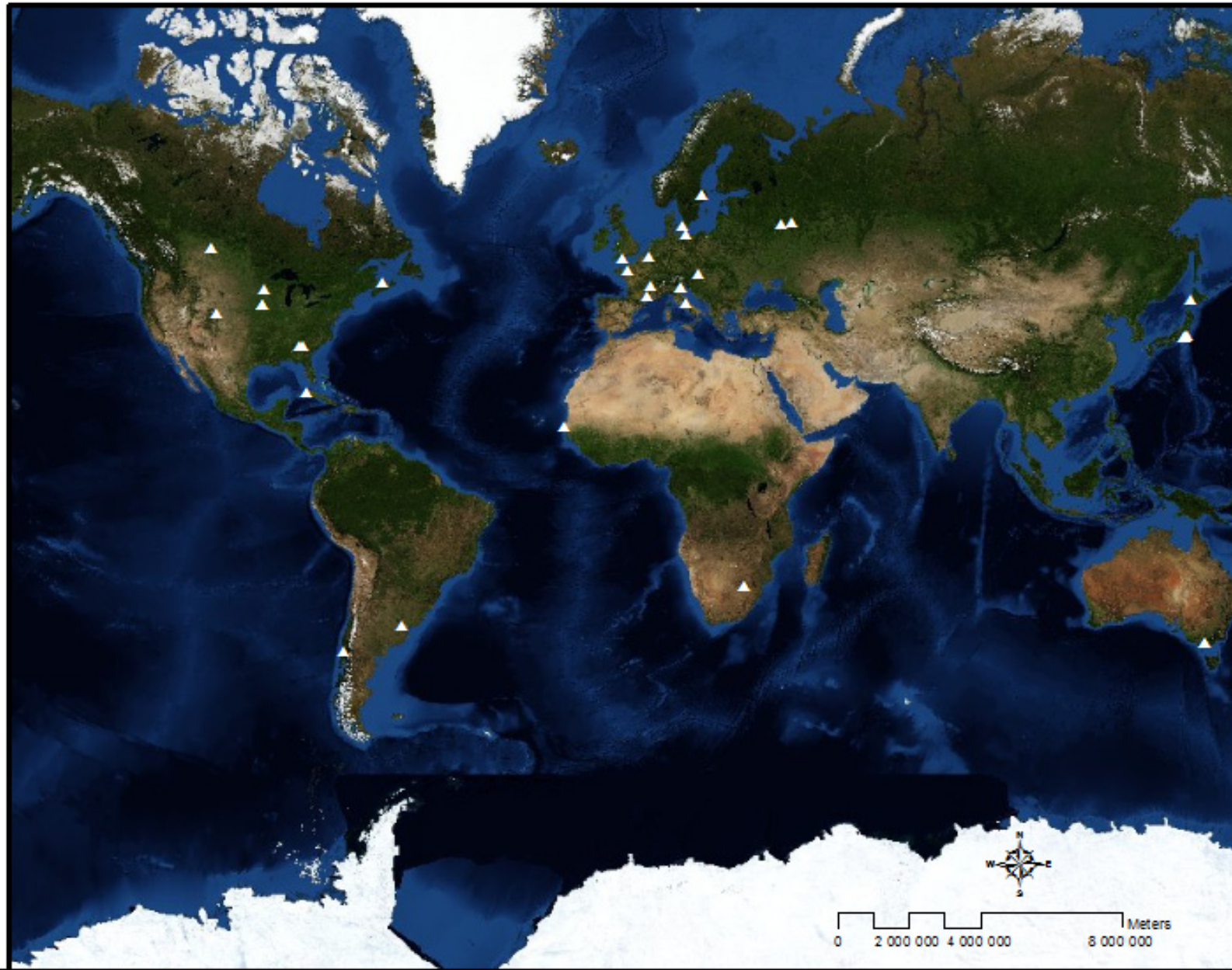
- OIE Reference Laboratories

# Mandate of an OIE Collaborating Centre (competence based)

- Centre of research, expertise, standardisation and dissemination of techniques
- Provide technical advice and training
- Develop new techniques and procedures
- Publish and disseminate useful information
- Place expert consultants at the disposal of OIE



