

DTRA –SNL PROGRAM ROADMAP *Vietnam – VOHUN*

Global Chemical and Biological Security

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SAND2019-2062 PE



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Country Lead – Vietnam

Global Chemical and Biological Security

Technical Authority: BRM Curriculum
Development



Global Chemical and
Biological Security



What Is Happening in the World?





**Imagine that
enemies
possessed a class
of weapons with
which they
attacked your
people from time
to time.**

**Decades go by
with no attack,
but eventually one
would come**

EACH ATTACK BROUGHT.....

**Where is our defense?
Why are we not protected?**





Armyworm



Man-made Chemical and Biological attacks

■ A former Soviet biowarfare scientist or lab.

Past attacks

1
6th century B.C.

Assyrians poisoned the wells of enemies with the rye ergot fungus, which induced a disease called ergotism. Symptoms included convulsions and gangrene, leading to death.

2
1347

Tartars besieging Caffa on the Black Sea catapulted corpses of plague victims into the city, where Genoese colonists gathered. Many city dwellers died. Some of the survivors escaped on ships returning to Genoa, carrying the plague home.

3
1763

In the French and Indian Wars, British soldiers besieged inside Fort Pitt, Pa., by Indian tribes allied with France gave the Indians blankets, ostensibly as a friendly gesture. The blankets were infected with smallpox, and thousands of Indians died.

4
1937 to 1945

The Japanese launched experimental attacks on Chinese cities with plague, anthrax and cholera, killing more than 200,000. Outbreaks recurred for years in cities such as Ningbo.

5
1981

Environmental protesters from a group called Dark Harvest took anthrax specimens from an off-limits island off Scotland, which had been used to test biological weapons in World War II. The protesters dumped the soil at Porton Down, a British biological research site, but the germs were impotent.

6
1984

A religious sect called the Rajneeshees poisoned salad bars and coffee creamers in 10 Oregon restaurants with salmonella, sickening 750 people.

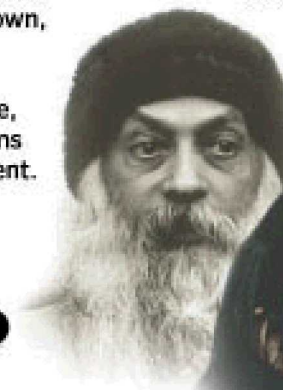
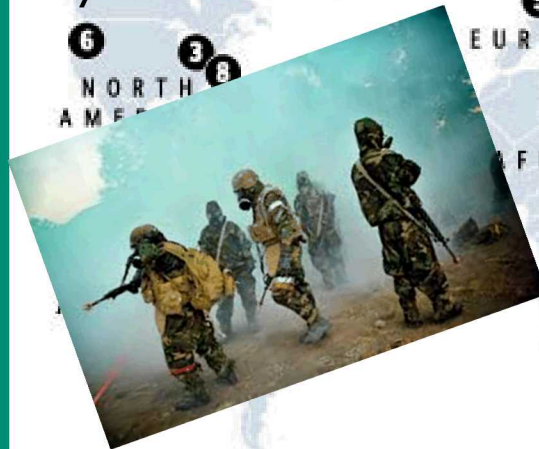
7
Early 1990s

Members of Aum Shinrikyo, a Japanese cult, sprayed botulinum from a car near a U.S. Navy base and blew anthrax from trucks and off the top of an eight-story building. No one was hurt—in part because the stocks lacked virulence.

8
Fall 2001

Five people were killed and 17 injured by letters containing anthrax spores delivered to U.S. Senate and media offices, as well as by mail contaminated with anthrax from these letters.

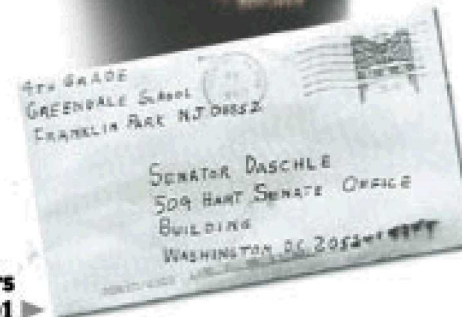
Syria 2013 - 2017



◀ Bhagwan Shree Rajneesh, leader of the Rajneeshees



◀ Shoko Asahara, leader of Aum Shinrikyo



One of the letters containing anthrax in 2001 ▶

Is Laboratory Theft Real?

THE
FREE PRESS
JOURNAL

SINCE 1928

HOME OPINION INDIA CITIES WORLD BUSINESS ENTERTAINMENT SPORTS

FPJ INITIATIVES

TRENDING NOW #UnionBudget2017 #UPElection2017 #Yadav Par

HOME / UJJAIN / UJJAIN: PARDI WOMEN STEAL EQUIPMENT FROM VU'S BOTANY LAB

lamonitor.com

The Los Alamos Monitor Online

Tuesday, February 14, 2017

View Forecast

27°F

Humidity: 84%

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HOME NEWS SPORTS OP

FEATURES

Man arrested for radioactive equipment theft of tools

By Tris D... Wed

Chemical terror attack fears after gangs go on lab raid spate

By SELINA SYKES PUBLISHED: 12:15, Fri May 27, 2016 | UPDATED: 12:50, Fri May 27, 2016

ISLAMIC State (ISIS) and other terrorist groups could be plotting a chemical or biological attack on the west after a spate of raids on laboratories, it is feared.

SHARE f TWEET G+

'Large-scale' ISIS anthrax attack is foiled by police: Three people 'who plotted biological attack in Kenya' are arrested

- Married couple and woman arrested in Kenya over anthrax attack plot
- All three are 'part of an ISIS-linked East Africa terror group network'
- Accused of planning 'large-scale' and 'biological' attacks in Kenya

By SARA MALM FOR MAILONLINE
PUBLISHED: 05:13 EDT, 4 May 2016 | UPDATED: 05:54 EDT, 4 May 2016

VU's

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aranal

Kenyan police has foiled a 'large scale biological terrorist attack' after arresting three members of an ISIS-linked terror group.

Three people, a married couple and a woman, allegedly planned 'large-scale attacks' including 'a biological attack in Kenya using anthrax,' Kenyan police said.

Married medical students Mohammed Abdi Ali and Nuseiba Mohammed Haji were arrested along with Fatuma Mohammed Hanshi, after police connected them to a terrorist network.

Ali, Haji and Hansi are allegedly part of 'an East Africa terror group network, that has links to ISIS,' according to Kenya police chief Joseph Boinnet.

Scientist theft from

Rex Dalton, San Diego

A married couple have been imprisoned in San Diego pending trial for their alleged theft of genetic material from Harvard University for shipment to an unnamed drug company in Japan.

Federal investigators say the couple stole genetic clones, reagents and records relating to immunosuppressive drug development from a Harvard molecular biology laboratory where they both worked in 1999.

Both Ali, the alleged leader of the group, and his wife Haji worked as 'medical interns' at the laboratory.



Kenya Police
Medic: Mohammed Abdi Ali allegedly led an ISIS-linked terror network planning attacks in Kenya



SIMON O'CONNOR/FAIRFAX NZ



Wednesday
Posted Oct 12, 2016 at 3:12 PM
Updated Oct 12, 2016 at 3:21 PM

By Phil Luciano
Journal Star columnist
@lucianophil

Share

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Stories From Chatter Network

Who steals blood?

I mean, besides Dracula?

Either someone very weird or (more likely) very clueless snatched four vials of blood left unattended outside the laboratory at OSF Saint Francis Medical Center.

