

The Development of Biosafety and Biosecurity in an Indonesian Veterinary Laboratory

Indrawati Sendow, DVM, MSc.

Indonesian Research Center for Veterinary Science (IRCVS)
Ministry of Agriculture, Indonesia



❑ Indonesia is an agricultural country

→ 17,504 islands, 700 dialects, 33 provinces, 240 billion population

❑ Migration of people and animals is increasing

→ spreading of diseases, such as TB, Dengue and Avian Influenza (H5N1)

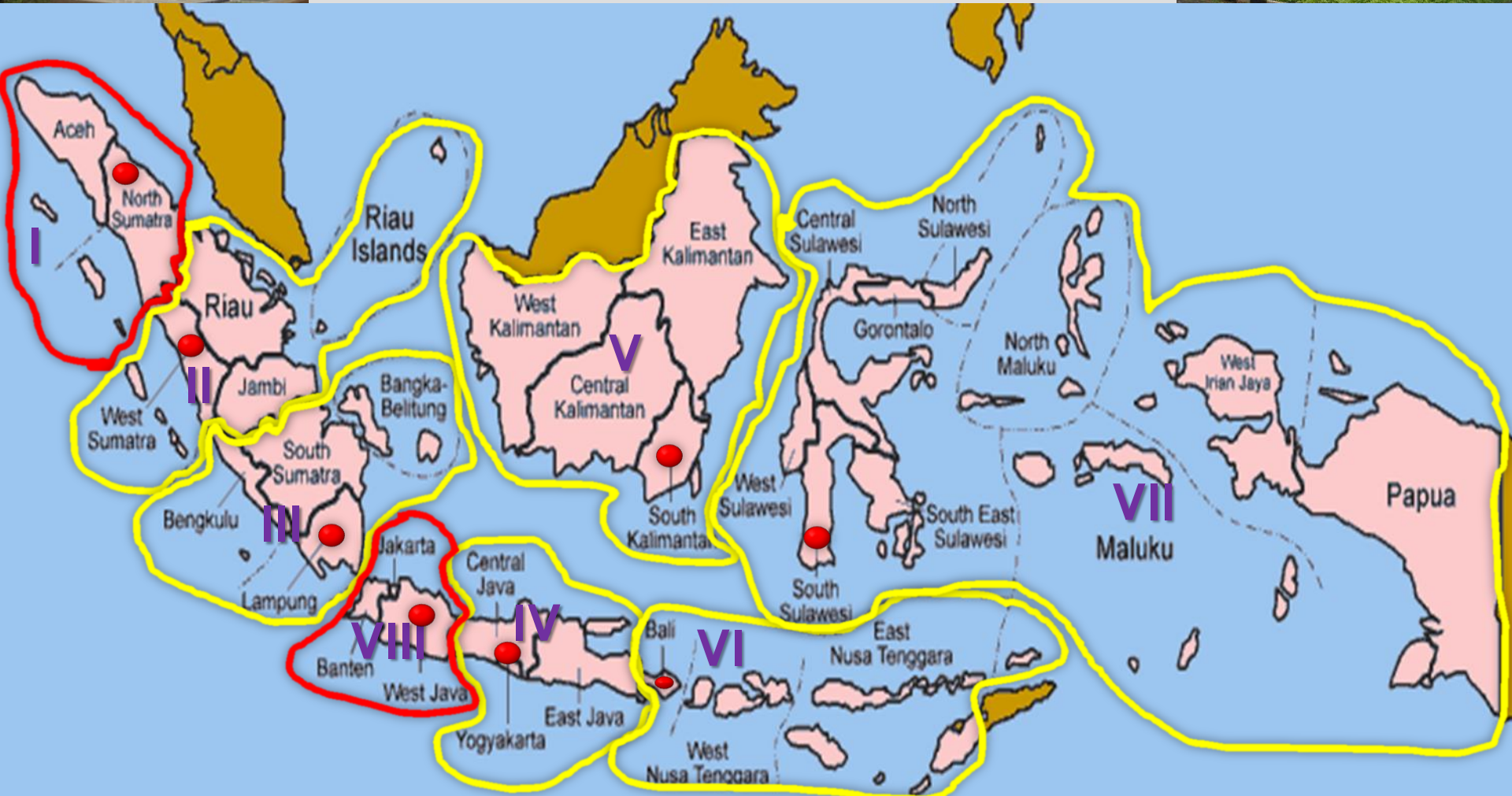
❑ Indonesia has many BSL2 laboratories

→ Needs more safe and secure labs

❑ Trend to build BSL3s, limited knowledge of biosafety

→ limited human resources (IRCVS → 1st BSL3)