# OIE COLLABORATING CENTERS



## Legend

▲ OIE collaborating centers

# THE CONCEPT

Sustainable enhancement of  
capacity and expertise by supporting  
a link between  
an OIE Reference Laboratory or Collaborating Centre  
(parent) and  
a national laboratory (candidate)



# Aims and objectives of twinning - expertise

- To build scientific communities and improve compliance with OIE standards (surveillance and control)
- Improved access to high quality diagnostics and technical assistance for more OIE Members
- Eventually for some Candidates to apply for 'reference' status
- To help countries to enter scientific debate on an equal footing with others

# Aims and objectives of twinning - networking

- Extend the OIE network of expertise to provide better global geographical coverage for priority diseases in priority areas
- To form long and lasting links between the institutes
- Strengthen global disease surveillance networks
- To strengthen national, regional and international scientific networks
- Create collaborative research opportunities, improve sharing, and advance science

# Scope

- Project length is 1-3 years
- For OIE listed diseases or topics
- All include essential generic topics such as bioethics, biosafety, biosecurity, and quality assurance
- Ultimate aim to reach OIE reference status
- Funding to support the link, but not to buy equipment or pay salaries

# Steps after twinning

- Engaging with the international scientific community
- Joining disease networks
- Joint research opportunities
- Applying for OIE Reference Laboratory status

