Animal Health - Human Health - Environmental Health

"OHSEA, WHAT'S NEXT?"
Restitution and capitalisation colloquium

- From 24th to 26th of April 2023 -
Hanoi, Vietnam

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MINISTÈRE DE L'EUROPE ET DES AFFAIRES ÉTRANGÈRES
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SUMMARY

1. INTRODUCTION

Context: As part of its strategy for the Indo-Pacific, France became a development partner of the Association of Southeast Asian Nations (ASEAN) on 9 September 2020. Southeast Asia is one of the richest regions on the planet in terms of endemic animal and plant species. Numerous zoonotic diseases have emerged in this region in recent decades and cross-border health risks are considered most serious with the development of economic corridors and their integration into the new silk routes.

From 24 to 26 April 2023, the restitution and capitalisation colloquium of the Solidarity Fund for Innovative One Health Projects in South-East Asia, "One Health in Practice in South-East Asia, What's Next?" was held at the Hanoi University of Science and Technology (USTH).
Organised by the French National Institute of Research for Sustainable Development (IRD) and the Ministry of Foreign Affairs (MEAE) with the support of the Association of Francophone Universities (AUF), the French Agricultural Research Centre for International Development (CIRAD), the French National Centre for Scientific Research (CNRS) and the Infectious Diseases and Vectors : Ecology, Genetics, Evolution and Control (MIVEGEC); the organisers also found support from the USTH and the French Embassy in Vietnam.
This event was also the occasion to commemorate the 50th anniversary of diplomatic relations and the 10th anniversary of the strategic partnership between France and Vietnam. It contributed, like all actions carried out under the "OHSEA in practice" initiative in the last two years in Southeast Asia, to strengthen science diplomacy in the region and facilitate the dialogue between researchers and policy makers. In the framework of the implementation of France's Indo-Pacific strategy, the main objective of this project was to promote the implementation of the One Health approach while demonstrating the substantial role of the environmental component.

After two and a half years of implementation, which have made it possible to finance and supervise sixteen research projects led by sixty researchers, and twenty-two training courses bringing together more than five hundred people from the South-East Asia region, the "OHSEA in practice" initiative will come to an end on the 18th of June 2023.

As the end of this funding approaches, this scientific symposium fulfilled one of the initial objectives of the "OHSEA in practice" initiative: to initiate discussions between stakeholders who were already working on One Health projects nationally, in order to strengthen the scope and interconnections between researchers all parties involved at regional level.

2. THANKING OUR PARTNERS

IRD and MEAE, would like to thank AUF, CIRAD, CNRS and MIVEGEC for their involvement in the organisation of the "OHSEA, What's Next?" Colloquium. IRD also found support and backing from the USTH and the French Embassy in Vietnam et EURAXESS's Network for communication.

The meeting was attended by project implementers and training courses facilitators financed by the OHSEA project, as well as local and regional civil society organisation representatives, practitioners (doctors, veterinarians, pharmacists, soil specialists), laboratories members, researchers, and decision-makers working on topics related to one or several disciplines whose aim is to contribute to optimal health for people, animals and environment.
The organisers extend their warmest thanks to all guests for their active participation during this three-day colloquium. It has brought together One Health experts to strengthen a regional dynamic which will certainly have helped create synergies and break silos .

3. OUTPUT OF THE SESSIONS

This colloquium gathered **91 participants** from **12 countries,** (see Appendix 5.1) including 7 from South East Asia (Vietnam, The Philippines, Lao PDR, Cambodia, Thailand, Malaysia and Indonesia).

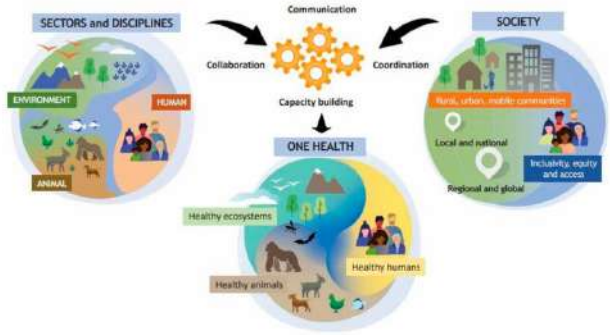
The colloquium was divided into 6 sessions, each planned during half a day (see Appendix 5.2), reflect on this 2-year-long OHSEA project and to reflect on the future of the One Health dynamic at the regional level, in South East Asia.

- Session 1 – One Health Implementation
- Session 2 – One Health Trainings and One Health Curriculum
- Session 3 – One Health in Practice
- Session 4 – One Health Surveillance Capacity
- Session 5 – PREZODE initiative
- Session 6.1 – One Health Data (PREZODE)
- Session 6.2 – One Health and Soil Health

3.1. A STRONGER DEFINITION OF THE ONE HEALTH APPROACH AND ITS ACTORS (SESSION 1)

1 Update on the One Health Global Architecture and One Health Joint Plan of Action (André Furco, WOAH Bangkok)

> *"One Health is an integrated, unifying approach that aims to sustainably balance and optimize the health of people, animals (domestic & wildlife) and ecosystems"*



MARCH 2022

The One Health Quadripartite Collaboration: FAO, UNEP, WHO and WOAH stand together as a global coalition to jointly drive change and achieve the transformations desired

OCTOBER 2022

Launch of the OH Joint Plan of Action in October 2022 and development of the complimentary implementation guide

TO REMEMBER

The One Health Global Architecture...
... is moving forward to better consider how to tackle health threats at human-animal-plants-environment interface, so beyond the solely zoonotic pandemic risk

Many health threats ignore borders...
... so a common vision and approach to collaborate, coordinate, communicate and implement is required

Diversity is a potent source of strength but can also causes challenges...
... arising from fragmentation, duplication, and competition through multiple parallel efforts despite aiming towards the same goal

Aligning the work of all OH stakeholders as much as it is possible...
... to better build OH capacities is essential: this is the aim of the One Health Joint Plan of Action and its Implementation Guide

To learn more : https://www.woah.org/en/what-we-do/global-initiatives/one-health/

2 What is OHHLEP? (Serge Morand, CNRS)

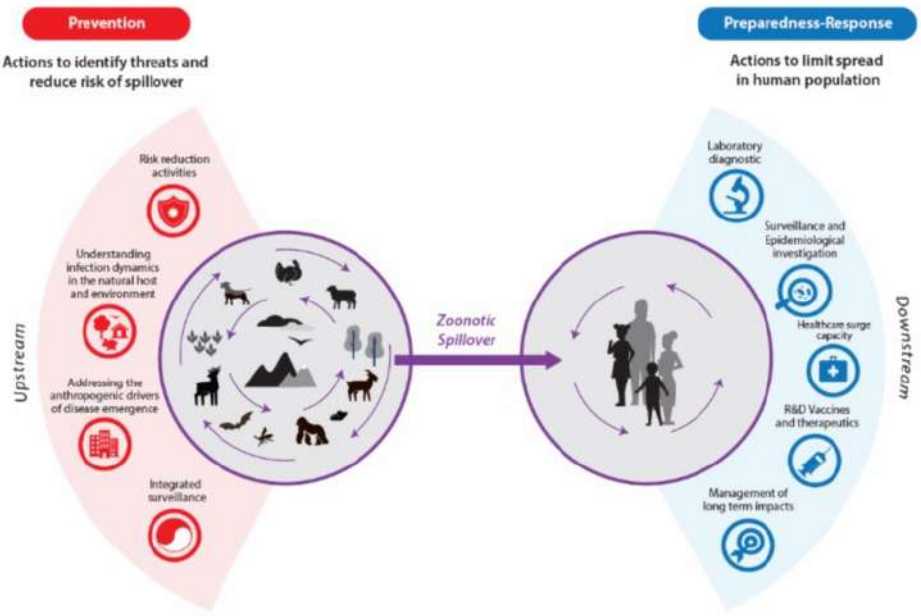
November 2020 at the Paris Peace Forum

FAO, WOAH, UNEP and WHO create a multidisciplinary One Health High-Level Expert Panel (OHHLEP) with the support of France and Germany, composed of 25 members.

To answer the +60 factors identified by the One Health Theory of Change

They adversely affect the health of humans, animals, plants, and ecosystems.

Said otherwise, it is to act for the prevention of zoonotic spillover to humans and go from a prevention approach to a Prepardness-Response.



To learn more : https://www.who.int/groups/one-health-high-level-expert-panel

3.2. MAPPING OF ONE HEALTH ACADEMICAL AND PROFESSIONAL TRAININGS PRESENTED (SESSION 2)

Discover below the One Health Trainings presented during the colloquium. Three of them were funded by the French Ministry of Foreign Affairs ; To see all of them, click here.

Disease Ecology Symposium (presented by Kittipong Chaisiri, Mahidol University)

28th Nov – 2nd December, 2022 | Mahidol University, Thailand | 73 Participants from 12 countries

Subject = provide basic knowledge on how to conduct ecological research on reservoir animals in order to better prevent and control the emergence or transmission of zoonotic and vector-borne diseases at the wildlife-environment interface. In other words, bringing together wildlife ecology, conservation ecology, and conservation medicine with training in wildlife monitoring promoted by the FAO tripartite, CDC, and disease control ministries.

https://www.ph.mahidol.ac.th/en/news

What's Next? Available in a summer or winter course, of 12 to 14 days

One Health student training to One Health professional skill training (presented by Zubaidah Binti Ya'cob & Norhidayu Binti Sahimin, Universiti Malaya)

July 2023 | University Malaya, Malaysia | 120 participants

Subject = 2 in 1 training:

- Training 1: OHVEZOM: to enhance OH skills among professionals in the scope of infectious disease management & Promote standard practices and collaboration of various sectors for OH practice in the management of infectious diseases.
- Training 2: ROAR: To introduce OH skills among students in the scope of infectious disease management & to promote standard practices in OH collaboration among SEA university students.

https://medicine.um.edu.my/index

These trainings are part if the ones funded by the French Ministry of Foreign Affairs. Click here to see the rest.