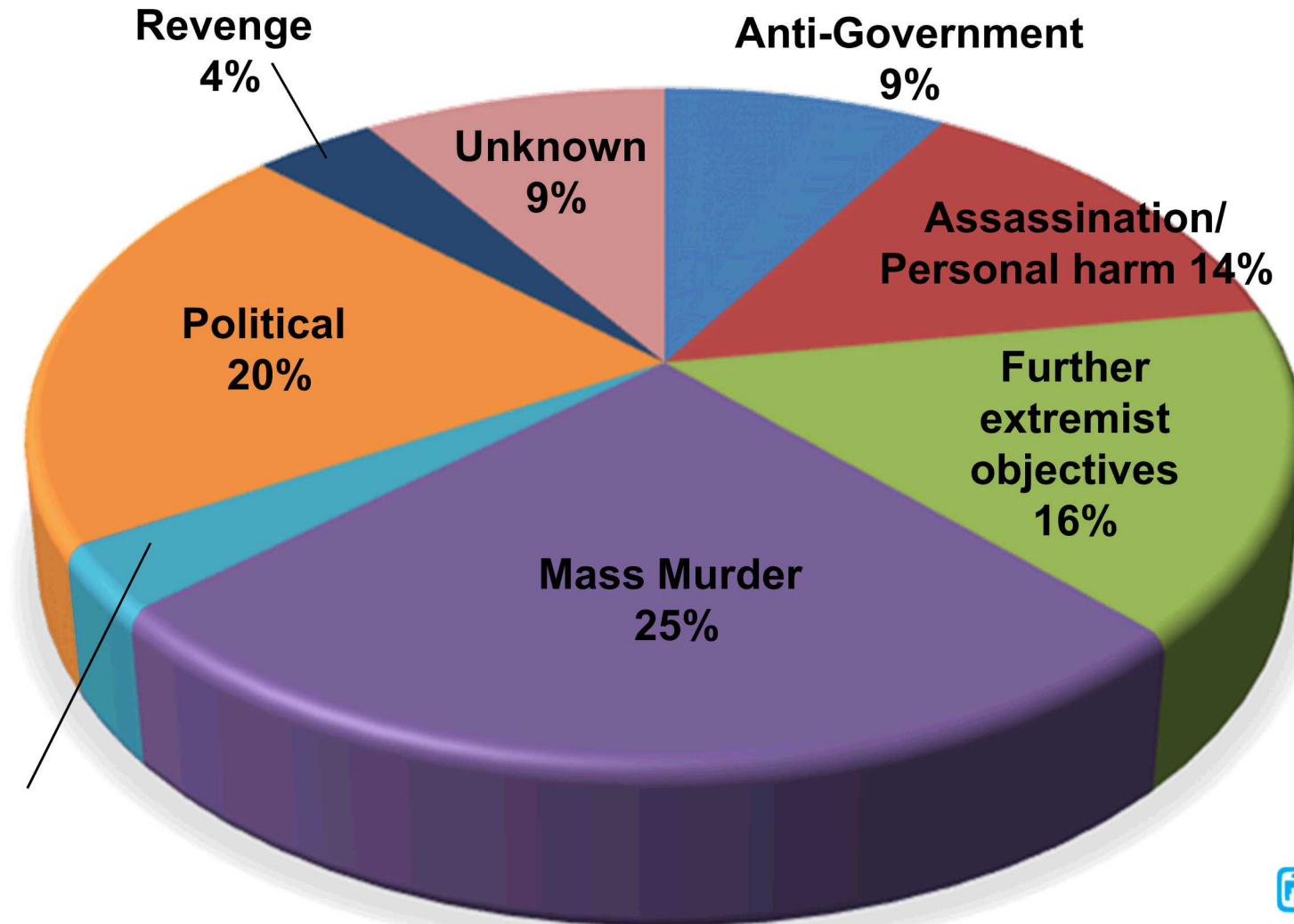


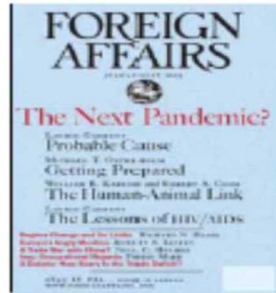
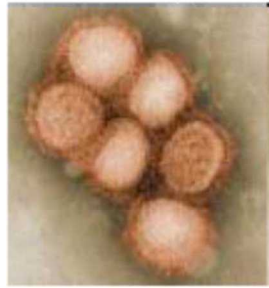
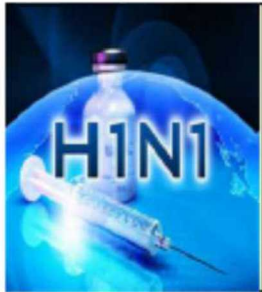
Global Chemical and Biological Security

Biотerrorism & Biocrime by motive

35 legitimate incidents involving biological agents from 1960 to 2016

Eco-Terrorism 0%
Anti-Abortion 1%
Animal Rights 1%
Anti-Racism 1%
Industrial-sabotage 1%





Spectrum of Biological Risk

BILL GATES: A new kind of terrorism could wipe out 30 million people in less than a year – and we are not prepared

Bill Gates, Bill & Melinda Gates Foundation

© Feb. 18, 2017, 9:00 AM 🔥 233,090

“Of all the things that could kill more than 10 million people around the world, the most likely is an epidemic stemming from either natural causes or bioterrorism.” New England Journal of Medicine in 2015





Now Imagine
that there was
a way to
protect your
people from
these threats.

Control the diseases by having a **bullet proof system to effectively manage and respond to outbreaks whether the cause is natural or manmade.**

➤ **Improved Education Public/Veterinary System**

- ✓ **Prepare young professionals to strengthen zoonosis prevention and control programs, investigate emerging infectious diseases, enhance the public's ability to respond to bioterrorism and biosecurity emergencies**

➤ **Improved Disease Surveillance System**

- ✓ **Increase and improve laboratory capacity**
- ✓ **Coordinate human and animal surveillance**

➤ **Regulations**

- ✓ **Increased Safety**
- ✓ **Increased Security**





Vietnam at a Glance



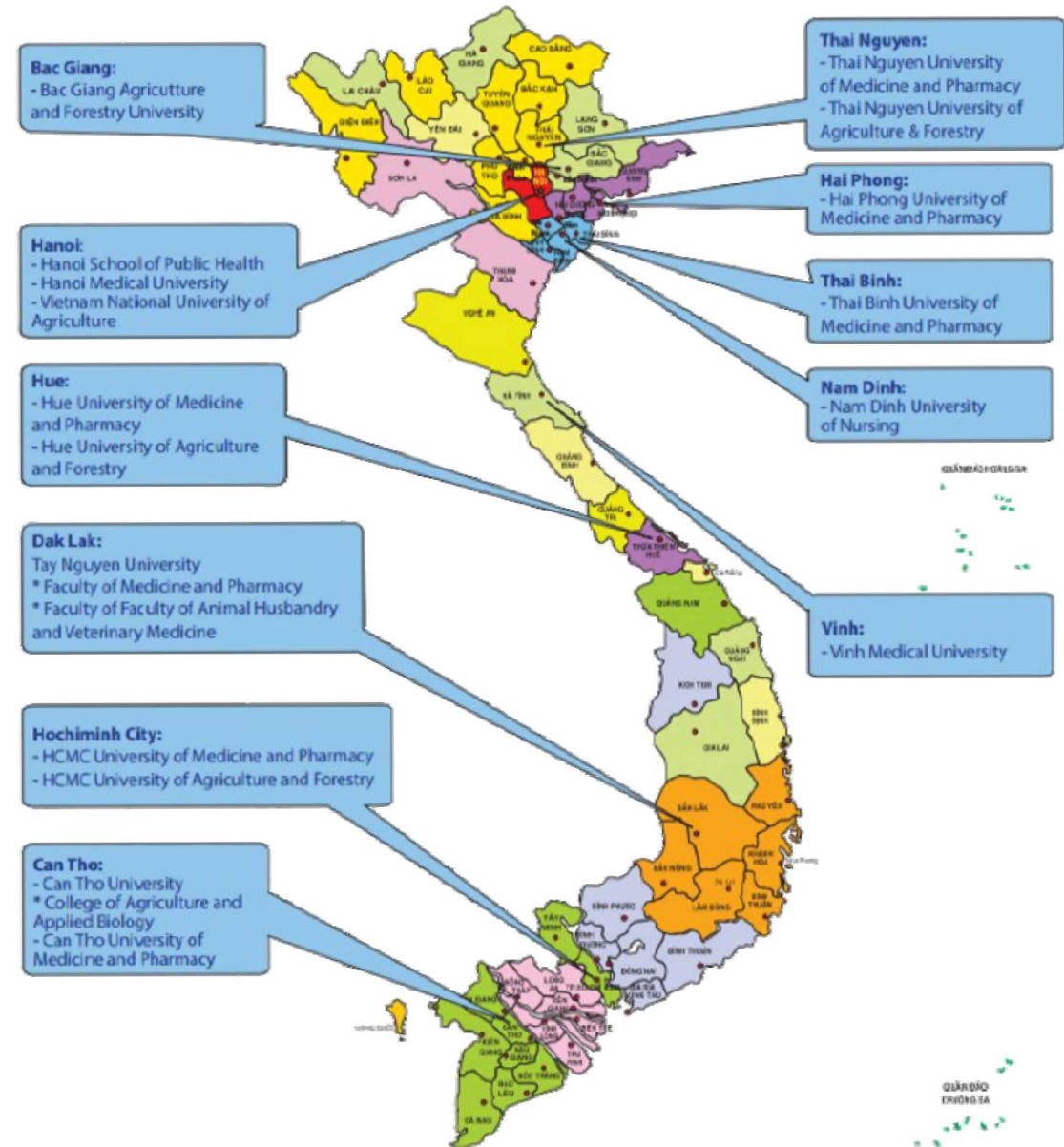
Global Chemical and
Biological Security

VIETNAM ONE HEALTH UNIVERSITY NETWORK (VOHUN)