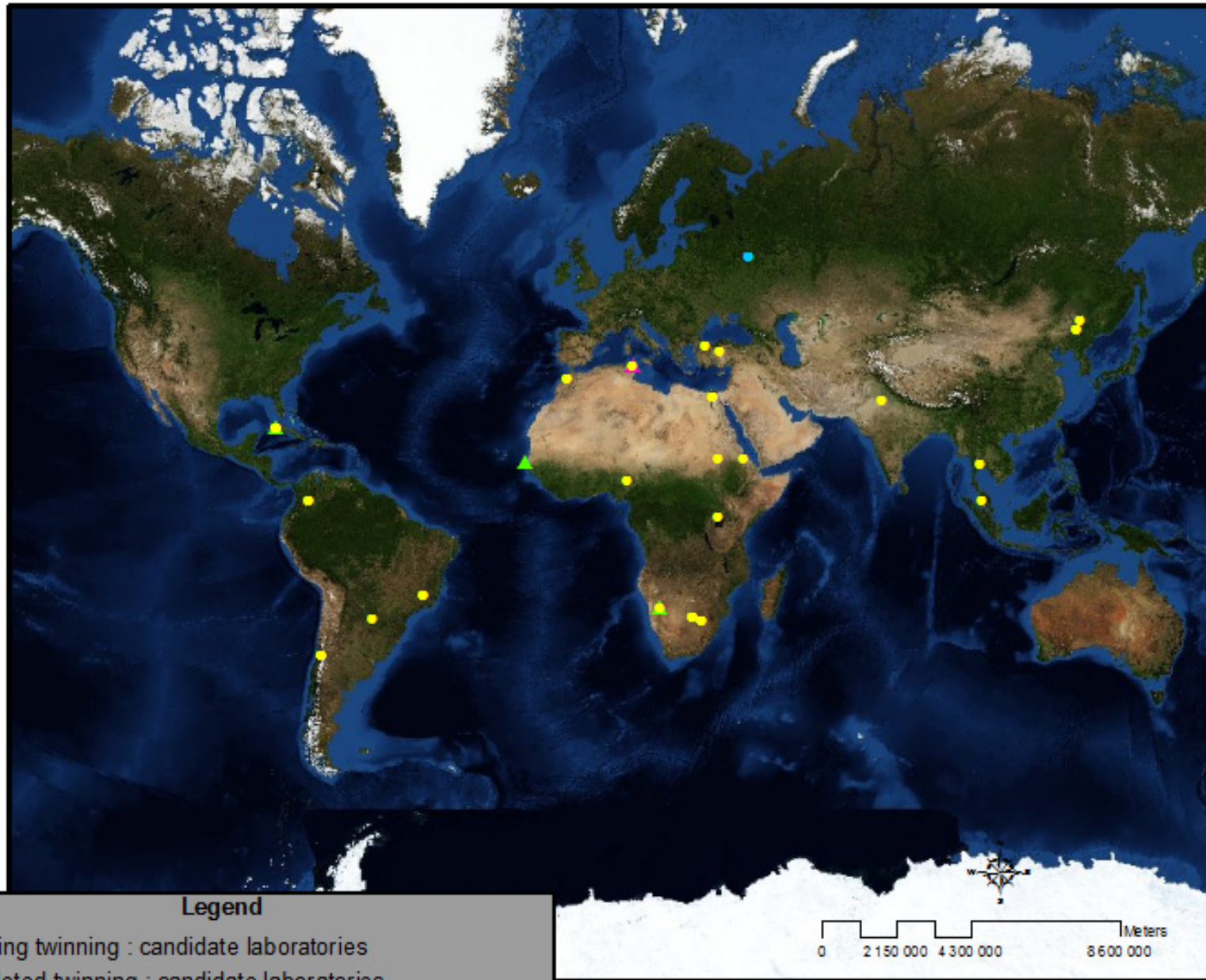
# IMPROVING DISEASE SECURITY WORLDWIDE

# Outputs from twinning the twinning programme

- Improved access for OIE Members to rapid and accurate detection and characterisation of pathogens
- Improved biosafety, biosecurity, and bioethics
- Stronger scientific networks
- Stronger global disease surveillance
- Improved capability to prevent, detect, and respond to disease events whatever the source