Environmental Law and One Health (presented by Claire Lajaunie, INSERM)

To be defined | ACB, Philippines | To be defined

Subject = advocate for the environmental and ecological dimension of the OH & raise awareness of the audience regarding the OH approach and the role it may/should have in environmental law and in policies linked to the environment. It targets policy makers, teachers in environmental law and professionals of justice.

https://www.inserm.fr/ https://www.aseanbiodiversity.org/

What's Next? The ACB, hosting this training, is planning to get involved in more OH initiatives.

This training is part if the ones funded by the French Ministry of Foreign Affairs. Click here to see the rest.

Mapping and spatial analyses (presented by Vincent Herbreteau, IRD and IPC)

22 to 24 June 2022
28 Nov to 02 Dec 2022
7 to 9 Dec 2022

Phnom Penh, Cambodia

Around 25 participants for each training

Subject = Develop the use of geospatial technologies and methodologies for One Health studies by

- Building capacity for specific needs in remote sensing (satellite image analysis).
- Training on using R software for mapping and spatial analyses.

https://www.pasteur-kh.org/

What's Next? Might turn it into an online MOOC-type format.
This training is part if the ones funded by the French Ministry of Foreign Affairs. Click here to see the rest.

SEAOHUN, Southeast Asian One Health University Network (presented by Vipat Kuruchittham, Chiang Mai University)

Over an academic year

Academic trainings all over SEA

Gathers 102 member universities

SEAOHUN is a network of universities in Southeast Asia aiming to develop a resilient and competent OH workforce to effectively prevent, detect and respond to infectious disease threats by leveraging education, research, and training excellence provided by member universities.

https://www.seaohun.org/

What's Next? Expand on OH topic trainings. Broaden from human and animal health to Wildlife, Environment, triple global crises (biodiversity loss, climate change, pollution), security sector.

VOHUN, Vietnam One Health University Network (presented by Phuc Pham Duc, Hanoi University)

Over an academic year

Academic trainings all over Vietnam

Gathers 27 member universities

VOHUN is a network of universities in Vietnam aiming to leverage the strengths of vietnamese universities to build OH knowledge, skills, and attitudes to prevent emerging and re- emerging zoonoses and other infectious diseases.

https://vohun.org/

What's Next? Continue to promote the OH approach through university training and research and to inspire a new generation of lecturers and researchers.

Eco-EPIED (presented by Catherine Moulia, Montpellier Université)

Every academic year

Montpellier Université, France

Varies each year

Subject = master on Eco-Epidemiology studying and/or managing the Epidemiological risks and Emergences of human and/or animal pathogens through a One Health perspective. The program is developed to favour early and long lasting immersion within the research world with a research internship, a multi-disciplinary project, training units and a personal project.

https://formations.umontpellier.fr

What's Next? Continue to improve the program and build new partnerships.

One Health Institute from VetAgroSup, Lyon (presented by Amandine Gauthier, VetAgroSup)

Every academic year | Vet Agro Sup, France | Varies each year

Subject = Vet Agro Sup, a French School of Veterinary Services, developed a "French One Health National Institute" in collaboration with EHESP (Public Health) and AgroParisTech (Agricultural Studies). It aims to dispense a practical knowledge of the interactions between humans, animals and their environments ; An appreciation of diversity and the determinants of health ; An ability to inform and implement future health practice and policy, using systems thinking, creativity, communication and collaboration

http://chaire-vph.vetagro-sup.fr/formations/master-oh-mhp/

What's Next? Continue to improve the program and build new partnerships.

WHO Academy (presented by Isobel RIVERA, WHO)

Every academic year | Lyon, France | Varies each year

Subject = Providing to anybody who strives to improve health, regardless of who they are or where they work, a fair access to high-quality learning opportunities.
The Academy learning programmes are based on the latest developments in learning science and learning technology.
They are competency based and are designed according to the Academy's quality framework, which is endorsed by the WHO Quality, Norms and Standards department to ensure that all technical products meet the highest global quality standards as well as match WHO's core values and Member States' needs.

https://www.who.int/about/who-academy

What's Next? Continue to improve the program and build new partnerships.

EURAXESS - European Research Action Service (presented BY Jenny Elmaco, EURAXESS)

Every academic year | Europe | Varies each year

Subject = EURAXESS is a Global Network of Researchers, Innovators & Entrepreneurs offering a comprehensive tool kit to the research european area:

- Information: Who offers research opportunities in my field? What type of funding is available? How can I, as an international researcher, move to Europe?
- Opportunities: scholarships, research jobs, fellowships & funding offers
- Networking: find a research partner or a research host in Europe
- Career Development: support, training resources & mentoring
- Support
- Community: take part in the organised sessions

https://euraxess.ec.europa.eu/

What's Next? Continue to improve the program and build new partnerships.

3.3. ACCOMPLISHMENTS AND CHALLENGES ENCOUNTERED BY ONE HEALTH RESEARCHERS (SESSION 3)

1 Overview and lessons learned from the 17 projects (Eric Deharo, IRD Representative in Laos; Marieke Charlet, AUF Representative in Laos; Emma Russ, IRD)

The "OHSEA in practice" initiative had started to finance 17 research projects in South East Asia (around 20K €/ project). The global pandemic context, made it difficult for the conventions to be signed and the fundings to be approved,. In the end, 16 out of the 17 research projects were carried out.

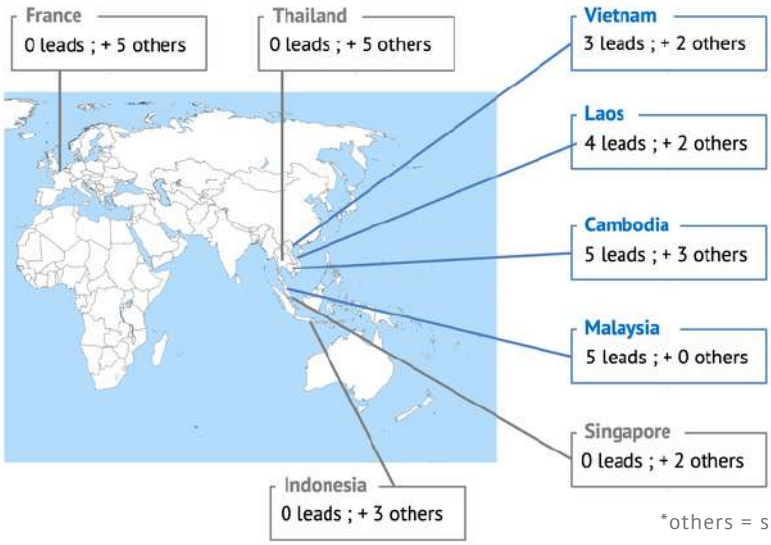
LIST WITH REPARTITION PER LEAD RESEARCH TOPIC:

All of the 17 research projects selected dealt with zoonotic diseases (pathogenes circulating between humans, animals and the environment). Find below a list classifying them by lead country and highlighting the element out of the three above that the researchers started to study:

LEADER NAME	ACRONYM	TITLE	LEAD COUNTRY	OTHERS	
Boyer Sébastien	SEA TICKEY	Southeast Asia tick species determination key	Cambodia	Laos	France
Garine-Wichatitsky Michel	DogZooSEA	Supporting research and laboratory capacities on dog-associated zoonotic diseases in Cambodia and collaborations with SE Asia countries	Cambodia	Indonesia	Thailand
LOVICOURT Pauline	ECCOZAP	Enhancing the Capacities of Cambodian Organizations on Zoonosis Awareness and Prevention	Cambodia	France	
M'zoughi Meriem	OHARAT	One health anthropological approach to rat-related knowledge and practices in Cambodia and beyond in Southeast Asia	Cambodia	Thailand	Vietnam
Ngor Peng Bun	ESMFTCM	Enhancing the Study of Medically-important Freshwater Taxa of the Cambodian Mekong	Cambodia	Thailand	Singapore
LOCATELLI Sabrina	ELAOS	The Emergence of Tuberculosis at the Human-Elephant Interface	Laos	Cambodia	
LOCATELLI Sabrina	ONENAKAI	A One-Health approach to estimate the prevalence and genetic diversity of gastrointestinal pathogens circulating among elephants, domesticated bovines and the human population living at the edge of the Nakai-Nam Theun National Park, Laos	Laos	Malaysia	
HAMEL RODOLPHE	BILAO	Emerging arbovirus associated with bird in Laos	Laos	France	Thailand
INSISIENGMAY Oudomphone	INEDI	Vientiane's landfill Investigation to study the Emergence of DIseases related to waste management	Laos	Vietnam	
AbuBakar Sazaly	ROAR	Roach of the sky and ground: Impact of pest animals on urban communities	Malaysia	Thailand	Indonesia
AbuBakar Sazaly	OHVEZOM	One health approach to evaluate the role of oil-palm habitats in biodiversity conservation and spread of vector-borne and zoonoses in Malaysia	Malaysia	Thailand	Indonesia
AWANG Khalijah	PHYTODENCOV-3	A Conservation Effort on Malaysian Annonaceae Plants and its Identification of Novel SarsCoV-2 and Dengue Antiviral Agents	Malaysia	France	
HASSAN LATIFFAH	AMR	Understanding antibiotic use among commercial small scale chicken farmers and its impact on E. coli from chickens and the environment in Malaysia and Cambodia	Malaysia	Cambodia	
JARIA MAIDIN Ainul	SEAWildLaw	Law and policies regarding wildlife value chain /supply chain: from international commitments to national legislations	Malaysia	Singapore	France
LAINE Nicolas	BufFARM OneHealth Sea	Initiating a One Health approach on Extensive Buffalo farming in Southeast Asia	Vietnam	Laos	Thailand
Nguyen Quang Huy	ARCIMED	Antimicrobial Resistance Circulation along the MEkong and its Delta	Vietnam	Cambodia	France
Vo Nguyen Xuan Phuong	VNCA-Mekong	Mekong Transboundary Monitoring the Linkage among Cultivation Practices of Irrigated Rice and Snakehead Fish, Water Pollution and Fish-borne Zoonotic Pathogens: Implications for Eco-Health and Food-Safety Policy and Planning	Vietnam	Cambodia	