Map of DIC areas in Indonesia



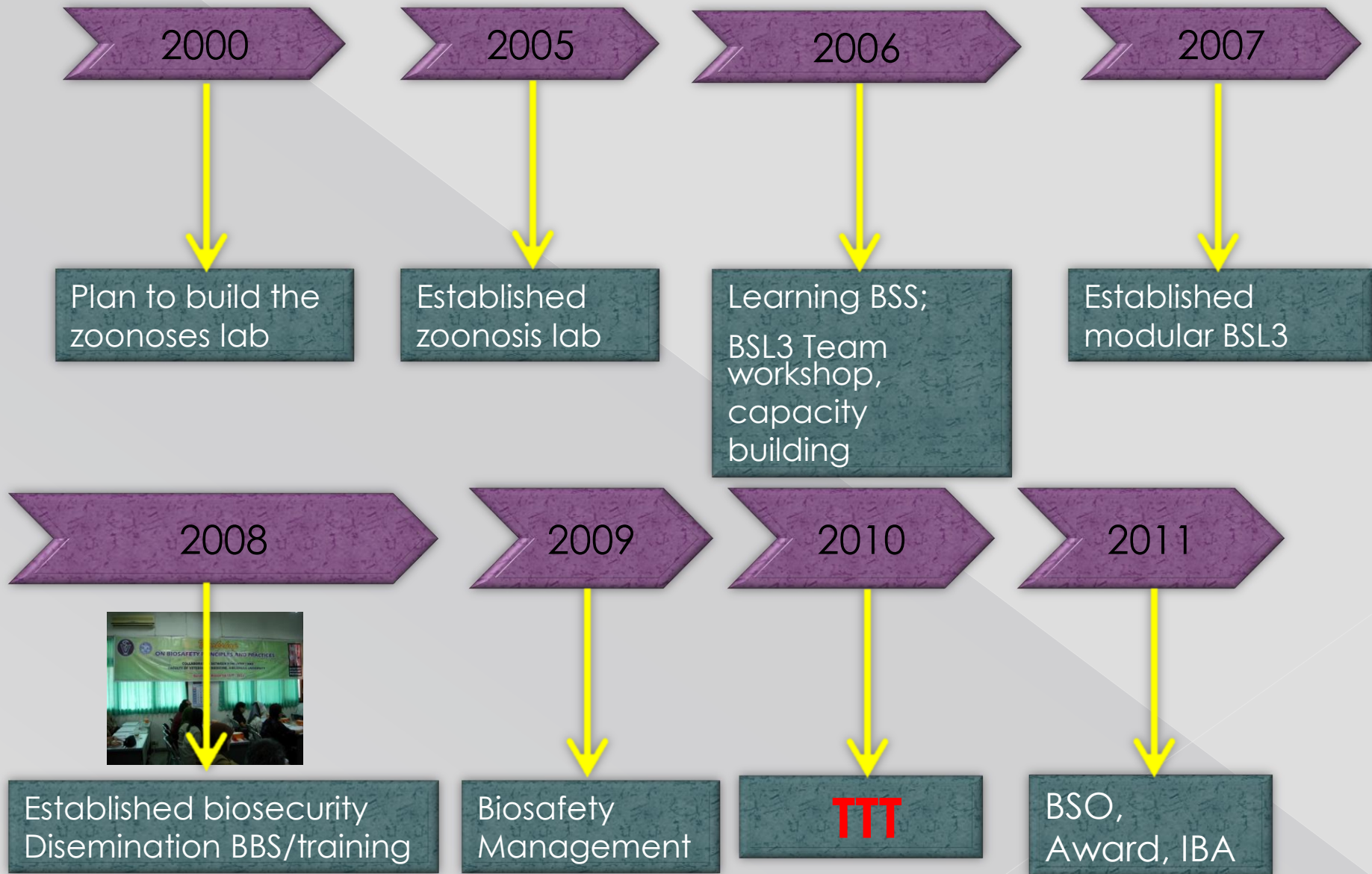
The Goal

- ❑ To establish **safe and secure facilities** to handle infectious agents in veterinary laboratories in Indonesia
- ❑ To **improve understanding** between scientists, laboratory workers as well as management of the importance of biosafety and biosecurity in laboratories
- ❑ To Continue **increasing awareness** for laboratory workers of biorisk in their daily activities

How to get the goal?

- ◎ Time and dedication
- ◎ Start small but think big
- ◎ Continue to improve in a step-wise fashion, one facility at a time
- ◎ Enlist the support of neighbors and friends
- ◎ Participate in IFBA

The budding of biosafety in the IRCVS





Overview of IRCVS



➤ **Established in 1908**

- Mandate: Conduct research in veterinary sciences.
- Provide: Research on veterinary sciences and diagnostic services for stakeholders