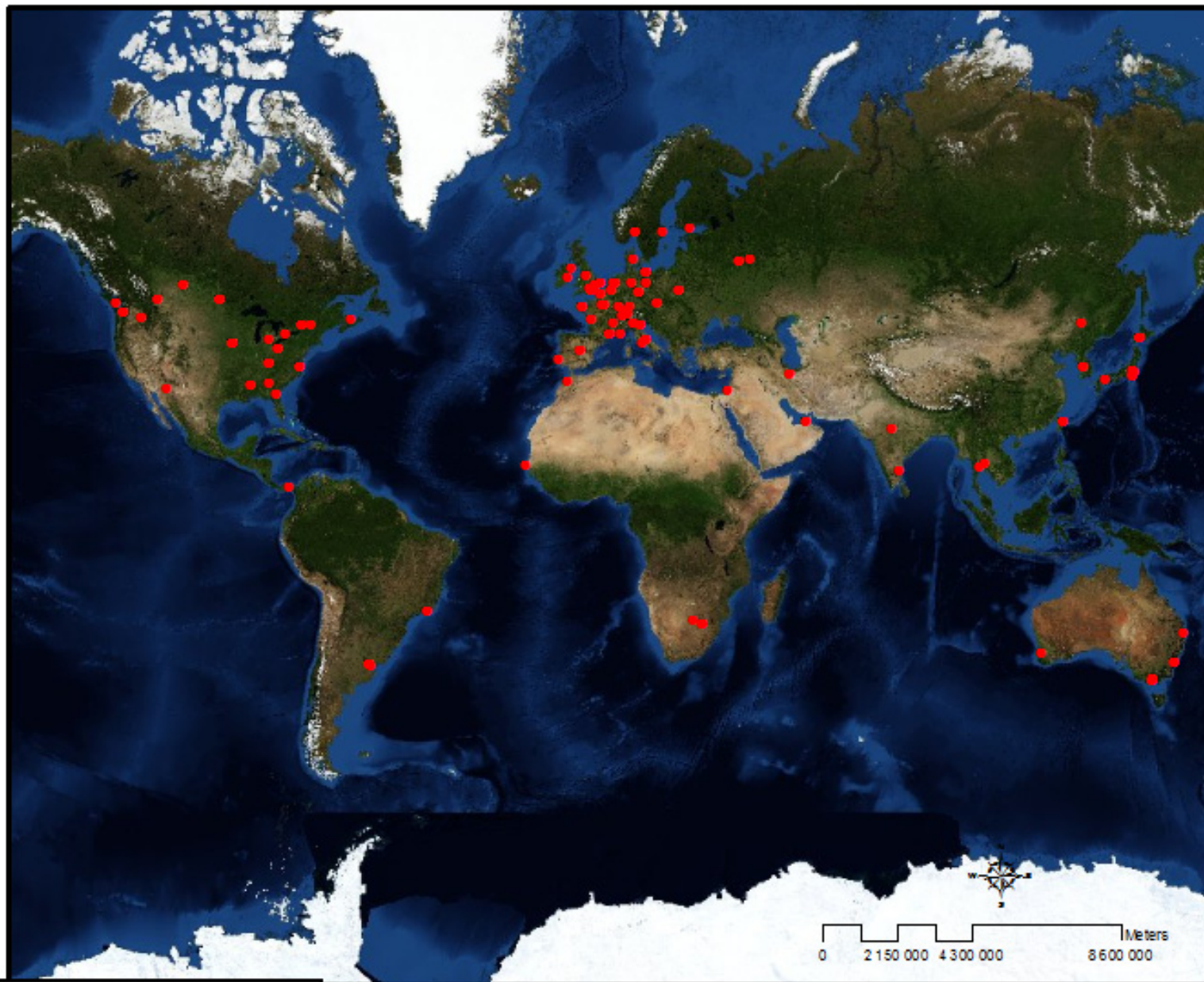


# TWINNING : CANDIDATE LABORATORIES AND COLLABORATING CENTERS



- Legend**
- On going twinning : candidate laboratories
  - Completed twinning : candidate laboratories
  - ▲ On going twinning : candidate collaborating centers
  - ▲ Due to commence twinning : candidate collaborating centers

# OIE REFERENCE LABORATORIES



## Legend

- OIE Reference Laboratories



An example

Germany (FLI)

with

Egypt (NLQP)



for avian influenza and Newcastle disease

## Overcoming prejudices and clichés



## Overcoming prejudices and clichés





**Beyond sandals and white socks:  
A professional mediator**

Christian

Timm

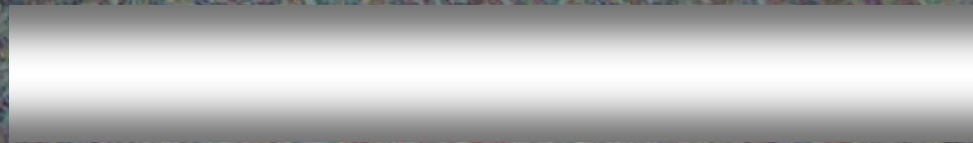
**Prof. Hafez,  
Director, Poultry Clinics  
Free University, Berlin**





Mohamed

Mona



## Tips for success....

- Have a carefully planned kick-off meeting
- Set five clearly defined goals of mutual interest
- On this list build a working program which is already filled with data and names (of trainees)
- If possible try to include a “facilitator”, ideally a scientist from the same country with experience in the cultures of both labs
- Be ready for surprises, both good and, well, “surprising” ones.





# OIE Twinning: a valuable tool for regional development

Trevor Drew, Tony Fooks & Judy Stack  
Veterinary Laboratories Agency, United Kingdom

The Veterinary Laboratories Agency (VLA) is a UK Government Institute, committed to improving animal and human health through control of important diseases. The UK government supports much of VLA's international activities through full sponsorship of its 15 OIE Reference Laboratories, as well as additional IL roles for other international bodies, where top-up funding is provided. In addition to providing ad hoc consultancy, expertise and diagnostic services, reagent supply and training, VLA is also actively engaged in the OIE "Twinning" scheme.

## What is "OIE Twinning"?

The World Organisation for Animal Health (OIE) Reference Laboratories (RL) and Collaborating Centres (CC) provide a global service, providing member states with expertise and diagnostic capacity concerning diseases important to trade of livestock and related commodities.

OIE aims to enhance regional representation and development by establishing new RLs elsewhere in the world.