5 Core Universities
+
22 Faculties/Universities

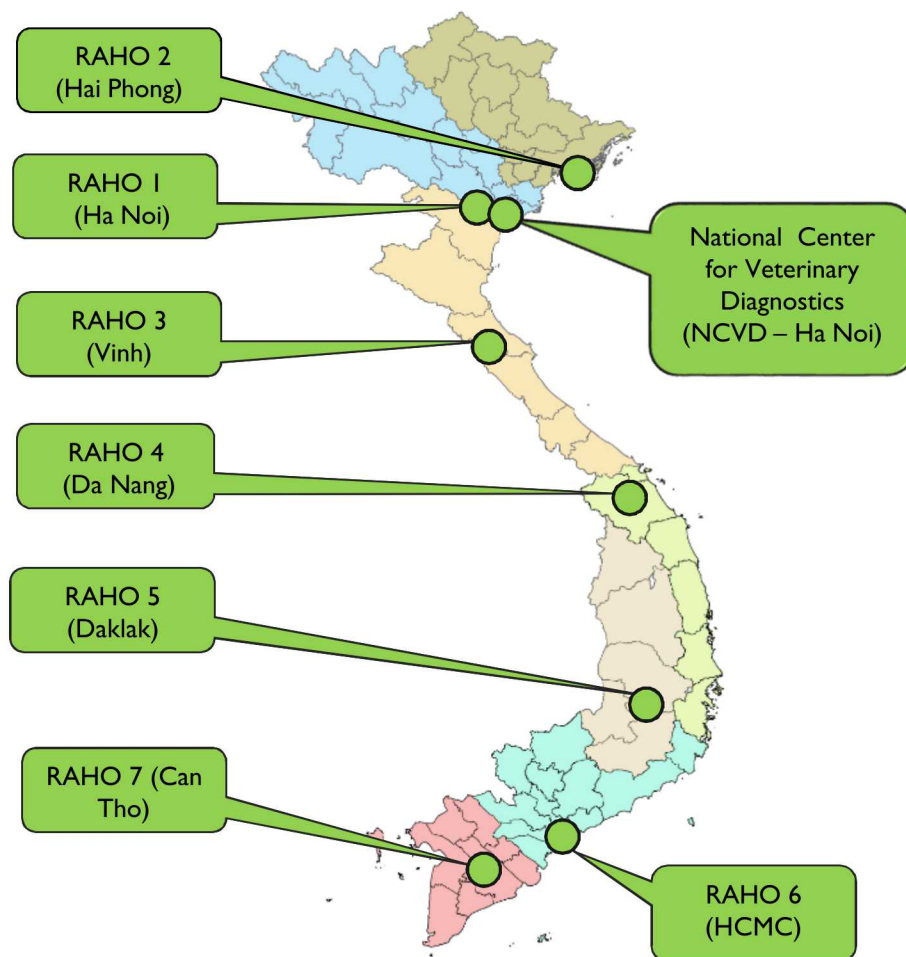


BRM Curriculum Workshop - VOHUN
Hanoi, Vietnam, December 17-21, 2018

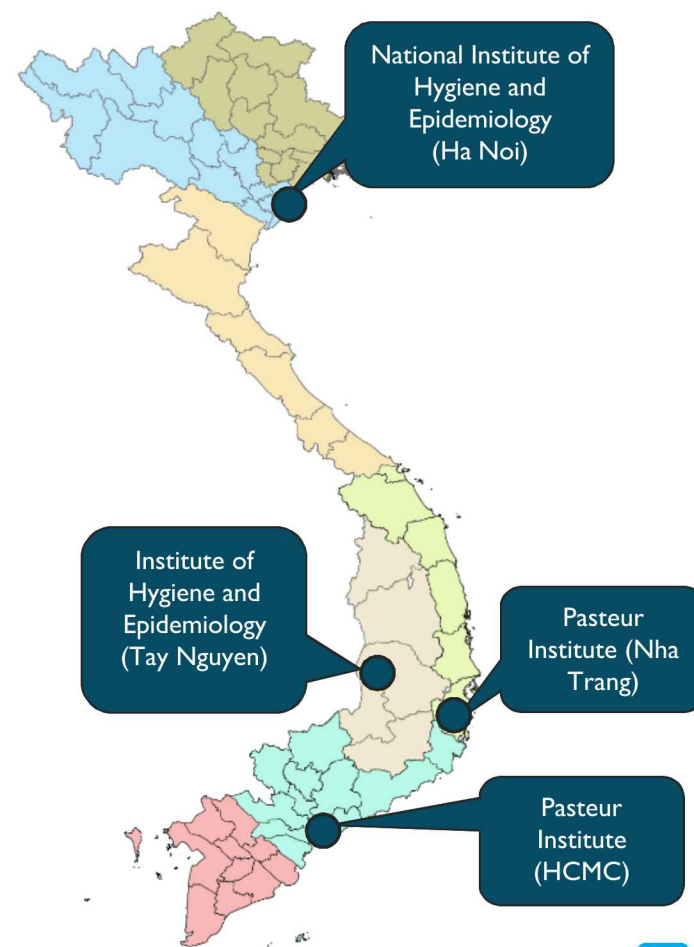


VETERINARY and PUBLIC HEALTH DIAGNOSTICS LABORATORY SYSTEM

Veterinary



Public Health Diagnostics



Capacities	Score	Indicators
National legislation, policy and financing	3	P1.1 Legislation, laws, regulations, administrative requirements, policies or other government instruments in place are sufficient for implementation of IHR (2005)
	3	P1.2 The State can demonstrate that it has adjusted and aligned its domestic legislation, policies and administrative arrangements to enable compliance with the IHR (2005)
IHR coordination, communication and advocacy	4	P2.1 A functional mechanism is established for the coordination and integration of relevant sectors in the implementation of IHR (2005)
Antimicrobial resistance	2	P3.1 Antimicrobial resistance (AMR) detection
	2	P3.2 Surveillance of infections caused by AMR pathogens
	3	P3.3 Health care associated infection prevention and control programmes
	2	P3.4 Antimicrobial stewardship activities
Zoonotic disease	4	P4.1 Surveillance systems in place for priority zoonotic diseases/pathogens
	4	P4.2 Veterinary or animal health workforce
	3	P4.3 Mechanisms for responding to zoonoses and potential zoonoses are established and functional
Food safety	3	P5.1 Mechanisms are established and functioning for detecting and responding to foodborne disease and food contamination
Biosafety and biosecurity	3	P6.1 Whole-of-government biosafety and biosecurity system is in place for human, animal, and agriculture facilities
	3	P6.2 Biosafety and biosecurity training and practices
Immunization	4	P7.1 Vaccine coverage (measles) as part of national programme
	4	P7.2 National vaccine access and delivery
National laboratory system	3	D.1.1 Laboratory testing for detection of priority diseases
	3	D.1.2 Specimen referral and transport system
	3	D.1.3 Effective modern point of care and laboratory based diagnostics
	3	D.1.4 Laboratory quality system
Real-time surveillance	4	D.2.1 Indicator and event based surveillance systems
	3	D.2.2 Inter-operable, interconnected, electronic real-time reporting system
	3	D.2.3 Analysis of surveillance data
	4	D.2.4 Syndromic surveillance systems
Reporting	3	D.3.1 System for efficient reporting to WHO, FAO and OIE
	2	D.3.2 Reporting network and protocols in country
Workforce development	3	D.4.1 Human resources are available to implement IHR core capacity requirements
	4	D.4.2 Field epidemiology training programme or other applied epidemiology training programme in place
	3	D.4.3 Workforce strategy
Preparedness	2	R.1.1 Multi-hazard national public health emergency preparedness and response plan is developed and implemented
	2	R.1.2 Priority public health risks and resources are mapped and utilized

WHO JEE evaluation report

Recommendations for priority actions

- Strengthen capacity of provincial health departments to certify and inspect diagnostic laboratories (BSL-1/2).
- Commit resources to maintain key biosafety infrastructure, such as biosafety cabinets, in a sustainable manner.
- Implement targeted biosafety and biorisk management training throughout the country in a coordinated manner, to develop a large network of trainers and trained laboratory workers who can regularly access expertise, tools and manuals to support biosafety practices.
- Develop and monitor implementation of the biosecurity regulatory framework, combined with targeted education and awareness of procedures among key stakeholders.

**Not bad
– but room for
improvement**

Viet Nam scores

National approach to creating a world safe and secure from infectious disease threats



Biosecurity Related Legislation in Vietnam

- i. Law on prevention and control of infectious diseases (No. 03/2007)
- ii. Regulation on Management of Medical Wastes (Decision No.43/2007)
- iii. Penal Code (No. 15/1999/QH10)
- iv. Criminal Procedure Code (No: 19/2003/QH11)
- v. The Law on Environmental Protection (29/2005/L-CTN)
- vi. Law on National Security (32/2004/QH11)
- vii. Regulations on Land Border Gate (32/2005/ND-CP)
- viii. Ordinance on the Veterinary Medicine (18/2004/PL-UBTVQH11)
- ix. Regulation on Management of Medical Wastes (Decision No.43/2007)
- x. Regulation on management of biological safety of genetically modified products and goods originating from genetically modified organisms
- xi. Decision No. 44/1999/QD-BNN-KHCN of February 27, 1999 Proclamation "General Requirements of the Agricultural Laboratory"
- xii. Regulations detailing the implementation of some articles of the Agricultural Law (Decree 33/2005/ND-CP)
- xiii. Regulations on registration procedures of production, import and export of drugs, raw materials for veterinary drugs, biological products, micro-organisms used in veterinary medicine (Ministry of Agriculture and Rural Development Decision No. 10/2006/QĐ-BNN)
- xiv. Law on Pharmacy (34/2005/QH11)
- xv. Ministry of Health Circular No. 08/2006/TT-BYT dated 13 June 2006 on import of vaccines, medical and biological products, chemicals, insecticides, preparations for domestic and medical use
- xvi. Circular No. 09/2006 / TT-BYT dated July 11, 2006 Guidance on amendments and additions to Section IV and Appendix 9 of Circular No. 08/2006 / TTBYT dated 13/6/2006 of the Minister of Health Guide to import vaccines, medical biologicals; chemicals, insecticidal preparations, disinfectants used in the field of household and medical and medical equipment
- xvii. Decision promulgating regulations on registration of vaccines, medical biologicals (4012/2003/QĐ-BYT)
- xviii. Decision No.66/2008/QĐ-BNN of May 26, 2008, promulgating the regulation on animal epidemic free zones and establishments
- xix. Customs Law (29/2001/QH10)
- xx. Law on Credit Institutions (12 December 1997)
- xxi. Ordinance on the organization of criminal investigation (23/2004/PL-UBTVQH11)
- xxii. Ordinance on Border Guard Forces (28 March 1997)
- xxiii. Government Decision No. 116/2013/ND-CP, Decree detailing a number of Articles on the Law on Prevention and Combat of Money Laundering
- i. Decision No.815/2001/QĐ-BTM issued on 1 August 2001 by the Ministry of Trade on the pilot implementation of container transshipment services at Ben Nghe Port, Ho Chi Minh City prohibits transshipments consist of weapons, ammunition, explosives, military technical equipments, toxic chemicals enclosed in the list of prohibited toxic chemicals for import and export.
- ii. Decision No. 82/HDBT dated 10 July 1989 of the Chairperson of the Council of Ministers on the provision of weapons and military equipment
- iii. Law on Terrorism Prevention and Suppression (adopted 12 June 2013)
- iv. Law on Mutual Legal Assistance (adopted July 2008)
- v. Prime Minister's Directive No. 25/2007/CT-TTg dated 15 November 2007 on counter-terrorism of weapons of mass destruction
- vi. Decision No. 158/2003/QĐ-TTg of 31 July 2003 promulgating the provisional regulation on the handling of cases involving mail as well as postal articles and parcels containing strange substances and/or objects doubted to be related to biological or chemical weapons
- vii. Ministry of Agriculture and Rural Development Decision No. 45/2006/QĐ-BNN dated 6 June 2006, promulgating the additional list of vaccines, biological products, micro-organisms and chemicals for veterinary use, which are permitted for circulation in Viet Nam in 2006
- viii. Ministry of Agriculture and Rural Development Decision No. 23/2007/QĐ-BNN on the list of plant protection drugs allowed to be used, not allowed to be used and allowed to be used with limits in Viet Nam
- ix. Ministry of Agriculture and Rural Development Decision No. 60/2007/QĐ-BNN dated 19 June 2007, amending a number of contents related to plant protection drugs on the list of those permitted for use, promulgated together with Decision No. 23/2007/QĐ-BNN dated 28 March 2007; and making exceptional registration of drugs of biological origin on the list of plant protection drugs permitted for use in Viet Nam