MAP WITH REPARTITION PER GEOGRAPHY:

All of the 17 research projects selected were equally distributed amongst the lead countries included in this "OHSEA in practice" intiative. Find below a map classifying them by lead country and supportive countries:



*others = supportive, non-lead countries

GET A GLIMPSE OF THE 16 RESEARCH PROJECTS

A training on how to deliver scientific pitches was given to some on the project leaders. A few pitchs as examples:

- *AMR* - *click here*
- *ARCIMED* - *click here*
- BufFarm - click here
- DogZooSEA - click here
- *ECCOZAP* - *click here*
- *ELAOS* - *click here*
- OHARAT - click here
- ONENAKAI - click here
- *OVHEZOM* - *click here*
- *PhytoDenCov3* - *click here*
- *ROAR* - *click here*
- *SeaTickey* - *click here*

2 3 WORKSHOPS WITH 3 TOPICS ORGANISED AS A "WORLD COFFEE":

The participants were divided in 3 groups whom all attended 3 workshops, on 3 different topics*.

Objective: With individual contributions requested from OHSEA research project representatives, and from other institutional representatives invited to the "OHSEA, What's Next?" conference, an inventory of the different research activities and challenges encountered during OH research projects was made. The goal was to think and discuss about which model or discipline the researchers would like to collaborate on, in the future, for the next steps of OHSEA.

The 3 topics were animated by:

1. TOPIC 1: Local actors - Michel de Garine-Wichatitsky

1- Question 1: What was the main local actor with whom you interacted during your project?
2- Question 2: What was the main issue faced in engaging and working with the local actors?
3- Question 3: Solutions adopted, or recommendations for future projects, to overcome these issues.

OBSERVATIONS OF THE RECURRING THEMES MENTIONED	PROPOSITION FOR FUTURE RESEARCH, NEXT STEP FOR OHSEA
• Language made communication difficult • Bureaucracy from authorities and confusion on authority line • Low level of engagement from local people; • Legitimacy ; Identifying relevant actors and relevant procedures for permit application • Lack of readiness for collaboration with other partners ; Access to sampling sites/samples from individual • Compliance of Nagoya protocol and guidelines on handling wildlife • Missing critical research questions ; Knowledge and data sharing not universal • Gender question not treated	• Work with national/local partners ; strictly adhere to ethical permit procedures • Better upstream information and planning • Socialise/engage friendly with community, build a stronger relationship • Multi-dimensional partnership and engagement: authorities, collaboration from partners (agencies, other research groups), local people (animal owners, farmers, boat owners, waste pickers, local community…) • Need more time to gather information, insights, refine research questions and protocols ; Short-term projects are usually not suitable

To access the details of the answers given during the workshop, please go to the "Session 2" file of the link below:
https://ohsea.ird.fr/en/ohsea-whats-next-colloquium-april-2023-discover-the-presentations-made/

**While the 1st group was attending the 1st workshop, the 2nd group was attending the 2nd workshop and the 3rd group was attending the 3rd workshop. Once time was up, the groups toured on the 2 other workshops.*

2. TOPIC 2: Wildlife - Claire Lajaunie




1- Question 1: Which aspect of wildlife did you consider in your research or activity?
2- Question 2: In which way the regional approach of the "One Health in practice" initiative has helped you, or not, with your project?
3- Question 3: Did you rely on regional or national institutions? Which ones?
4- Question 4: Which kind of issue or result came out during the project that was not expected at the beginning?
5- Question 5: Is there a link between your project and climate change and which one?

A lot of positive insights came out of the wildlife workshop. The project leaders praised the regional aspect of the OHSEA project. Doing research at a regional level could make coordination harder but during the OHSEA project, according to this workshop, the regional approach allowed:

- Better coordination in expertise and funding
- Better advocacy and voice because it is supported by a regional platform
- To help develop uniformed and shared tools, and build capacity
- To share knowledge through workshops, best practices and exchange on expertise

However, broadening the research area to make it regional also means broadening the wildlife analysed, which also led to some issues.

OBSERVATIONS OF THE RECURRING THEMES MENTIONED	PROPOSITION FOR FUTURE RESEARCH, NEXT STEP FOR OHSEA
• Wildlife hunting, farming, consumption and trade can be legal and illegal which makes it hard to track • Needs for surveillance of some types of data (particularly in Asean Heritage Parks (ACB)) • Study of traditional local ecological knowledge vs Scientific regional ecological knowledge • Complexity of each individual administrative and financial process of each institution • Regional dimension led to a larger scope of research than expected and to unexpected results • Resources from a country to another are different (ex: different kinds of boats to do the sampling so it is more difficult to be consistent in sample and identifying the location and depth)	• The need for a full engagement of the civil society • Check Nagoya protocol applications • Do more linkage between the projects and climate change because it affects the distribution of wildlife population (very ubiquitous in SEA) so the results can make sense (Ex: rainy season, ...) • Increase surveillance of AMR

To access the details of the answers given during the workshop, please go to the "Session 2" file of the link below:
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3. TOPIC 3: Vectors and reservoirs (including soils) - Sebastien marcombe




After several propositions we decided to include Water in the reservoir section as many projects were doing research on viruses/diseases/animals in the water environment. However, there were less proposition/discussions about reservoirs, showing that the research in this particular area is under-represented should probably be developed in the future for a strong preparedness of pandemics.

1- Question 1: Did you work on Vector Borne Diseases related to Vectors?
2- Question 2: Did you work on Vector Borne Diseases related to Reservoirs?
3- Question 3: Did you work on Vector Borne Diseases related to soil/water?

The One Health Researchers are well aware of the importance of vectors in the transmission of zoonotic diseases and some worked on vector borne diseases and the vectors related, as well as their surveillance (for wild animals and domestic animals, but especially rodents).
They are also familiar with vector borne diseases related to reservoirs.

OBSERVATIONS OF THE RECURRING THEMES MENTIONED	PROPOSITION FOR FUTURE RESEARCH, NEXT STEP FOR OHSEA
OH researchers dealt with: • Animal/Human Health • Local Knowledge • Environment/Conservation linked to AMR • Surveillance in Reservoirs and Vectors • Mono-culture plantation and impact • Geo-Helminths in soils • Treatment of viruses with plants extract, biochemical study • Impact of the climate change • Soil and water quality • Rodents As the links between climate and hydrological dynamics and zoonosis emergence is omnipresent, they have to work on the identification of new reservoirs and vectors and their possible role in the spread of Anti-Microbial-Resistance and other diseases.	• Build inter-disciplinary research and partnership • Science/Policy/Communication interface • Work on policy facilitating interfaces between policy makers and scientists • Training for local staff • More holistic research team collaboration • Establishment of a Database / Metagenomic analysis routine for OHSEA • Include socio-anthropology aspects in the OHSEA projects • Develop Bioproducts to fight against vectors and VBD ; Plant repository • Surveillance for all subjects for pandemic preparedness • Use of satellite images for land use change and water dynamics

To access the details of the answers given during the workshop, please go to the "Session 2" file of the link below:
https://ohsea.ird.fr/en/ohsea-whats-next-colloquium-april-2023-discover-the-presentations-made/

3.4. MAPPING OF THE ONE HEALTH SURVEILLING-LABORATORY-INITIATIVES PRESENTED (SESSION 4)

1 ZODIAC - Zoonotic Disease Integrated Action (Noura El-Haj, International Atomic Energy Agency)

An IAEA initiative to increase zoonotic diseases detection, diagnosis and monitoring capacities in Member States using nuclear and related techniques.

HOW ?

1) Capacity Building

Membership

- 50 Member States nominated a ZODIAC National Coordinator (ZNC)
- 127 Member States nominated a ZODIAC National Laboratory (ZNL)

Procurement

On the path to equipping almost half the ZNLs

2) Training

- +1,000 participants from +95 Member States have been trained virtually
- Face-to-face trainings have started
- The First joint workshop with FSPI and PREZODE took place in Thailand for ASEAN countries

3) Research and Development

- Priority diseases determined for four regions and first research projects ready to start
- Project ongoing on the 'Detection of Emerging and Re-emerging Transboundary Animal and Zoonotic Pathogens at the Animal Human-interface'
- Core institutions identified for the research project on characterizing disease-specific patterns in the context of zoonotic disease infected patients
- ZODIAC Ad-hoc Scientific Panel of experts formed

4) Collaborations and Partnerships

To learn more : https://www.youtube.com/watch?v=5MTDoqWYNmI ; https://www.iaea.org/services/zodiac#:~:text=Further%20to%20the%20IAEA's%20COVID,can%20be%20transmitted%20to%20humans.