➤ **5 departments/research groups**

- Pathology, Toxicology & Mycology, Virology, Parasitology and Bacteriology

➤ **Research on zoonotic agents**

- Since 2000 on NIPAH and Avian Influenza, Tuberculosis → BSL2

➤ **Since AI outbreak, a safe & secure lab is compulsory**

➤ **Started to build secure facilities in 2000**

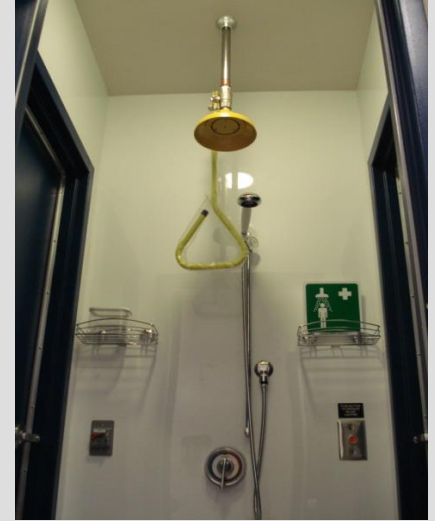
- Started to build a BSL3: zoonotic laboratory

➤ **Recent Facilities: Laboratory Zoonosis (2007) and BSL3 modular (2009)**

BSL3 Zoonosis Lab and Modular



Facility improvements





HEPA in exhaust

Incinerator

Biosecurity Improvements at IRCVS



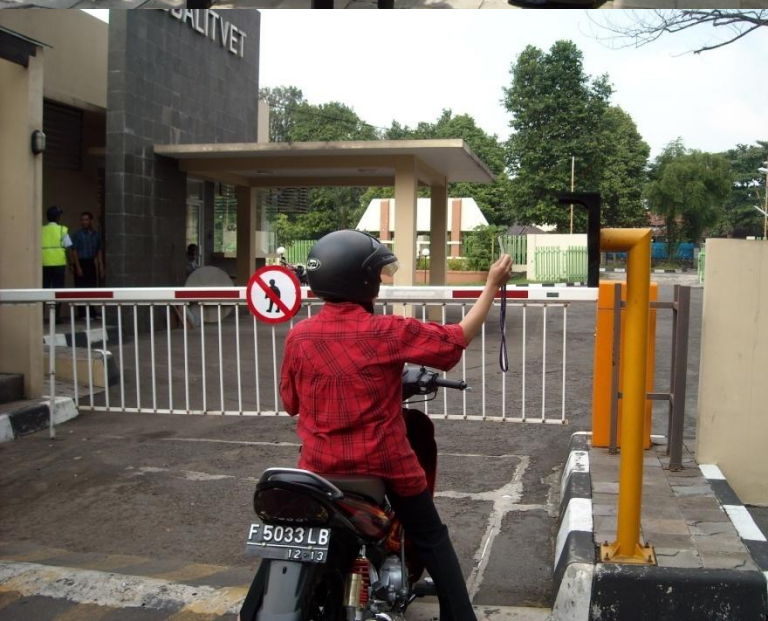
IRCVS VISITOR CENTER

This building and security upgrades were provided by the Biosecurity Engagement Program (BEP), U.S. Department of State, as part of Biosecurity collaboration with the Indonesian Research Center for Veterinary Science (IRCVS), Bogor.