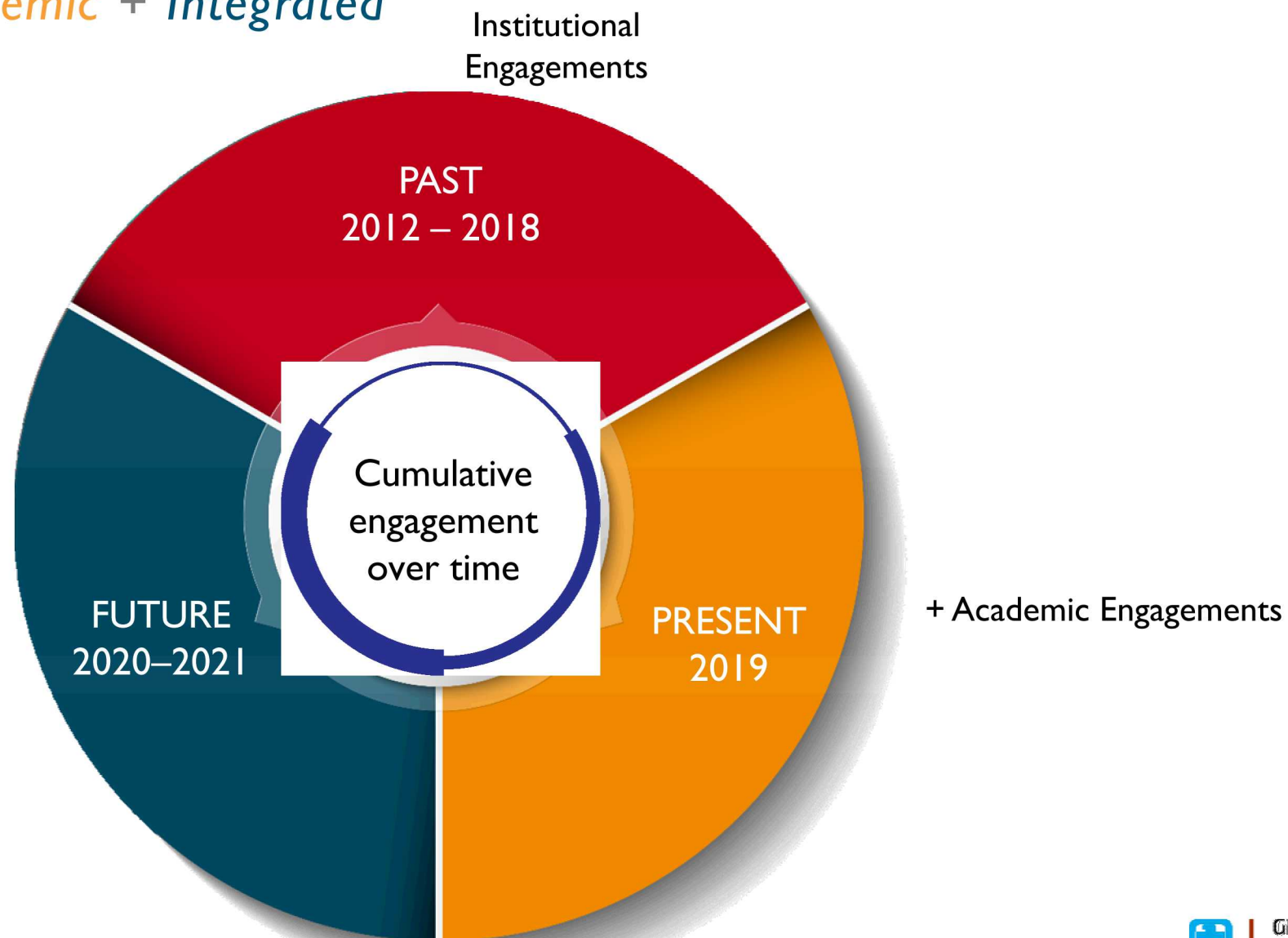


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Compliance.....

THREE STAGES OF DTRA/ SNL Engagement

Institutional + *Academic* + *Integrated*

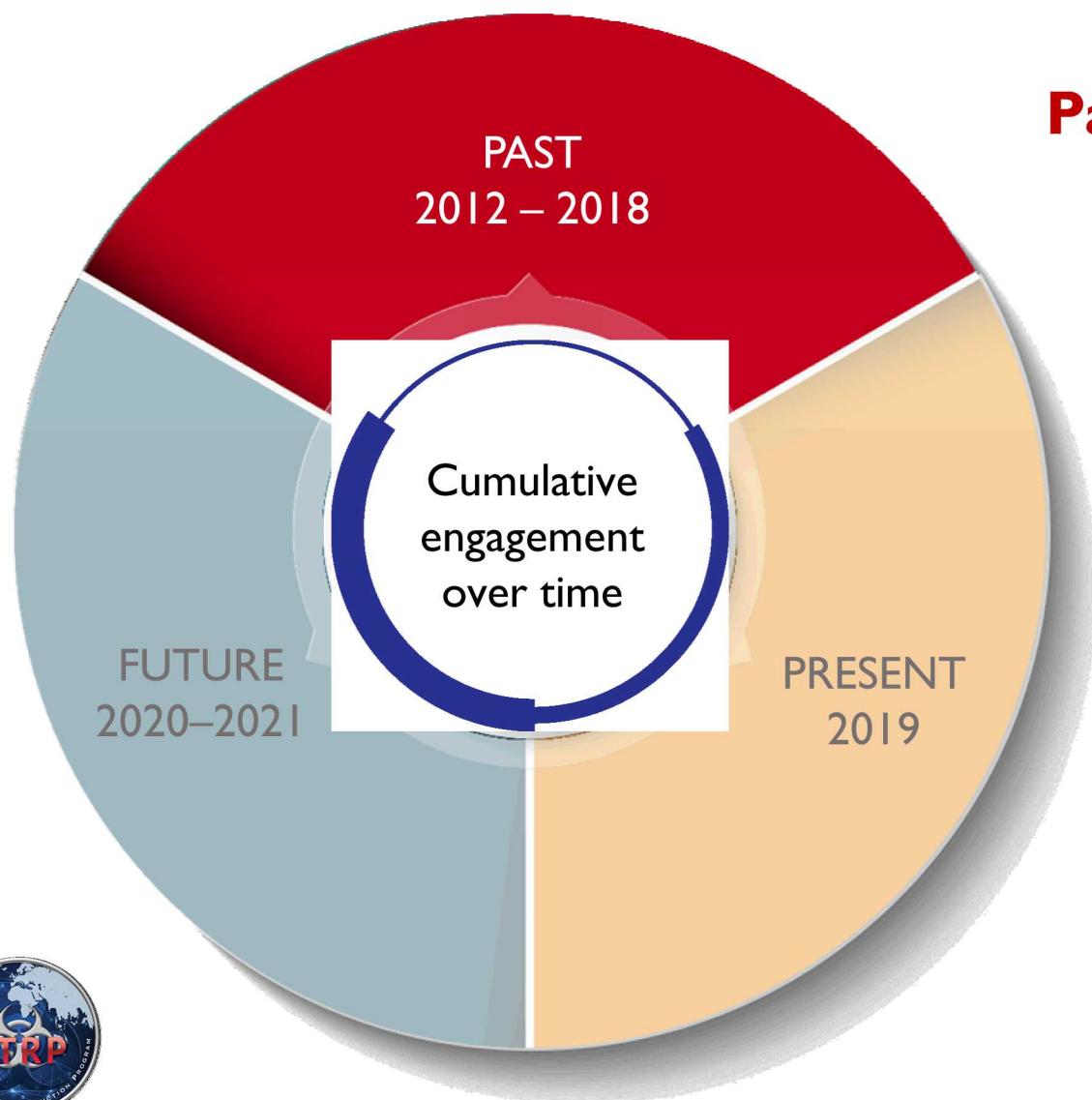


Biosafety and Biosecurity
Sustainability Roadmap



THREE STAGES OF DTRA/ SNL Engagement - **Past Achievements**

Institutional + Academic + Integrated



Past 2012-2018 | Institutional Engagements

- ✓ VN Laboratory Design Charrettes
- ✓ Sample SOP Workshop for Vietnam
- ✓ Vietnam Biothreat Readiness Workshop
- ✓ Vietnam Biosecurity Risk Assessments

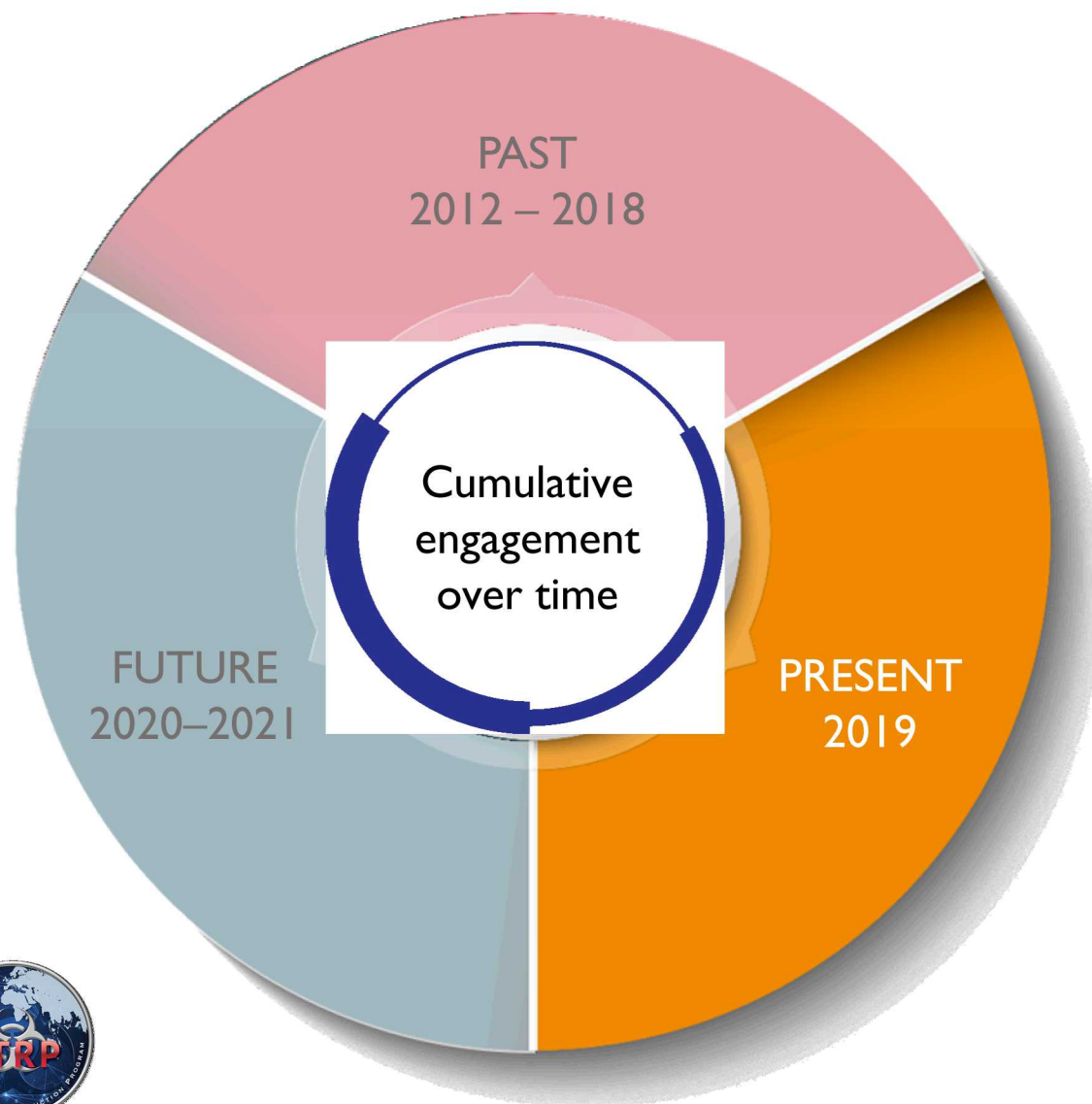
Impact/Outcomes:

Improved biorisk management knowledge and capabilities at the health & animal laboratories and facilities.