2 Center for Disease Control and prevention (CDC) (Florian Girond, CDC Cambodia)

Automated Data Analysis Platform for strengthening National Health Surveillance. It aims to display real time monitored data, easy to visualise and understand, to make data-driven decisions.

HOW?

By answering to the limits of the existing systems:

- **National disease Surveillance (The National Health Information System & The Sentinel Surveillance)**

Limit: No weekly aggregated number of cases and death exists ; No aggregation of these two systems.

- **Environment Surveillance (Earth observation, Environmental and weather satellite data**

Limit: No knowledge on how to access, process and integrate environmental and weather satellite data or on how to combine evidence from multiple data sources.

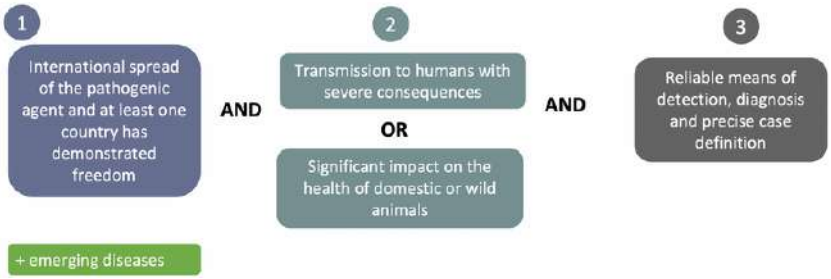
- Real time monitoring of environmental dynamics
- Environment and climate change analysis (Dengue, Diarheas, etc)
- Relying on a transdisciplinary approach
- The importance of continual stakeholder input throughout the sign, implementation, and operation of the system, and the need to be adaptable to changes in the input data and expected output.
- The importance of capacity building, technology transfer, etc.
- The need to be adaptable to consider continual stakeholder input throughout the sign, implementation, and operation of the system: versatility/flexibility

To learn more : https://www.cdc.gov/

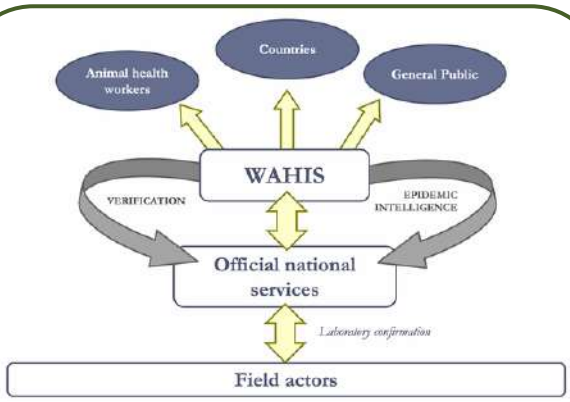
3 WAHIS (André Furco, WOAH)

World Animal Health Information System is an existing animal health information system at global level with mandatory notification of animal diseases for domestic animals.

WHAT IS SIGNALED AS A DISEASE?



HOW IS IT SIGNALED?



➡ This has led to the signalisation of 120 listed diseases and 4 emerging diseases in 2022.

TO REMEMBER

WAHIS is available...
...in the public domain

It relies on...
...data quality at national level

Collaboration, coordination, communication and capacity building...
...is required to obtain reliable data and to use them adequately

A dedicated HIS for Wildlife exists also...
...but not yet available in the public domain

Link with OH surveillance system at all levels...
...should be strengthened

To learn more: https://www.woah.org/en/what-we-do/animal-health-and-welfare/disease-data-collection/world-animal-health-information-system/

4 GLOSOLAN (Nopmanee Suvannang, ITPS member, GSP, FAO)

It is a network of 900 laboratories, initiated by the UN, constituting a real tool for Soil Health evaluation, looking to provide worldwide comparable results.

STEP 1: increase the knowledge concerning the world laboratories ➡ First worldwide assessment

STEP 2: produce the Harmonized GLOSOLAN Soil Operating Procedures (SOPs) ➡ SOPs were decided through a consensus between the lab managers

STEP 3: disseminate GLOSOLAN (SOPs) & facilitate their implementation + build capacity & transfer knowledge ➡
- Free access webinars in different languages
- Step by step videos on some analyses
- Trainings were organised

To learn more: https://www.fao.org/global-soil-partnership/glosolan/en/

5 Mérieux Foundation (Yves Froehlich, FMX)

It is an independent clinical laboratory foundation with public interest status created in 1967, operating directly in more than 25 countries and committed to strengthening local capacities, particularly in clinical biology, in order to improve care, surveillance and response to epidemics.

Objective:
Accurate and reliable diagnosis is the cornerstone of disease management and prevention & laboratory-based surveillance of infectious diseases

HOW?

- Go beyond testing: include a number of other core functions, such as emergency response, training, communications, laboratory-based surveillance, and laboratory data management
- Build a large clinical laboratory networks because diagnosis is an essential tool for surveillance and control of disease

RESAMAD
Developed with the Ministry of Health of Madagascar

The G5 Sahel Biosecurity Network
Burkina Faso, Chad, Mali, Mauritania and Niger

RESAOLAB
Africa. FMx helped to form this network

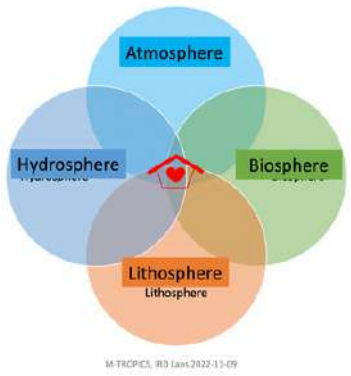
The GABRIEL network
(created in 2008 by FMx) to strengthen international collaboration in the field of research into infectious diseases

To learn more : https://www.fondation-merieux.org/en/

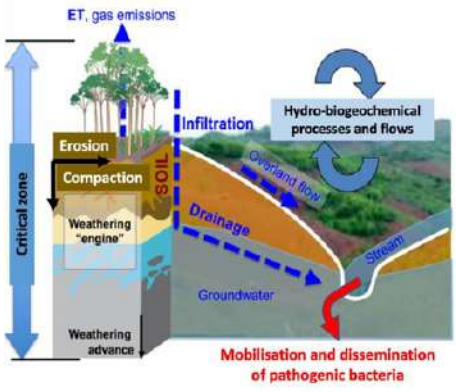
6 M-TROPICS - South East Asia (Christian Hartmann, IRD)

It is a soil observatories network studying from satellite observation to water quality control. It identifies the critical zone between Air, Plant Life, Water and Soil.

WHAT IS THE CRITICAL ZONE?



WHERE IS THE CRITICAL ZONE?



HOW TO MONITOR THE CRITICAL ZONE?

- Long-term multiscale monitoring of hydro-sedimentary variables
- Long-term land use monitoring (since 1998)
- Monitoring the « **invisible** » part of the critical zone (underground)
- Characterisation of subsurface soil structures and water paths

The M-Tropics website – data repository: https://mtropics.obs-mip.fr/

3.5. INTRODUCTION TO THE PREZODE PHASES, PARALLEL INITIATIVES AND DATA AND ENVIRONMENTAL CHALLENGES (SESSION 5)

1 Introduction to the PREZODE Strategic Agenda (Benjamin Roche, IRD ; Marie-Isabelle Peyre, CIRAD)

Context: We need a paradigm shift

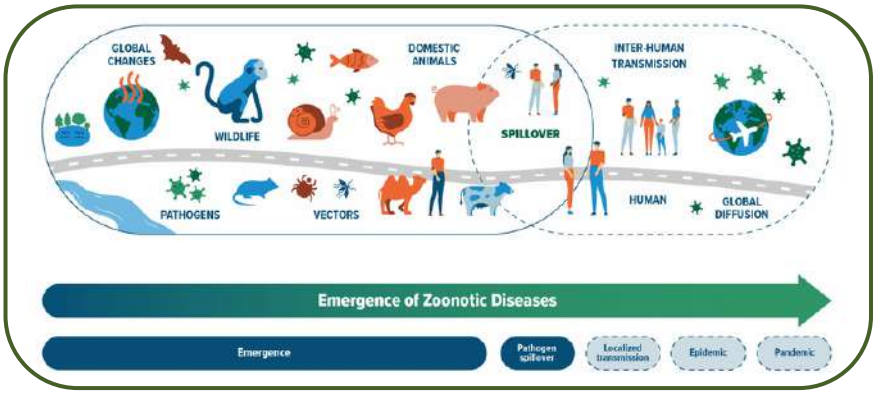
From **REACTION** to **PREVENTION** and **BOTTOM-UP** approaches

Feb 2021: The PREZODE initiative is officially launched at the One Planet Summit
Supported by: WHO, FAO, WOAH, UNEP, World Bank, the European Commission

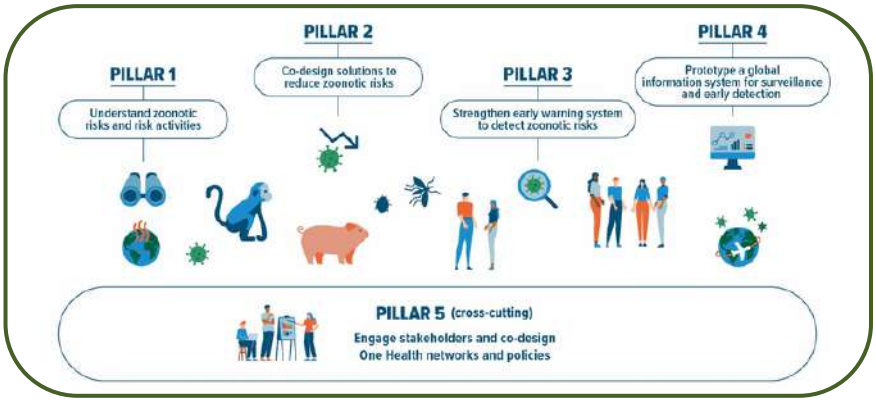
March 2021: THE PREZODE community grows fast
200 members (Including 20 countries and 2 territorial collectivities)

TODAY: Supported by 1800 Contributors and 128 countries ; it aims aiming to support national strategies and policies to prevent the emergence and spread of zoonotic diseases while ensuring food security and community livelihoods.