Bogor, 3 August 2009

Jason E. Rao
Dr. Jason E. Rao
Director, BEP

Dr. Drh. Darminto
Dr. Drh. Darminto
Director, IRCVS





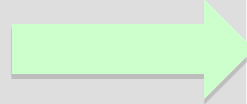
Challenges

1. Building BBS capacity & dissemination
2. Changing the culture
BSL3 and biosafety issues are new to Indonesia (2000)
3. Developing SOPs and its implementation
4. Maintaining functionality laboratories – building capacity
5. Maintaining biorisk awareness in all workers

Capacity Building Cycle

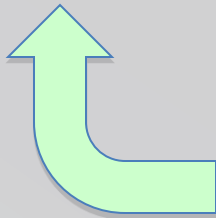
Acquiring Knowledge

Training – ABSA, APBA, USDA, Australia, Emory, NIH, others
Visiting BSL-3 Labs – AAHL, Pirbright, Plum Island, others



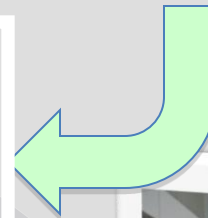
Learning By Doing

Implementing biosafety and biosecurity knowledge with mentorship
Establishing BSL-3 Lab, SOP Development, O&M, others



Providing Training

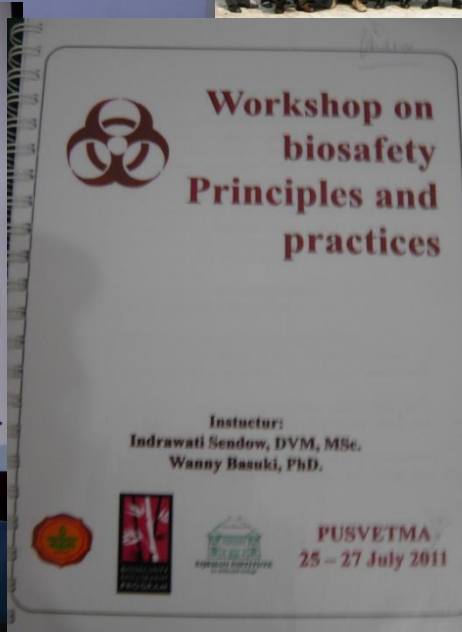
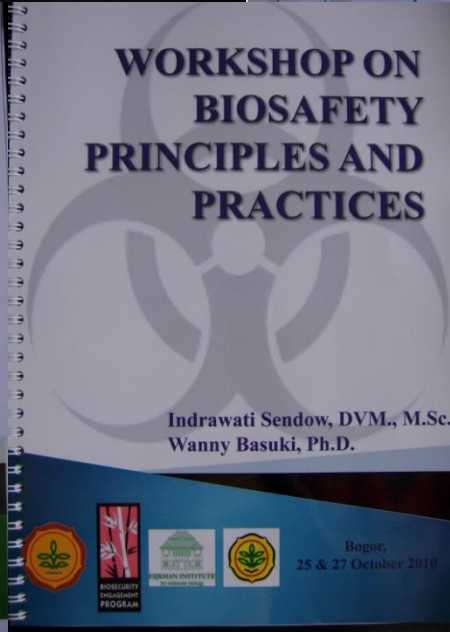
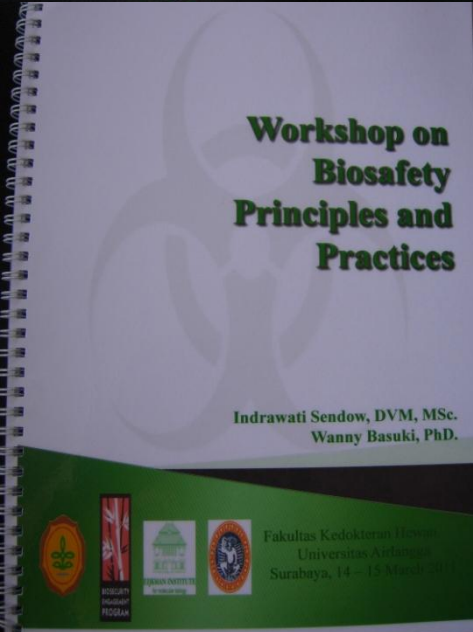
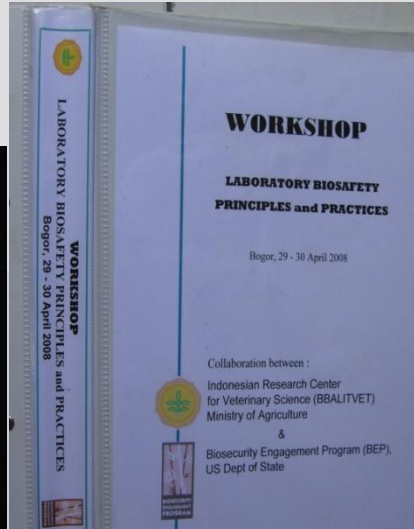
In house training courses and Developing training programs for larger biorisk community