THREE STAGES OF DTRA/ SNL Engagement – **Present Achievements**

Institutional + Academic + Integrated



Present 2019 | + Academic Engagements

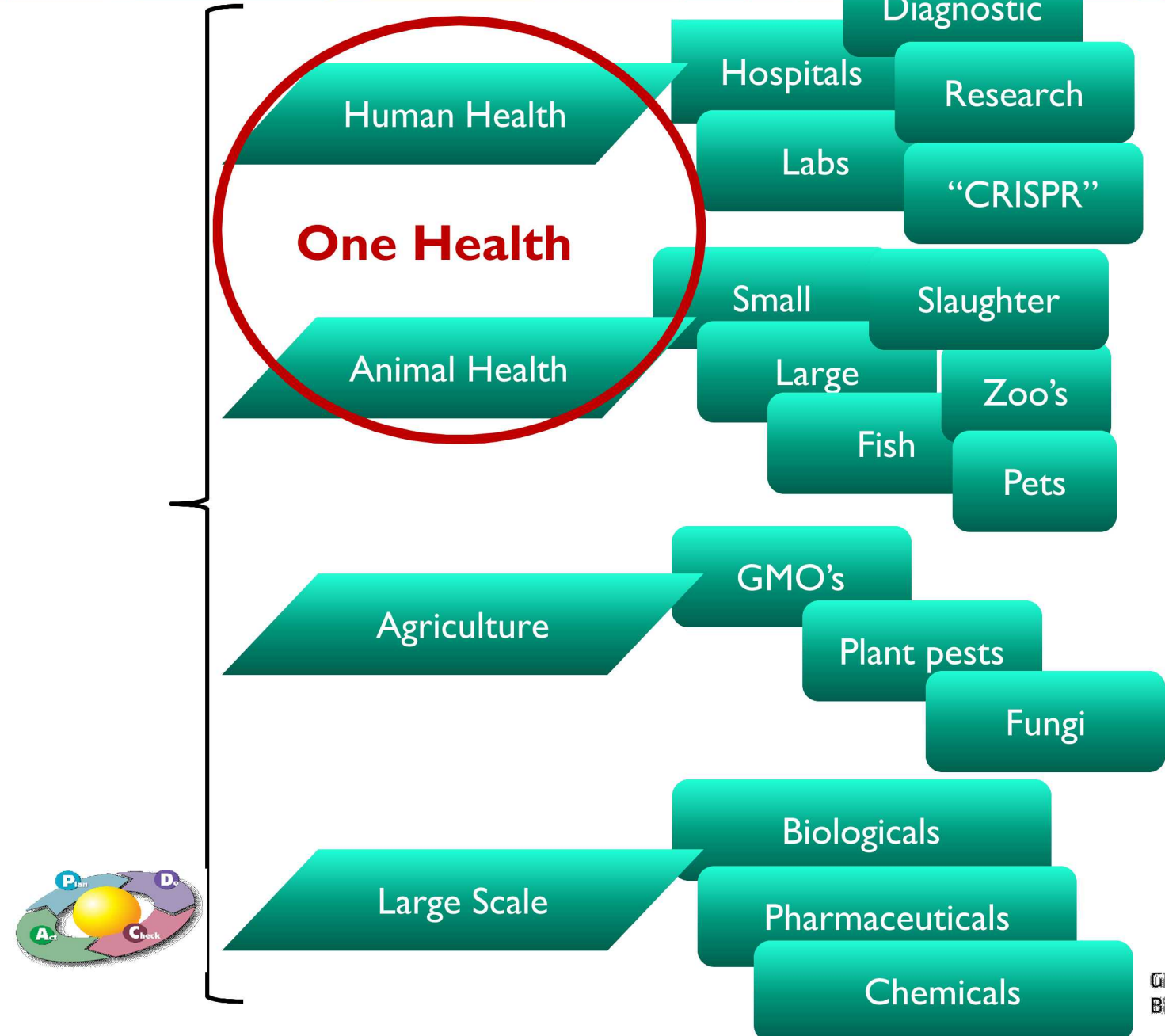
- ✓ BRM Curriculum Development within VOHUN
- ✓ Exploring Remote Engagement Tools within VOHUN
- ✓ BRM Curriculum Development outside VOHUN

Impact/Outcomes:

Creation of VOHUN One Health Community of Practice on BRM



Regulated Sectors





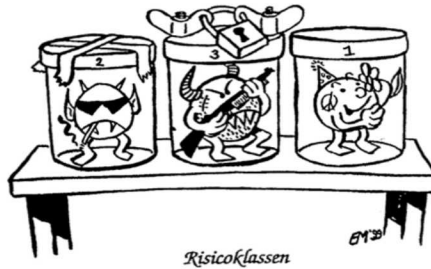
How do we provide them with tools to survive in their first jobs?



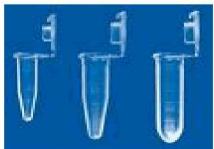
Where are the students when they graduate?



Agent (Risk group)



Scale/concentration

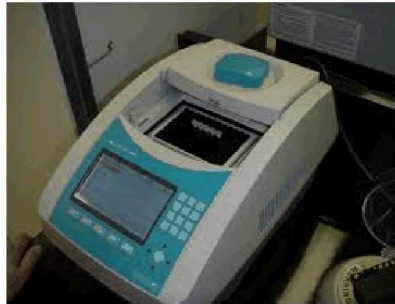


Large scale fermenting

PCR

IVC

Large animals



Consequence

- Exotic?
- Endemic?

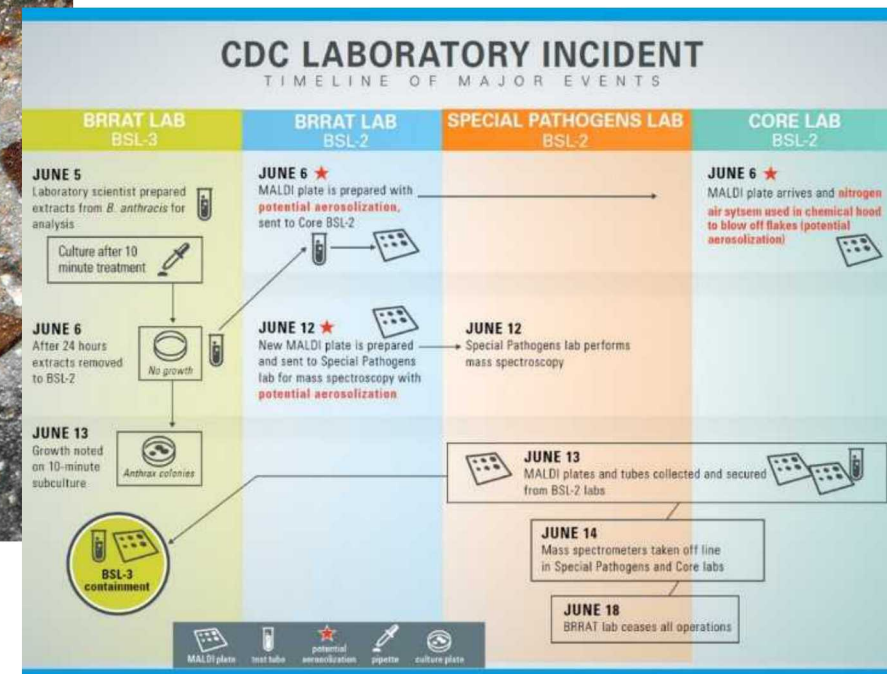


Laboratory Accidents



How do we prevent them from happening?

If they DO happen, how do we handle them?



THEFT

By Alison Young,
USA Today,
27 March 2013

Vial of deadly virus missing at Texas bioterror lab

A Texas lab can't find a frozen vial of virus that is a potential bioterror agent



A Texas lab can't find a frozen vial of virus that is a potential bioterror agent. Lab officials say it's most likely the vial was accidentally destroyed inside the facility.

Officials at a maximum-security research lab in Texas report that a vial of a potential bioterror agent is missing, but they say it's likely that the virus has been destroyed and poses no danger.

The incident, voluntarily disclosed by the Galveston National Laboratory, comes amid growing concerns about security and safety risks at labs researching germs and toxins that could be used as bioterror weapons.



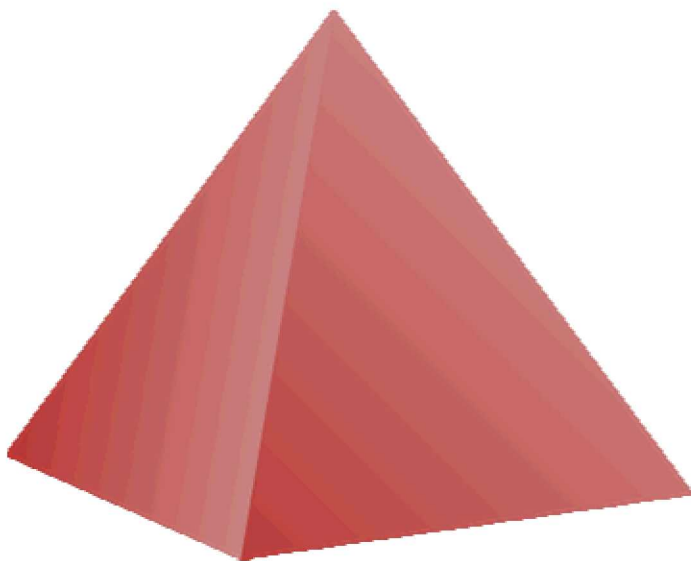


If Jobs are so Varied, What Can We Teach Them at the University?