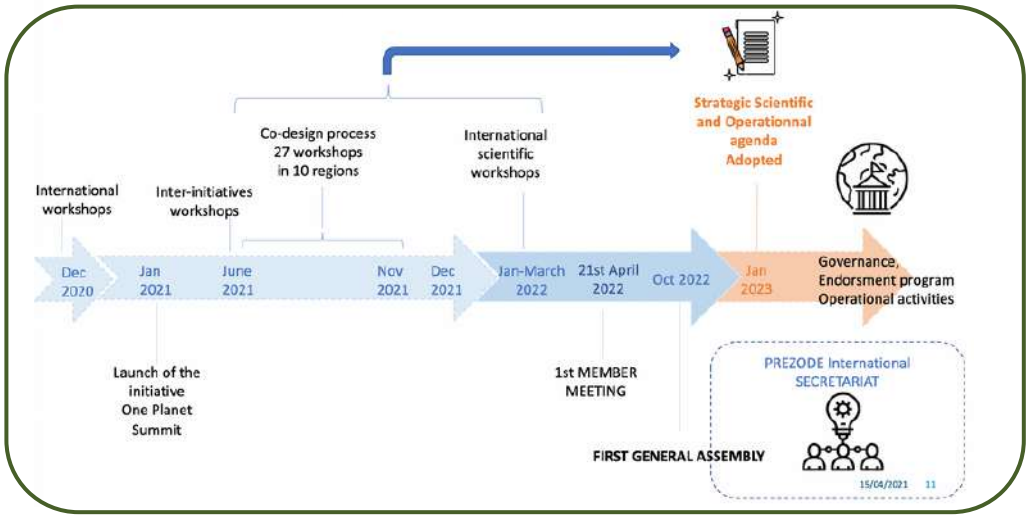
WHAT IS PREZODE?



HOW DOES IT WORK?



WHAT HAVE BEEN DONE SO FAR?

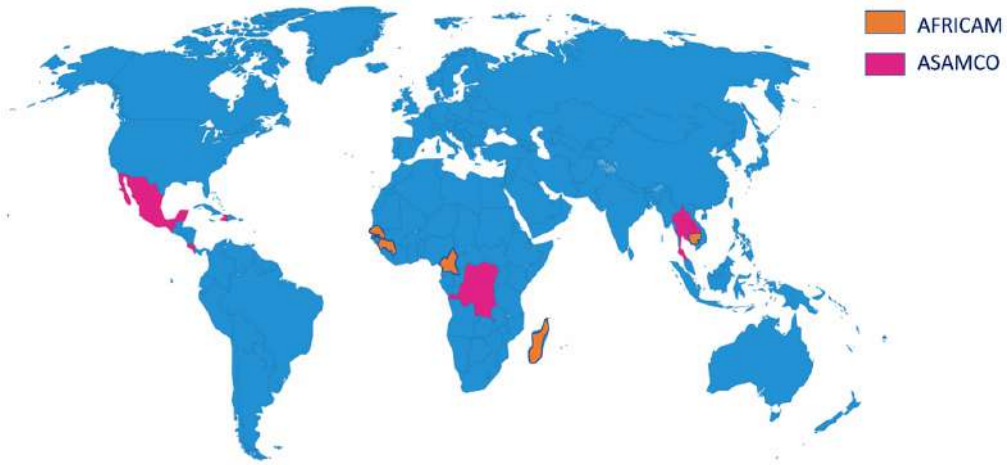


IN 30 YEARS TIME PREZODE WOULD HAVE CONTRIBUTED TO REDUCE THE RISK OF ZOONOTIC DISEASE EMERGENCE BY...

- Building up sustainable zoonotic risks prevention frameworks
- Empowering local communities / national stakeholders
- Building up resilient socio-ecosystems while reducing pressure on biodiversity and environmental health
- Ensuring ethical practices considering inequities and development needs
- Improving early detection & surveillance networks
- Strengthening collaborations and trust
- Ensuring POLITICAL engagement - and evidence based policy changes
- Promotion of dialogue and interface between science & policies

To learn more : https://prezode.org/

2 Introduction to the different phases of PREZODE in SEA: PREACTS AFRICAM (Cambodia) & ASAMCO (Thailand-Lao PDR); (Serge Morand, CNRS and Anne-Laure Bañuls, IRD)



WHAT IS PREACTS-AFRICAM?

It is the first phase of PREZODE, funded by the French Development Agency (AFD). It involves 5 countries: Cambodia, Cameroon, Guinea, Madagascar, Senegal ; from 2023 to 2025.

HOW DOES IT WORK?

It involves:

- Studying the risks of emergence of zoonotic diseases impacted by the hydrological dynamics, climate and environment in diversified ecosystems representing key interfaces.
- Implement activities to reduce the emergence of zoonotic risks and reinforce the existing surveillance systems towards integrated OH surveillance.

Where?

Battambang – Tonle Sap: gradient from agricultural areas to natural humid ecosystems

Component 1: Understand the zoonotic risk and risk activities — *Kho Thum: Agricultural flood plain*

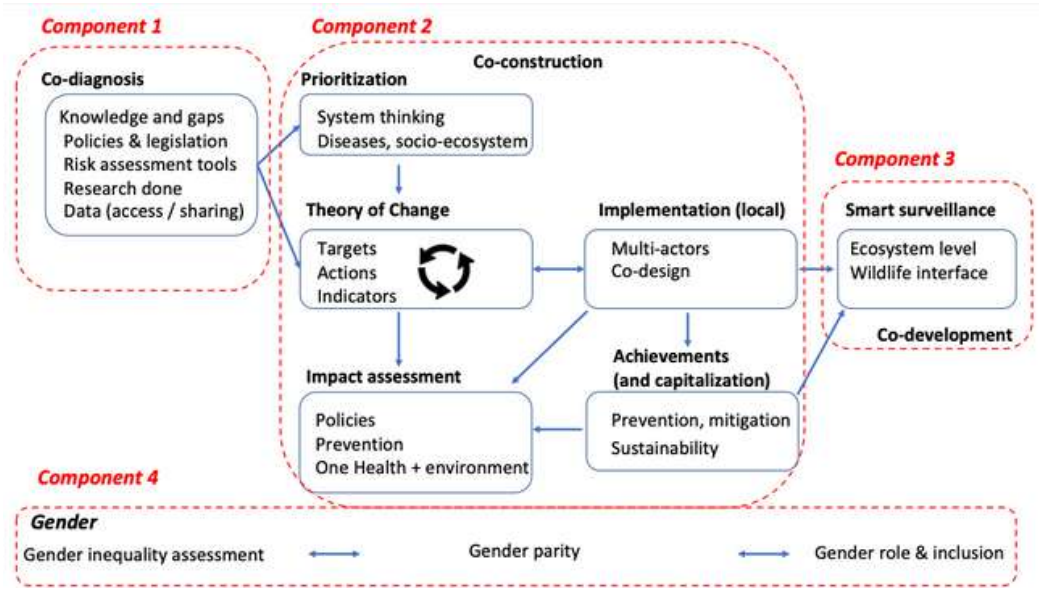
Component 2: Co-design solutions to reduce the zoonotic risk

Component 3: Strengthen early warning systems to detect zoonotic risks — *Stung Treng: Forested ecosystem*

WHAT IS ASAMCO?

It is the second phase of PREZODE, also funded by the French Development Agency (AFD). It involves 6 countries: Democratic Republic of the Congo (DRC), Lao, Thailand, Mexico, Haiti and Costa Rica.

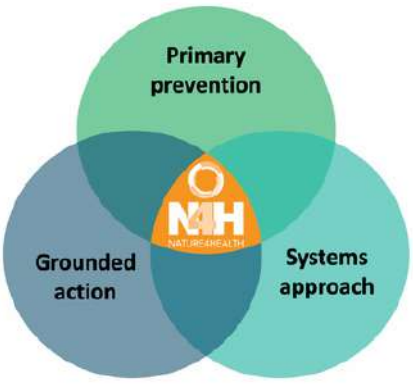
HOW DOES IT WORK?