Prof Changshu Tu of CVRI supported by Prof Tony Fooks and Trevor Drew of VLA

In January 2009, VLA staff visited CVRI to exchange information on scientific activities and to perform a "gap analysis" to prioritise future collaboration. Two Chinese scientists are due to visit VLA in the autumn to undertake two months training, in diagnosis and to carry out short research projects.

Additionally, it is anticipated that the close working relationship will provide opportunities for collaborative research, also with joint applications to international calls.

## Priority areas for CSF include:

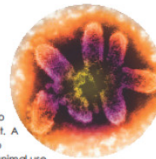
- Improved diagnosis
- Vaccine manufacture, quality and efficacy
- Molecular epidemiology
- Pathogenesis of diverse strains of virus

## Rabies

Human rabies in China continues to rise exponentially, largely due to poor vaccine coverage in naive dogs - 2.8% in rural areas.

Tragically, victims are mainly children, which has profound societal impact. There is a lack of detailed surveillance information, but the high percentage of disease prevalence in dogs - up to 6.4% - confirms that they are a continual health threat. A recent collaboration between CVRI and VLA also indicated that the quality of rabies vaccines for animal use did not satisfy the efficacy requirements for fully eliminating rabies from the dog population. These are likely the major factors that result in the high incidence of human rabies in China. Priorities therefore include:

- Implementation of diagnostic testing for rabies
- Validation of in-house diagnostic tests for rabies
- Participation in proficiency schemes and ring trials for internationally approved diagnostic tests for rabies
- Epidemiological surveys of rabies in humans and animals
- Development of oral recombinant vaccines for dogs
- Evaluation of the vaccination coverage in community-owned dogs
- Studies of vaccine-elicited immunity in community-owned dogs
- Assessment of rabies vaccine quality for animal use



## Brucellosis

We are currently working closely with the Pendik Veterinary Control and Research Institute (PVCRI) in Turkey on brucellosis. Brucellosis is one of the most important bacterial zoonoses worldwide, causing abortion and infertility in livestock. It is endemic Turkey where it causes important economic, veterinarian and some public health consequences. The Twinning project includes the following topics to enhance the diagnostic capability of PVCRI:

- Preparation of National & Working Standard Sera to improve & monitor the quality of diagnostic tests.
- Application of molecular techniques to obtain more details on epidemiological situation.
- Antigen production.
- Exchange material and samples to ensure harmonisation.

We have already held two meetings where we spent valuable time in each others laboratories, exchanged presentations on the skills within both institutes and examined antigens and reference sera according to OIE Manual of Diagnostic Tests & Vaccines.



A poster on brucellosis on display in PVCRI Turkey

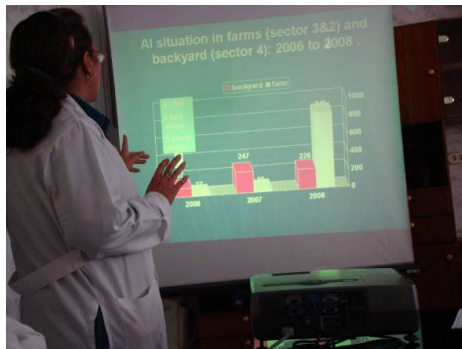


## Future Activities

Twinning with the brucellosis group at the Central Veterinary Research Laboratories Centre, Khartoum, Sudan is in the early stages of development. Future VLA objectives for Twinning are to establish the Botswana National Veterinary Laboratory as a regional centre for Avian Influenza and Newcastle Disease diagnosis and to establish an OIE Avian Influenza and Newcastle Disease Reference Laboratory at the Onderstepoort Veterinary Institute in South Africa.



OIE TWINNING WORKSHOP: ANIMAL ETHICS AND ANIMAL WELFARE, BIOSAFETY AND BIOSECURITY  
中英OIE姊妹实验室学术交流: 动物伦理、动物福利与实验室生物安全研讨会  
2010.05.11-2010.05.12 中国·北京



## OIE Twinning Project 2008 for Avian Influenza