Controls for BIORisk Management, Biosecurity

5 Pillars



Detect

Delay

Respond

Physical Security

Personal Security

Material Control and Accountability

Transport Security

Information Security



Outsider

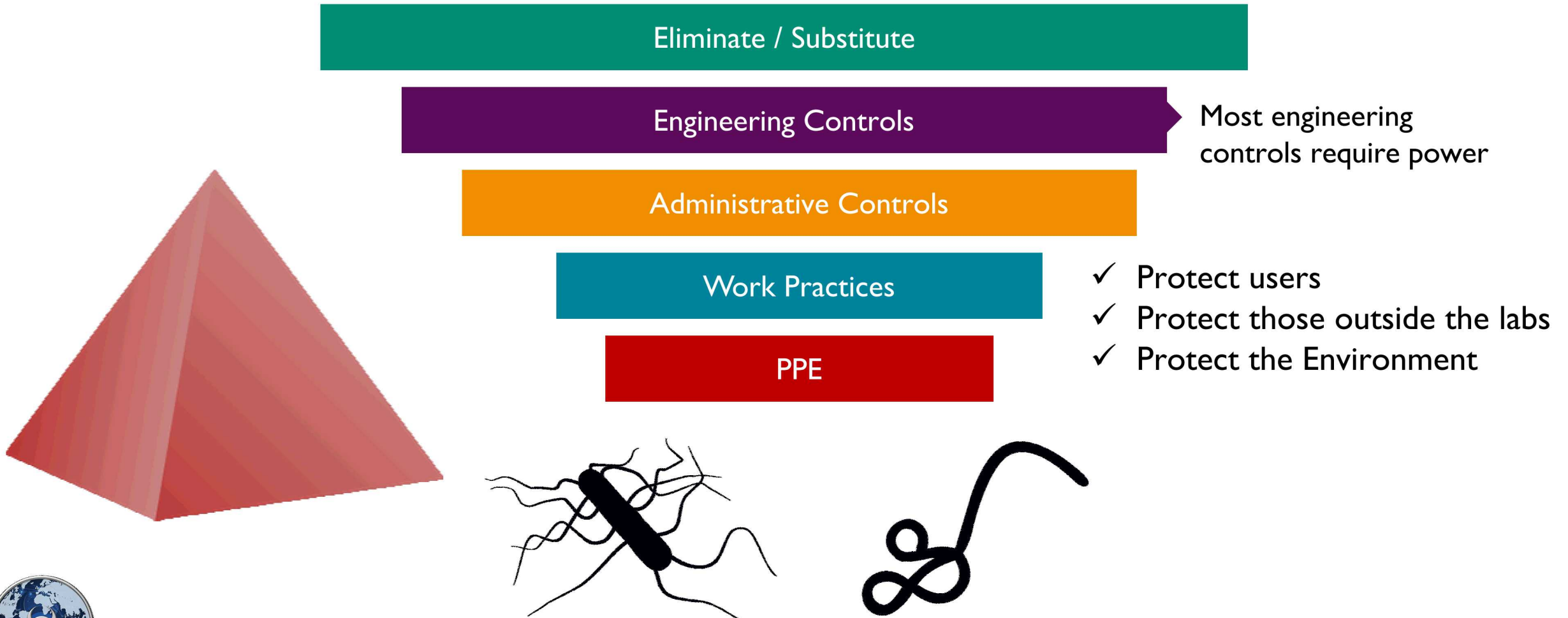


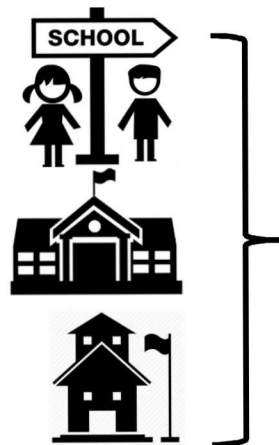
Insider

- ✓ Protect users
- ✓ Protect those outside the labs
- ✓ Protect the Environment

Control for BIORisk Management, **Biosafety**

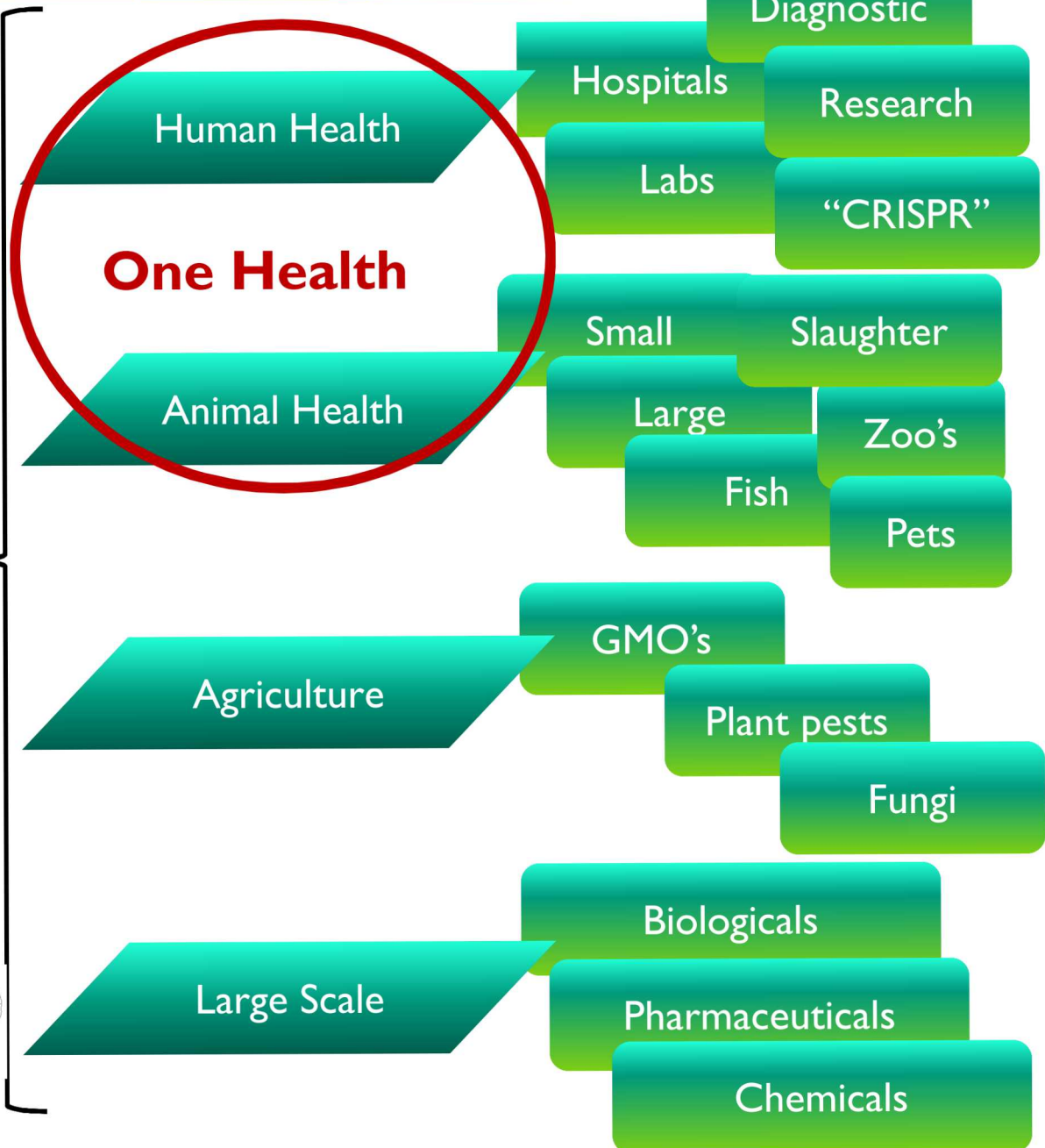
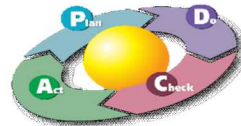
Hierarchy of Controls





General Risk Concepts

Ethics
Risk Identification
Risk Assessment
Risk Evaluation
Risk Mitigation
Performance indicators