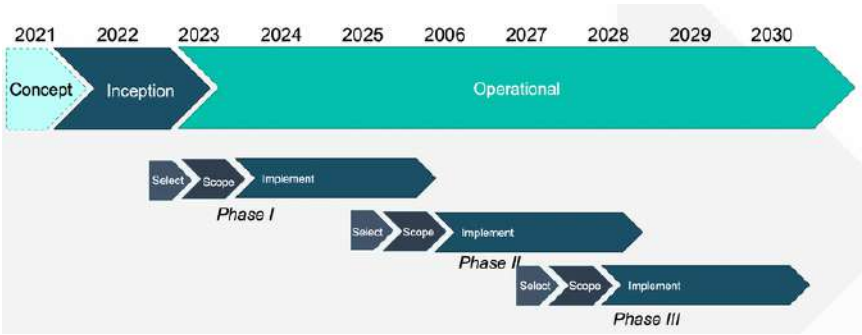
3 Nature4Health (Jake Brunner, IUCN)

A parallel initiative working to reduce risk and impact of future zoonotic epidemics and pandemics from environmental degradation, climate change, land use change, biodiversity loss, animal husbandry and wildlife trade and consumption.

WHAT IS N4H'S ADVANTAGE?



HOW DOES IT WORK?



DETAILS OF PHASE 1: Ecuador, Ghana, Rwanda, Zambia, Mongolia, **Vietnam**

Country priorities across four key areas:

- Highlight the links between biodiversity, climate change and health for better decision-making
- Preventative One Health actions and policies addressing these links
- Target-specific programmes and initiatives on these links
- Strengthened One Health collaboration and governance structures

Why Viet Nam?

- Very high levels of habitat loss, forest fragmentation, and poaching
- Very high levels of human-wildlife interaction
- Large volumes of trafficked wildlife moved to rescue centers with no zoonotic disease screening
- Government looking for solutions that reduce disease risk and maintain livelihoods
- Capable administration including epidemiological research

To learn more: https://nature4health.org/

4 TRAFFIC- Integrated risk Management in Wildlife Trade Chains (James Compton, USAID Wildlife TRAPS Project)

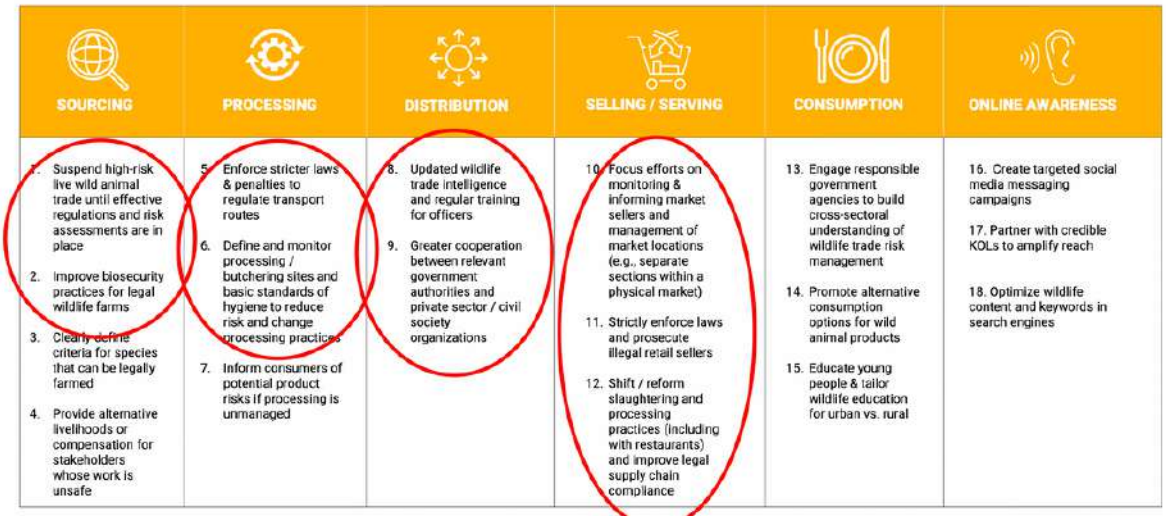
A parallel initiative working to Reducing Zoonotic/EID risks from wildlife trade

HOW?

- Understanding of risk-based priorities
- Multi-sectoral actions (including One Health collaboration)
  - Incorporating wildlife trade management needs as part of One Health collaborative approaches
  - Integrating One Health and zoonotic disease risk into existing wildlife trade management systems
  - Reinforcing compliance with legal and sustainability requirements
  - Concurrent intelligence-led support for reduction in illicit practices
  - Social and behavioural change (SBC) messaging to support positive shifts

WHY VIETNAM?

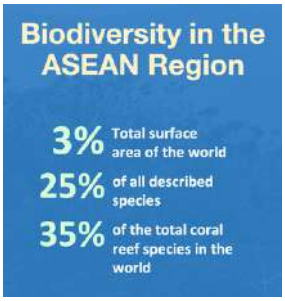
Summary of potential intervention opportunities in Vietnam:



To learn more: https://www.traffic.org/what-we-do/thematic-issues/private-sector-guidance/wildlife-traps/#:~:text=In%202020%2C%20the%20Wildlife%20TRAPS,unsustainable%2C%20and%20unsafe%20wildlife%20trade.

5 Asean Center for Biodiversity (ACB) - Introduction and future One Health plans (Kris Baleva, ACB)

An institution deeply rooted in the protection of biodiversity, welcoming one of the OHSEA training course funded by the French Ministry of Foreign Affairs.



NATURE- BASED SOLUTIONS

Defined by the UNEA as actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems, which address social, economic and environmental challenges effectively and adaptively, while simultaneously providing human well-being, ecosystem services and resilience and biodiversity benefits.

HOW?

- Biodiversity Conservation
- Mainstreaming Biodiversity
- Capacity Development
- Knowledge Management
- Partnerships
- Communication, Education, and Public Awareness

& Promoting the link between biodiversity and health

To learn more: https://www.aseanbiodiversity.org/

6 2 WORKSHOPS WITH 2 TOPICS ORGANISED AS A "WORLD COFFEE":

The participants were divided in 2 groups whom both attended 2 workshops, on 2 different topics.

Objective: with individual contributions requested from OHSEA research project representatives, and from other institutional representatives invited to the "OHSEA, What's Next?" conference, an inventory of the different problematics revolving around PREZODE and OHSEA was built.

The 2 topics were animated by:

1. TOPIC 1 : PREZODE Data - Paula Caceres ; Clarisse Veylon-Hervet

Given the vast and complex nature of the topic of data, it is advisable to clarify some concepts around the objective being pursued. For this purpose, the following definitions were shared with the participants:

- **ONLINE PLATFORM**: digital service that facilitates interactions between two or more distinct but interdependent sets of users, who interact through the service via the Internet (OCDE).
- **WEBSITE**: a place on the Internet with one or more pages of information about a subject. Unlike a platform, there is no user interaction here.
- **DATA MANAGEMENT**: the activities are: data capture, metadata production, data quality, storage and backup, archiving and sharing of data.
- **SOLUTION**: for the purposes of this workshop, we refer to 'on-line platform used for data management'.

1- Question 1: As researchers, which type of "solutions" do you currently use to "manage" your project data? OR for non-researchers: which type of "solutions" do you currently use to "extract data" from research project?
2- Question 2: Is this "solution" satisfactory or not? Why?
3- Question 3: As researchers, are you looking for another "solution" or alternative to manage your research data? If yes, please clarify. OR for non-researchers: are you looking for another "solution" or alternative to manage research data extraction?
4- Question 4: We are in 2050, how will zoonotic disease surveillance data be collected and shared?

**While the 1st group was attending the 1st workshop, the 2nd group was attending the 2nd workshop. Once time was up, the groups toured on the other workshop.*

OBSERVATIONS OF THE RECURRING THEMES MENTIONED	PROPOSITION FOR FUTURE RESEARCH, NEXT STEP FOR OHSEA
Solutions designed for scientific data storage and management are used but also more generic solutions (Drive, personal Microsoft accounts, WhatsApp, Cloud, ...). Often sufficient, some aspects are not satisfactory: • No system to manage soil & land use data online • Necessity to use several platforms for global analysis • Storage fees, on personal accounts or "Limited function" • No Open source: No harmonised data ; not linked with mobile application ; Many copies of the same data • Technical but non-user-friendly platform (slow, only exists in 1 language, ...) • The most used system are often not secure enough • Quantitative and Qualitative Data not supported: Lack of common data descriptors (especially for qualitative data) • Depends a lot on the Internet connection	• Multidisciplinary OH platform: online channels like Cloud • Good interface: user-friendly, fast, easy to find, availability of data in real time, with easy access ; Understandable by policy makers • Collected by simple, portable, reliable tools • Open Source and ability to store data for many years (perenity of the platform) without using high data consumption or being unprotected

To access the details of the answers given during the workshop, please go to the "Session 5" file of the link below:
https://ohsea.ird.fr/en/ohsea-whats-next-colloquium-april-2023-discover-the-presentations-made/

2. TOPIC 2: Environment - Serge Morand and Claire Lajaunie




1- Question 1: How do you define the environment?
2- Question 2: What environmental factors are crucial for your research / activities?
3- Question 3: What socio-economic aspects should be taken into account and how?
4- Question 4: Which environmental data do you need? and where do you get them?