1. Building BSS Capacity & dissemination

- Communicate with staff to increase their motivation and understanding
- Conduct internal audits
- Collaborate with the Ministry of Health, the Ministry of Research & Technology and Universities to conduct training
- Translate the NIH training modules into Indonesian language
- Make modification of the modules for technicians and maintenance staffs in Indonesia Language
- How to raise understanding and awareness? – Evaluation , consultation

Training Programs



Simulation, Interactive time



2. Changing the culture

- The first time Zoonotic lab established and started to be used, many complaints occurred
 - become unpopular
- A technician who work on AI in BSL2 refused to work in zoonotic lab due to need to follow the SOP
Similar situation for Rabies technician.
- Internal regular meeting and training for worker
 - discussion of why they do not want to follow the SOP
 - solve the problem, benefit and disadvantages of following the SOP etc.
- Now, more Scientist want to work in BSL3 lab even though they should follow the SOP

3. Development of SOPs

- ❑ As the facilities were developed we also developed the biosafety/biosecurity manuals and SOPs.
- ❑ We develop SOPs → no one followed, staffs continued in their old ways.
- ❑ We engaged the staff in developing the SOPs so that it is easier for them to follow.
- ❑ SOPs, biosafety/biosecurity manuals → reviewed every 6-12 months.

4. Maintain functionality laboratory

- Create a sense of ownership for working safety in the laboratory.
- Some Technical staffs had training locally and abroad, pre-conferences (APBA, AAHL, Australia, Eagleson USA others) → limited staffs → should disseminate to other staff
- Visiting BSL3 labs in the world, such as AAHL, Pirbright → improving the design and develop SOP