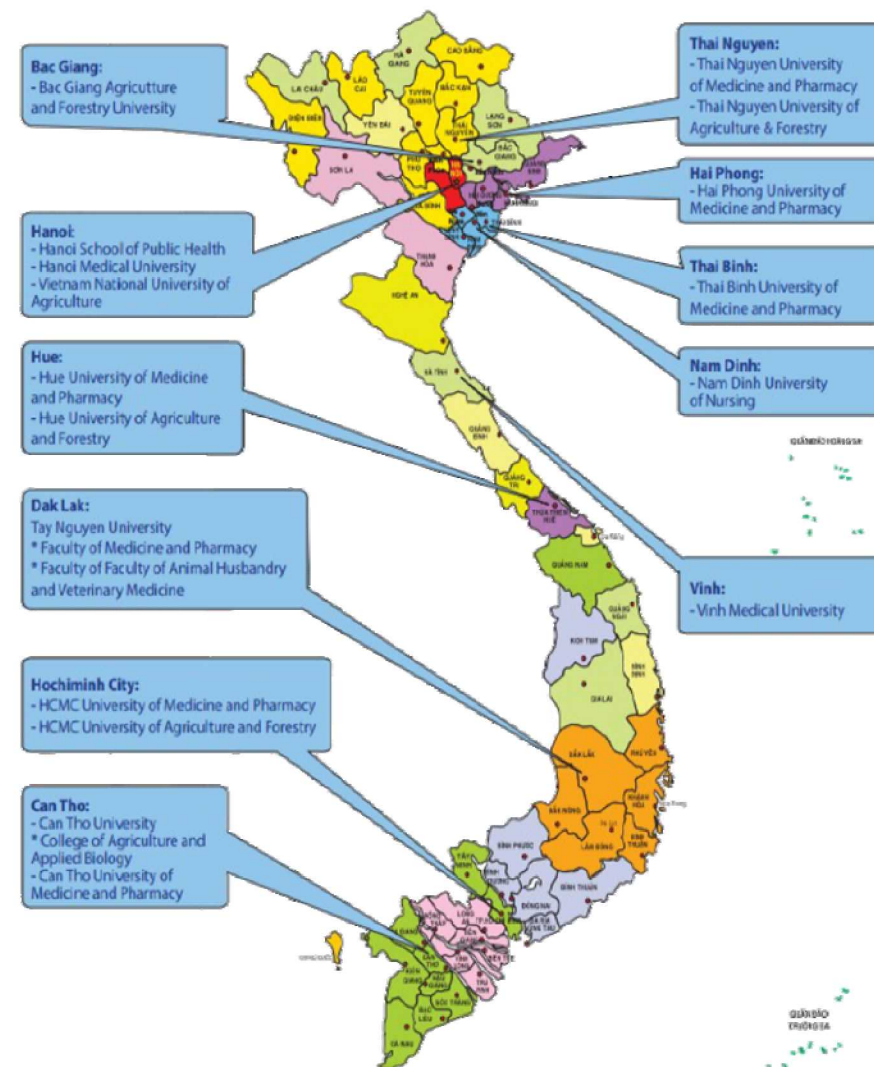


SNL in VIETNAM

Biorisk management curriculum for VOHUN Universities

Achievements December 2018-Present

1. **BRM Mapping** into existing training programs: **7 universities** (HUPH, HMU, VNUA, HaiPhong UMP, NLU HCM, Hue UAF, Tay Nguyen University)
2. **BRM Course Integration** for - Hanoi University of Public Health; Vietnam National University in Hanoi; Tay Nguyen University of Agriculture & Forestry, Can Tho
3. **BRM Mandatory 2 hr- credit** course for MVPH, N Lam University in HCMC



SNL in VIETNAM

*Biorisk management curriculum linking **outside universities** with **VOHUN Universities***

Achievements March 2019

- Engaged with **7 Universities** outside the network including the **Military Medical University** and **4 within VOHUN**

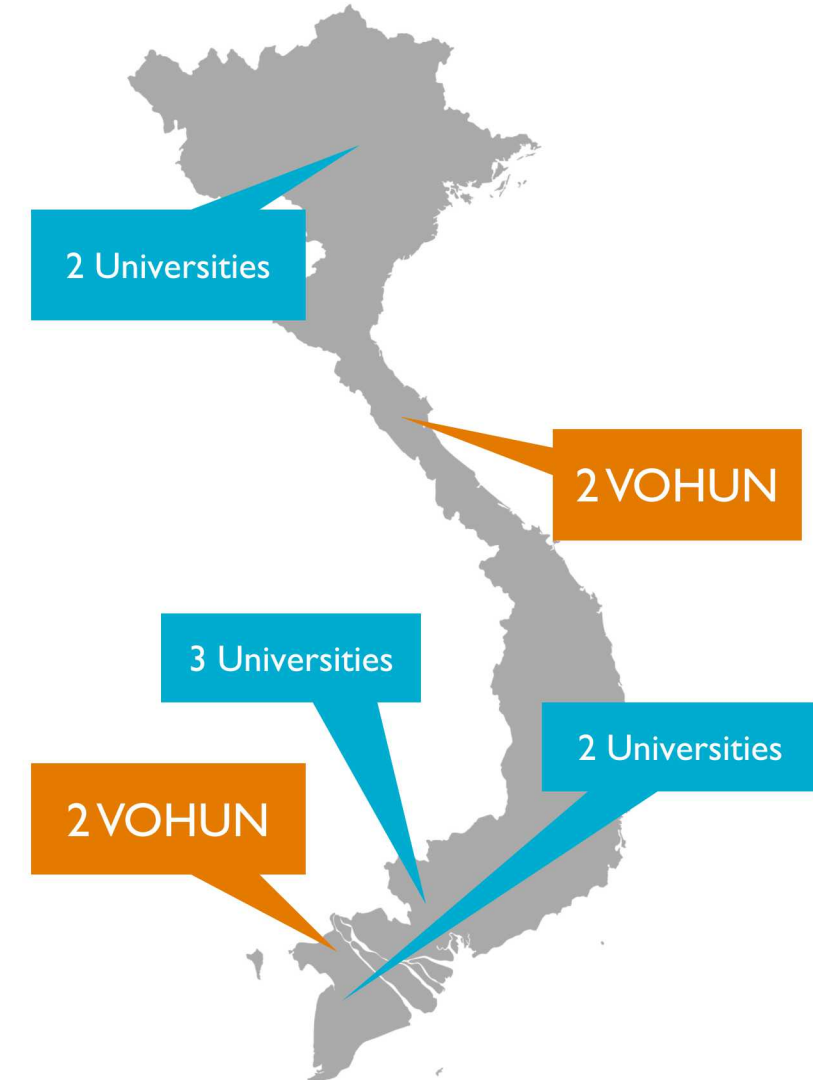
Outcomes:

- Successfully linked universities together in creating a significant network that will integrate BRM concepts into academic sector

1. **BRM Curriculum Mapping**

Universities agreed to conduct curriculum mapping exercise to identify academic gaps and consider BRM integration courses into their institutions. The curriculum mapping data will be provided to SNL by May 10th 2019.

2. **Participation in the 6 Remote Engagement Sessions**



REMOTE ENGAGEMENT ACHIEVEMENTS TO DATE

11 VOHUN universities have submitted the cases for discussion

300 participants will attend the 6 remote engagement sessions

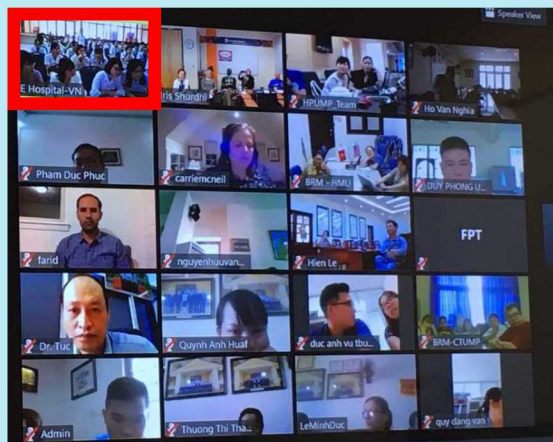
6 people from 3 different Universities in DRC

- University of Congo,
- University of Kinshasa,
- University of Lubumbashi

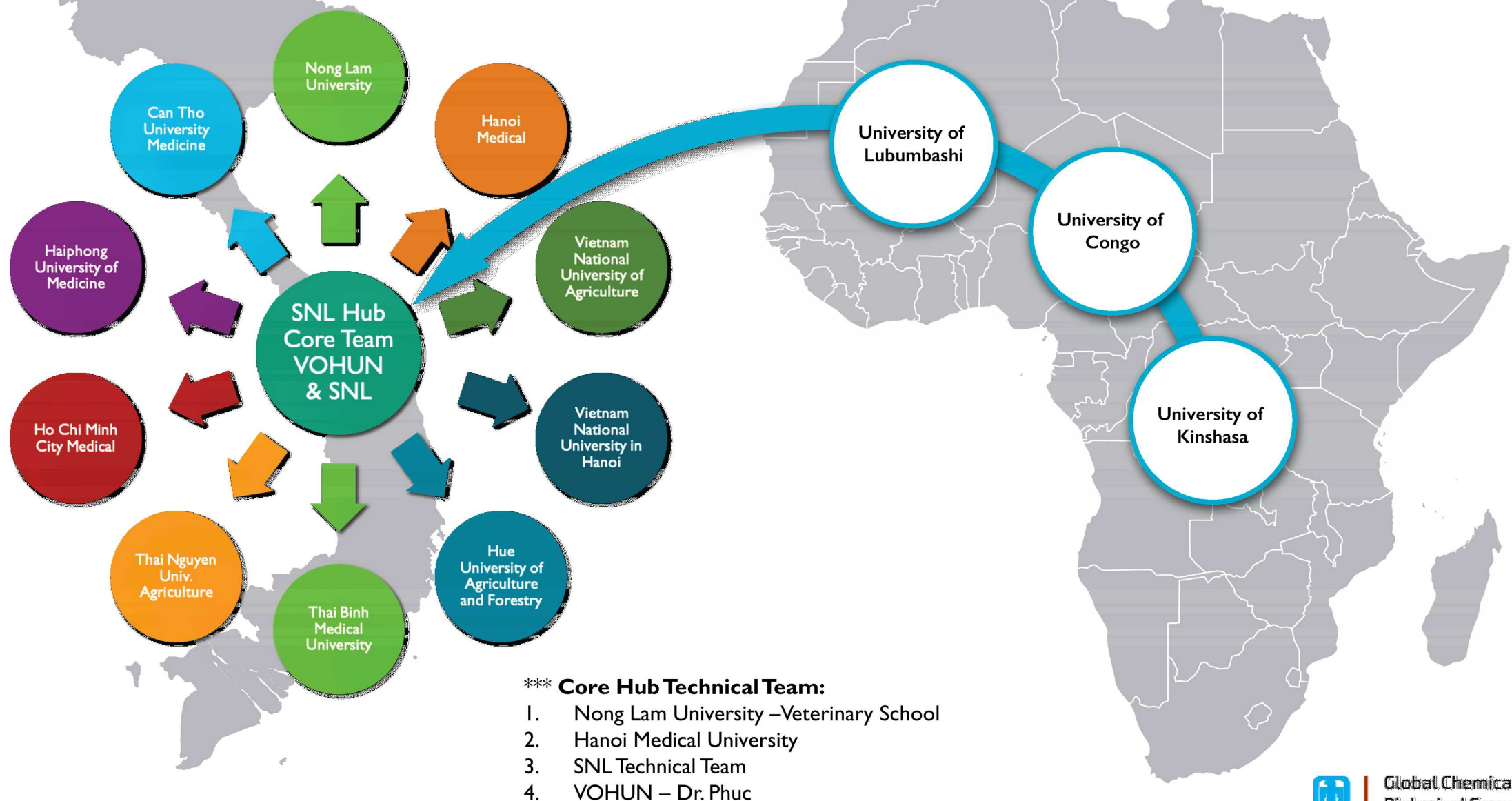
will join the BRM Remote Engagement sessions