OBSERVATIONS OF THE RECURRING THEMES MENTIONED	PROPOSITION FOR FUTURE RESEARCH, NEXT STEP FOR OHSEA
• Environment includes a lot of factors: Air, water, soil, land, climate, carbon, wildlife (human, animal, flora, fauna), ecosystem function (including social environment) between living and non-living things, law, policies, culture, religious practices, beliefs, well being • To monitor these factor, a lot of environmental pieces of information are required: water, soil, pollution, agro-ecological practices, biogeochemical cycles, drivers of biodiversity loss, carbon, dust, animal communities, plants, temperature, humidity, land use, urban, rural environment, forest, Infection rate, ... • No "temporal" environmental data: long term monitoring, remote sensing, geo-localisation • No data sharing system, data processing	**Some are not always taken into account, even though they should, because they bring information on the monitored factors**: integration of human and animal health, socio-economic drivers of diseases, pesticide use, clinical trials, political decisions and laws, demographic factors, activities, poverty line, poverty, circular economy, pressure of development, knowledge transfer on zoonotic diseases and ecology **Explore new data gathering technics useful for the environment**: for example, temperature, humidity, land use (obtained by satellite) ; or fauna data (obtained via GPS collars) **Easy access** to scientific literature is needed **Keeping old data** for comparison

To access the details of the answers given during the workshop, please go to the "Session 5" file of the link below:
https://ohsea.ird.fr/en/ohsea-whats-next-colloquium-april-2023-discover-the-presentations-made/

3.6. IDENTIFICATION OF DATA SORTING TECHNICS USED IN ONE HEALTH RESEARCHES (SESSION 6.1)

Introduction to a few experimental and/or operational One Health data systems

1 MOOD - Monitoring Outbreak events for Disease surveillance in a Data science context (European project) - Timothée Dub (THL Finland)

A new platform to enhance detection, monitoring and follow-up of disease emergence in Europe.

HOW?

Developed in co-conception, based on end-user needs = from user needs to research & development for improved epidemic intelligence and disease surveillance in Europe and beyond. Will display :

1- Data & Covariates access: to View, Compare, Download

2- Event-based Surveillance data (EBS)

3- Disease risk mapping

To learn more : https://mood-h2020.eu/mood-case-studies/ ; https://mood-platform.avia-gis.com/

Inquiries regarding the MOOD platform and further developments: mood-coordination@cirad.fr

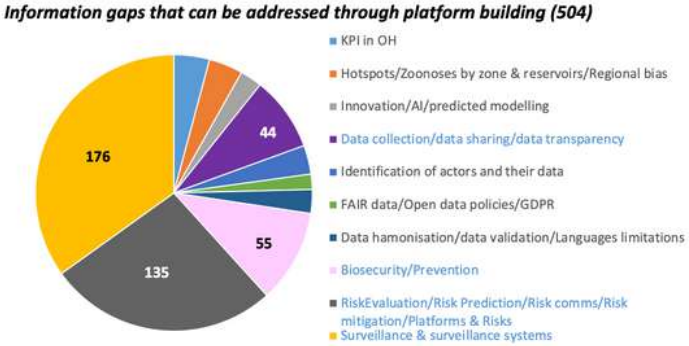
2 PEPR PREZODE WP Data - Paula Caceres (INRAE)

Priority Research Programmes and Equipment (PEPR), Work Package (WP) n°5 on Data.

PEPR PREZODE aims to develop 5 work packages (WP) over the next 5 years, to enable French research teams to develop innovative programmes in different fields.

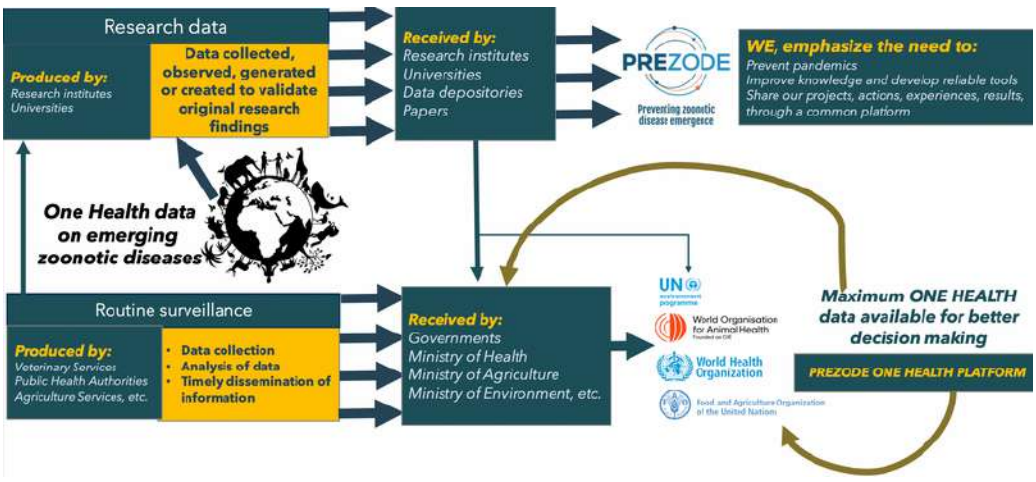
WP n°5: Scientific coordination on zoonosis emergence prevention at national and international scale. This WP aims at proposing prospective studies to support decision makers.

WHY?



HOW?

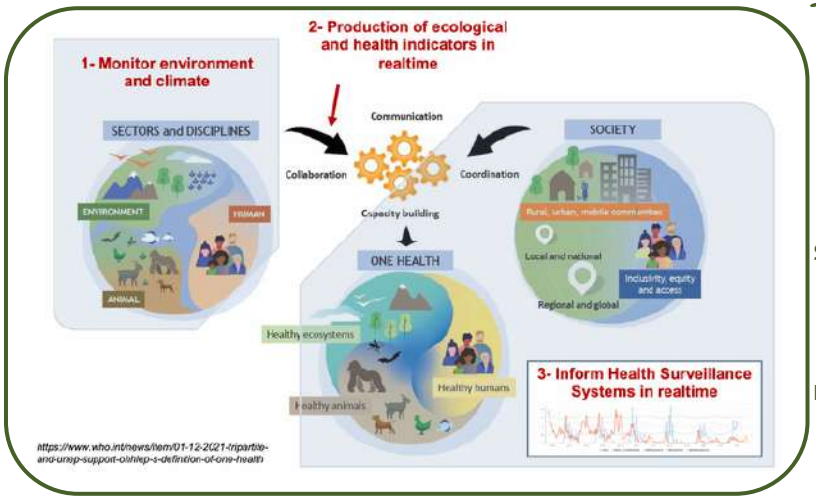
Establish a CONCEPT of a "solution" to manage the data generated by PREZODE projects.



3 Remote Sensing data ECOMORE 2/3 - Vincent Herbreteau (IPC)

Using satellites for health purposes : possibility to use environmental & meteorological information in real-time to inform disease surveillance.

HOW?



Regional scale → Impact of climate changes on health: "ECOMORE II, WP Climate, AFD 2018-2022": Modelling the impact of climate change on leptospirosis and Aedes mosquitoes in Southeast Asia

National scale → Monitoring of climate and environmental dynamics for health surveillance = "ClimHealth, Space Climate Observatory (SCO) CNES 2020- 2022": Climate and environmental monitoring for health early warning

Subnational scale → Surveillance system for SMRU-METF = "EASIMES, Global Fund (RAI2E) 2019-2021": Environment Analysis and Surveillance to Improve Malaria Elimination Strategy in Myanmar

Local scale → Monitoring of suitable environments for disease transmission = "ECOMORE II WP Myanmar + ClimHealth, 2021": Lepto Yangon

To learn more: https://leptoyangon.geohealthresearch.org/

Next steps:

- Further investigate ecological and climate indicators of health signals (outbreaks, dynamics)
- Develop pipelines to process satellite data and export to Health information systems
- Train and develop local capacities in South-East Asia

4 Nagoya Protocol and One Health research (Laurie Casalot, IRD Nagoya)

1992: Convention on Biological Diversity (CBD) Rio de Janeiro, Brazil

Article 1 => 3 objectives have been defined:

1- Conservation of biological diversity

2- Sustainable use of the components of biological diversity

3- Fair and equitable sharing of benefits arising from the utilisation of genetic resources

A framework for the relationship between the providers of genetic resources and the users

Access to genetic resources and fair and equitable sharing of benefits arising from their utilisation (ABS). Legally bound by the Nagoya Protocol:

Implements the ABS objectives of the CBD

Access

(Prior informed consent from public authorities or representatives of indigenous communities)

Benefit **S**haring

(Mutually agreed terms (MAT); that may be monetary or non-monetary)

Compliance with national regulations and contract agreements

(Effective system to ensure the compliant use of genetic resources originating from other party countries)

To learn more: https://absch.cbd.int/en/

https://www.youtube.com/watch?v=Gzgu5DEXLMU

3.7. SOIL HEALTH AS AN IMPORTANT ONE HEALTH COMPONENT (SESSION 6.2)

1 The concept of Soil Health for FAO – including it in the OH concept (Ronald Vargas GSP)

The Intergovernmental Technial Panel on Soils defines soil health as "the ability of the soil to sustain the productivity, diversity, and environmental services of terrestrial ecosystems".

+90% of soils could become degraded by 2050

Soil is home to +25% of our planet's biodiversity

A nutrient depleted soil cannot produce food good for human health

Contaminant transfer into the terrestrial food web (to pastures and crops ingested by wildlife, livestock and humans ; to invertebrates ingested by birds and poultry and ultimately transferred to humans

GLOSOB: Serve as the Observatory providing with global soil biodiversity data and information for guiding evidence-based decision-making (for laboratories, experts, institutions, land users, policy makers).