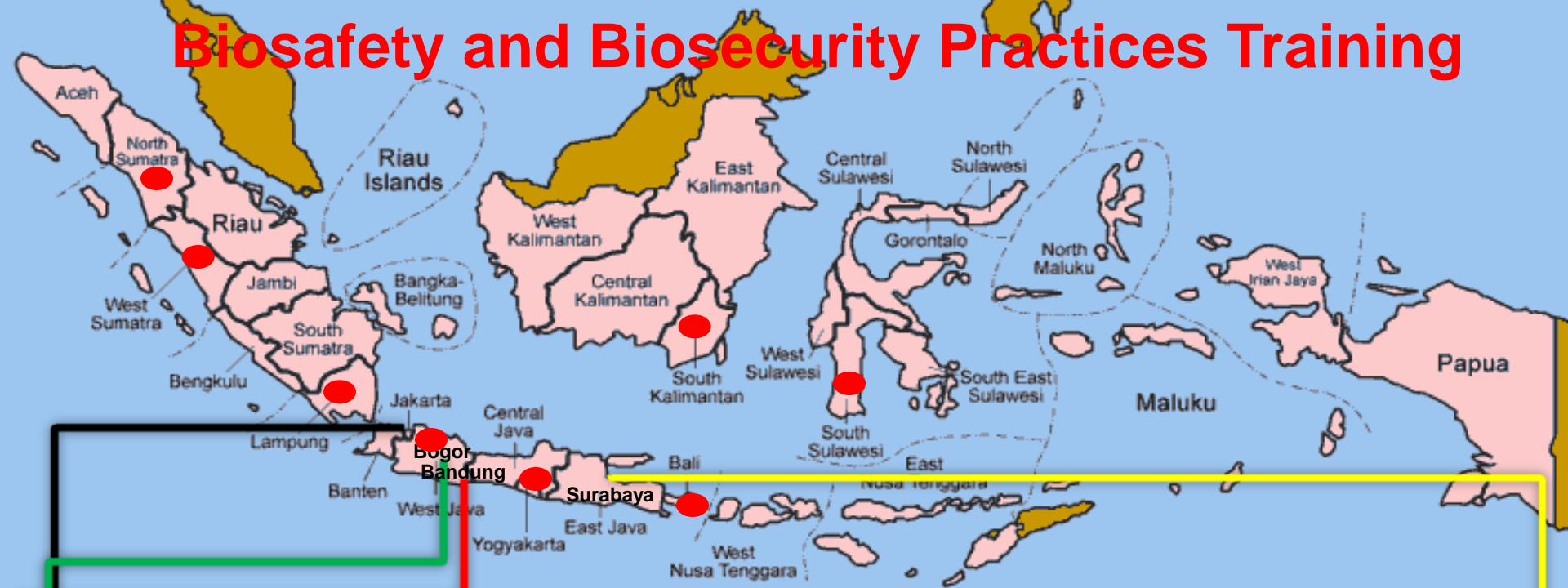
Train-The-Trainer 2010



Indonesia has 7 trainers

Bangladesh (2), **Indonesia (4)**, Philippines (2), Malaysia (4), South Korea (2), Singapore (1), Cambodia (1), Vietnam (2), Myanmar (1), Laos (1), Mongolia (1)

Biosafety and Biosecurity Practices Training



City	2008	2009	2010	2011
Jakarta		Quarantine Office=November	Health Ministry=December	PT Sanbio=February and June Health Ministry=May, Indonesia University=June
Bogor	IRCVS=April		IRCVS=September and October Quality Control of livestock product Agency=November	
Bandung			PT. Caprifarmindo=April	
Surabaya				Airlangga University=March, Pusvetma=July

5. Maintain Biorisk awareness in all workers



IBA Indonesian Biorisk Association



- Informal communication/networking among BSL3 institutions in Indonesia (August 2010)
- We needed a place/ forum to discuss and share our knowledge and a training hub. → So the IBA was established in May 2011.
- Inaugural Conference was held from 26-29 September 2011
- IBA also helps us to network with A-PBA and other international biosafety associations



How we can fit with IFBA program?



- By supporting the activities of the Indonesian Biorisk association (IBA)
- By raising biosafety awareness among the laboratory workers all over Indonesia
- By building networks locally and internationally
- By providing biosafety training throughout the country

How can IFBA support us?



- Help us build a global network with biosafety professionals and other people who work in biosafety.
- Become a point of reference to consult about biosafety practices.
- Provide more training materials on all aspects of biosafety, biosecurity, and biorisk management
- Help support the IBA to grow and promote biosafety
- **Received the biosafety hero award from IFBA and Award from Indonesian Ministry of Agriculture as a Outstanding Senior Researcher**

Elizabeth R. Griffin Foundation

- ◎ EGF inspired us to work safely
 - > In the animal rooms and in the laboratory to prevent LAI
- ◎ They continue to promote biosafety internationally (including Indonesia) through encouragement, small grants, mentorship and establishing partnerships



Special Thanks

- ◉ Elizabeth R. Griffin Foundation
- ◉ IFBA
- ◉ Biosecurity Engagement Program, US Department of State
- ◉ BSL3 Team at IRCVS
- ◉ Dr Robert Heckert
- ◉ Indonesian Biorisk Association





THANK YOU

Email:
indrawati.sendow@yahoo.com