Outcome:

- Motivated in country partners that have submitted cases ahead of schedule, participant list as well as has invited people from DRC to attend the remote engagement activity.
- Commitment of VOHUN to become a regional lead on BRM

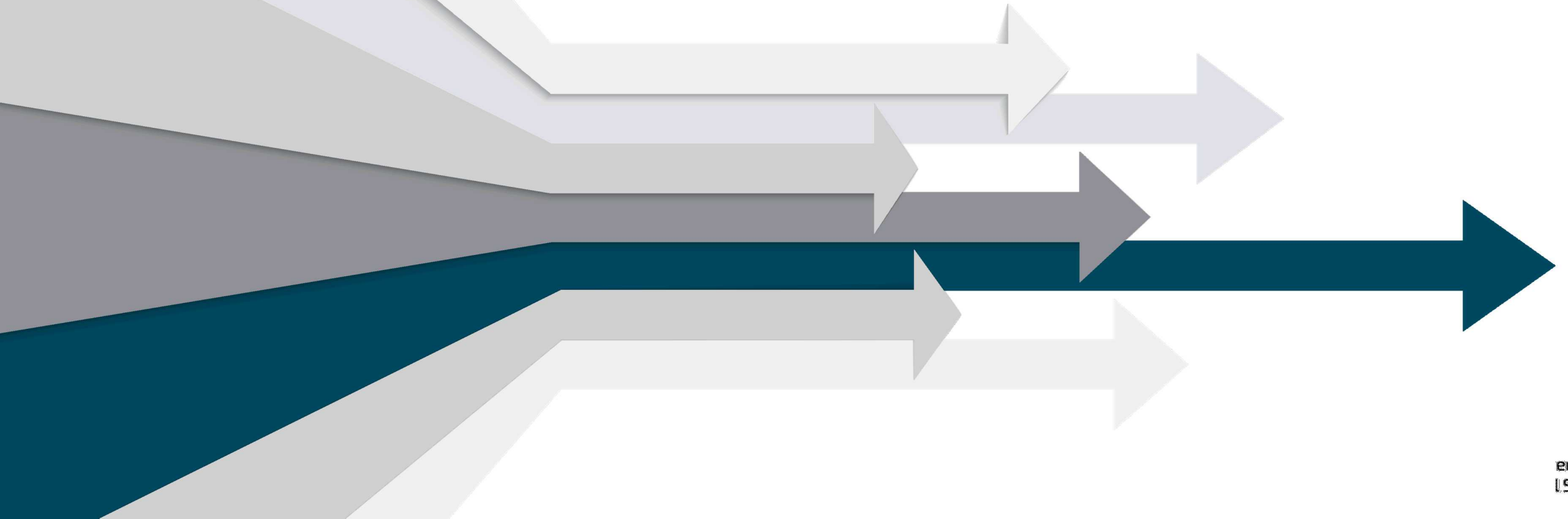


MODEL OF REMOTE ENGAGEMENT - VIETNAM





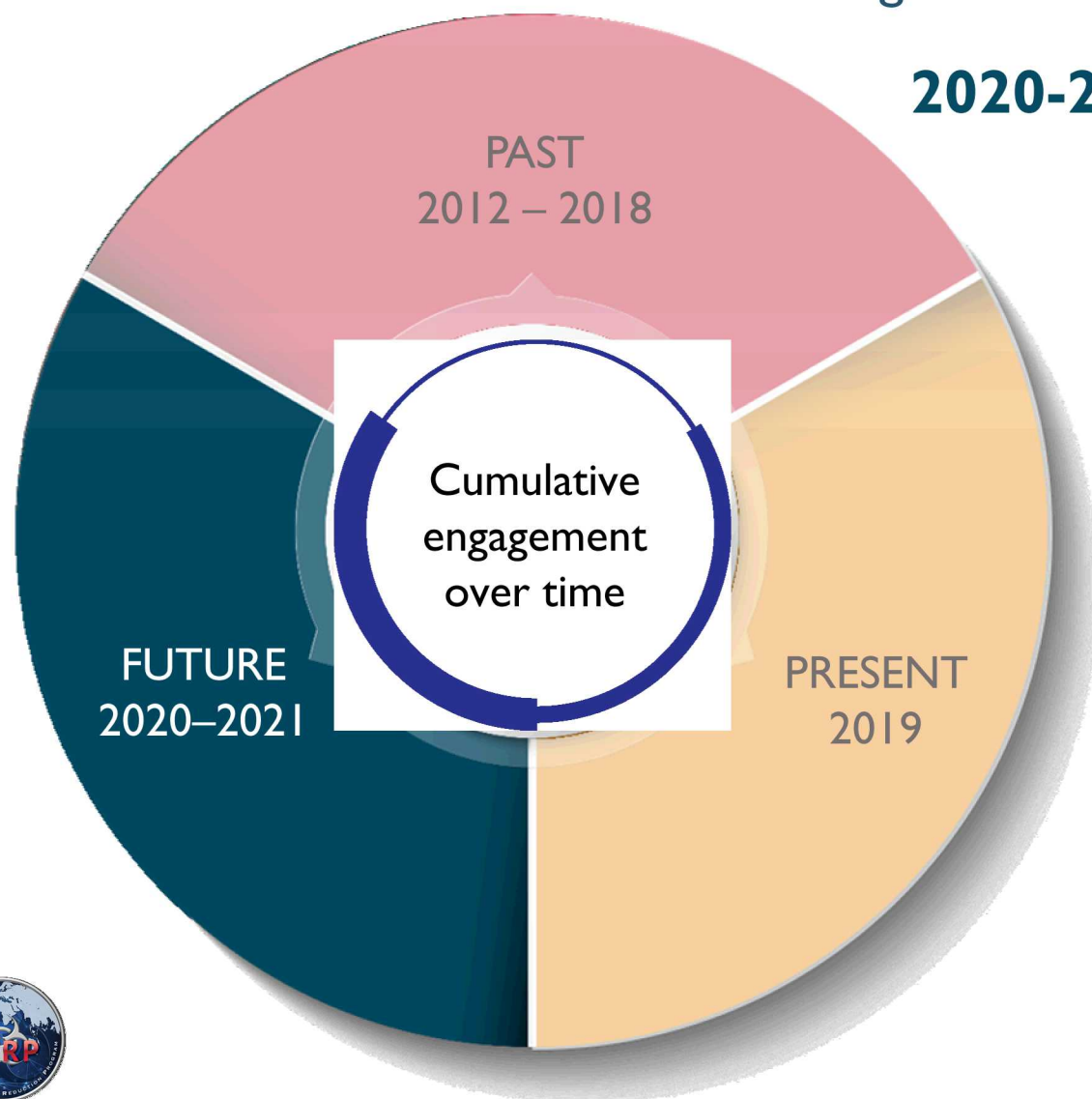
PATH FORWARD



THREE STAGES OF DTRA/ SNL Engagement – **Future**

Institutional + Academic + Integrated

2020-2021 | **Academic + Institutional Engagements**



1. Establish a One Health BRM Laboratory Network within VOHUN
2. Develop Student Outbreak Response Teams within the VOHUN universities
3. Laboratory Risk Assessment trainings for VOHUN professors and lab managers in collaboration with NIHE, Pasteur Institute HCMC; MARD

Impact/Outcomes:

Strengthening the Vietnamese One Health Workforce by Linking Vietnamese government Institutions with VOHUN.





Vietnam One Health Stakeholder Alignment

VIETNAM ONE HEALTH

DTRA

- Zoonotic Diseases
- Biosafety and Biosecurity
- Workforce Development
- Emergency Management Linking
- Public Health and Law Enforcement
- Surveillance

WHO, CDC, and others

- Immunization
- Emergency Management
- Linking PH and Law Enforcement
- MCM and Personnel Deployment

USAID

- Antimicrobial Resistance
- Zoonotic Diseases
- Laboratory Systems
- Surveillance
- Human Resources
- Workforce Development





Vietnam One Health Stakeholder Alignment

VIETNAM ONE HEALTH

DTRA + **VOHUN** + **INSTITUTIONAL**

- Zoonotic Diseases
- Biosafety and Biosecurity
- Workforce Development
- Emergency Management Linking
- Surveillance

WHO, CDC, and others

- Immunization
- Emergency Management
- Linking PH and Law Enforcement
- MCM and Personnel Deployment

USAID

- Antimicrobial Resistance
- Zoonotic Diseases
- Laboratory Systems
- Surveillance
- Human Resources
- Workforce Development



DEVELOPING INTEGRATED BRM CAPACITY

bringing together different sectors over time

Institutional

Past (2012-2018)

Vietnamese Institutions:

Vietnam Ministry of Defense

Ministry of Agriculture and Rural Development: DAH, RAHO 1-7, NIVR

GDPM – NIHE, Pasteur Institute, TIHE

Impact/Outcomes:

Improved biorisk management knowledge and capabilities at the health & animal laboratories and facilities.

Sample management SOP trainings

Biosecurity-focused laboratory assessment

Risk Assessment trainings and Biosecurity-focused laboratory assessment

Academia

Present 2019

VOHUN ENGAGEMENT:

BRM Curriculum Development within VOHUN

Exploring Remote Engagement Tools within VOHUN

BRM Curriculum Development outside VOHUN

Impact/Outcomes:

BRM Course Mapping

Nong Lam University HCMC–BRM mandatory
2 hr credit course

BRM Integration Hanoi School of Public Health &
Vietnam National University

Creation of VOHUN One Health Community
of Practice on BRM

Academic + Institutional

Future (2020-2021)

Increased Capacity

Sustainability Efforts

Establish a One Health BRM Laboratory Network within VOHUN

Develop Student Outbreak Response Teams within the VOHUN universities

Laboratory Risk Assessment trainings for VOHUN professors and lab managers in collaboration with NIHE, Pasteur Institute HCMC; MARD

Impact/Outcomes

International Recognized
One Health Regional Leader

Strengthening the Vietnamese One Health Workforce by Linking Vietnamese government Institutions with VOHUN.

Low Capacity