(*To learn more : https://www.fao.org/one-health/en*)

2 Philippine Experience in the implementation of National Soil health Program (Gina Nilo, BSWM)

Goal: have a systematic and holistic approach in addressing soil health to ensure sustainable use and management of soil resources and enhanced productivity and income.

WHAT?

1. Strengthen Soil Laboratories
2. Monitor Soil Health
3. Sustainable Soil and Land Management Implementation

HOW?

Project I: Institutionalizing National Soil Monitoring and Rejuvenation Program

Project II: Soil Health Monitoring Through Community Mobile Soil Laboratory

Project III: Strengthening Partnership of BSWM with regional and local partners through Doorstep soil analytical services: RSL, LGUs, ATI, SUCs and Rural Based Institutions and Local Cooperatives

Project IV: Production and Improvement in Soil Analysis through the Enhancement of STK (ESTK) for Macro and Micronutrients

1) Established sampling protocol on the national level
2) Enhanced Capacities and Efficiency of soil laboratories
3) Harmonised test methods across all soil laboratories in the Philippines
4) The use of Soil Health Card to monitor changes
5) Guidelines for the Interpretation of Soil and Water Test Result
6) Adaptive Balanced Fertilisation Strategy Protocols

What's Next? Together, let us embrace the Soil Health for Asian Region and the Pacific (SHARP), a One Soil Health Program and maintain healthy ecosystems and human wellbeing and achieve a climate resilient, food and nutrition secured Asia and Pacific. (*To learn more: http://www.bswm.da.gov.ph/*)

3 Soil Biodiversity Observation Network (SoilBON) and soil-borne diseases (Kittipong Chaisiri, Mahidol University)

Its objective is to make available the soil biological and ecosystem observations to better understand the soil biodiversity and functions, and to ensure that living soil resources are sustainably conserved and managed, and can support essential human needs (to learn more : https://soilbonfoodweb.org/)

HOW?

- Monitor Nematode extraction, Soil Respiration Rate, Root traits, DNA extraction, Enzyme activity
- Surveil Soil-borne diseases and Disease vectors in soil (Leptospirosis, Melioidosis, Orientia tsutsugamushi)

Rigorous sampling strategy

- Livestock (Swine, goat and cattle blood sampling)
- Rodents (Capture-mark-recapture to estimate population density in 36 points (6 x 6) square grids ; Sample Blood, Fecal and Oral swabs-
- Chiggers (Black plating method to collect chiggers from soil in 36 points (6 x 6) square grids)
- Ecological data at each sampling point

COUNTRIES SOIL MONITORING REPORT

Although largely harmonised, some countries have more advanced tools.

4 Cambodia (Hin Sarith, CARDI)

Following a pre-defined data collection and analysis methodology to obtain uniformed data.

1- Site selection

based on defined criteria

2- Extraction methodology and Data

Uniformed set of data collected:

- Site information: Location, Landscape features, Land use
- Soil physics: texture, colour, structure and in the lab data
- Soil chemistry: pH and other lab data

3- Data storage

In the CARDI Soil Database (>2200 sites)

5 Indonesia (Linca Anggri, ISRI)

The strategy of soil health monitoring on the Java Island started with coordinating researchers, technician farmers and agricultural extension workers, by disseminating soil nutrient and fertiliser recommendations and diffusing mappings.

1- Site selection

Sites on 4 districts have been selected

2- Extraction methodology and Data

Soil type analysed with a uniformed Test Kit:

- Soil chemistry: pH, etc.
- Soil biology: Not yet analysed, need capacity building
- Soil physics: texture, location, etc.

3- Data storage

Standardised by an analyst and stored

6 Malaysia (Lim Keat Seong, Department of Agriculture (DAO) of Malaysia)

Develop the agricultural technology dissemination process and build a soil health monitoring program by involving soil resources management division officers farmers and extension officers.

1- Site selection

+500 reports/year (1/technical advisory)

2- Extraction methodology and Data

Raw data are classified in uniformed parameters:

- Soil chemistry: pH, etc.
- Soil biology
- Soil physics: texture, density, etc.

3- Data storage

Stored by the DOA and used for reports

INPUTS

OUTPUTS

Technical extension services related to soil-crop management for government agencies and farmers

Location-Specific Fertilizer Recommendation

Spatial data available

Recommendation of soil reclamation and mechanization

7 Thailand (Nattaporn Prakongkep, LDD)

National monitoring system installed and accessible by farmers to get advice and knowledge

1- Site selection

Monitored at least every 1 to 5 years

2- Extraction methodology and Data

Raw data are classified in uniformed parameters:

- Soil chemistry: soil organic matter, pH, etc.
- Soil biology: Soil organism diversity
- Soil physics: texture, density, colour, etc.
- Plant and product: observations

3- Data storage

Stored on a "Land identification card" given to farmers to access knowledge stored

8 Vietnam (Vu Manh Quyet, SFRI)

Gathering raw data through both land Survey/investigation and evaluation, and monitor and analyse of the soil environment

1- Site selection

At a national, regional & provincial level

2- Extraction methodology and Data

Raw data gathered into parameters:

- Soil chemistry
- Soil biology
- Soil physics: texture, etc.

3- Data storage

Processed and stored in various places to calculate a score that is published

4. 4. CAPITALISING ON THE OHSEA DYNAMIC

4.1. CONCLUSION

Thanks to the proactive collaboration of participants in the development of this colloquium and during the discussions, especially during the breakout groups, we all ensured a rich and inclusive dialogue between all parties reunited in Hanoi.

As witnessed during these two days, the One Health approach is shared by a lot of stakeholders and organisations, who are setting up many initiatives, trainings and tools to implement the One Health approach. This dialogue enabled to reinforce alignment among us, identify overlaps, synergies and complementarities based on countries' needs and to better articulate global, regional and national discussions.

4.2. VISIBILITY

4.2.1. French Embassy communication

Click here

4.2.2. EURAXESS Network Communication

One Health Southeast Asia conducts colloquium in Hanoi, EURAXESS presents...

The OHSEA project aims to create synergies and consolidate the One Health (OH) initiatives in South East Asia, notably by strengthening its environment...

Click here

4.2.3. AUF communication

Colloque de capitalisation du projet OHSEA - One Health en pratiques en Asie du Sud-Est

AUF

Click here

4.2.4. IRD Communication

The symposium "One Health in Practice in Southeast Asia, What's Next?" was held at...

From April 24 to 26, 2023, the restitution and capitalization colloquium of the Solidarity Fund for Innovative Projects One Health in Southeast Asia,...

Click here

5. APPENDIX

5.1. LIST OF PARTICIPANTS

Name Surname	Project/Training/Organisation	Country	OHSEA Project leader	Professional email
Agoncillo Oliver	Asean Center for Biodiversity	The Philippines		ooagoncillo@aseanbiodiversity.org
Ahmad Nur Indah	Universiti Putra Malaysia	Malaysia	Yes	nurindah@upm.edu.my
Anggri Linca	Indonesian Soil Research Institute	Indonesia		langgria@yahoo.com
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5.2. OFFICIAL PROGRAM

Monday 24th of April		
8h30-9h30	Registration	
9h30-10h	Traditional Vietnamese Performance	
10h00-10h20 (20 minutes) *AUDITORIUM on the 8th floor*	***Opening Ceremony: Greetings from officials*** *(Facilitator: Eric DEHARO, IRD [1] Representative in Lao PDR)*	
	• Jean-Marc Lavest (USTH [2] Board of Rectors)	5 mins
	• S.E. Monsieur Nicolas Warnery ,The French Ambassador in Vietnam	5 mins
	• François Roger Recording (CIRAD [3] Representative in Vietnam)	3 mins
	• Edmond Dounias (IRD Representative in Vietnam)	5 mins
	• Marieke Charlet (AUF [4] Representative in Laos)	2 mins
10h20-10h30	Presentation of the agenda	
10h30-11h	Group Photo + Coffee Break	
11h00-12h30 (1h30) *AUDITORIUM on the 8th floor*	***Session 1 – One Health implementation*** *(Facilitators: Florian Girond, IPC [5] et CDC [6])*	
	• WOAH [7] (André Furco, WOAH Bangkok) - Update on the One Health Global Architecture - One Health Joint Plan of Action and its Implementation guide	25 mins
	• What is OHHLEP [8]? (Serge Morand, CNRS [9])	10 mins
	• FAO [10] (Carla Baker, FAO Bangkok, remote) - Best practices in Southeast Asia (case studies)	25 mins
	• Round Table and Q&A (Florian Girond, IPC et CDC)	30 mins
12h30-13h30 (1hour)	Lunch buffet *(Room 402)*	
13h45-14h45 (1 hour) *Tropical Institute*	***Session 2.1 – FSPI One Health training*** *(Facilitators: Clarisse Veylon-Hervet, MEAE [11])* Topic: Lessons learned from the FSPI OHSEA trainings through a focus on five trainings.	
	• Disease Ecology, Thailand (Kittipong Chaisiri, Mahidol University)	10 mins
	• One Health student training to One Health skill professional training [12] (Zubaidah Binti Ya'cob & Norhidayu Binti Sahimin, Universiti Malaya)	20 mins
	• Environmental Law and One Health, Philippines (Claire Lajaunie, INSERM [13])	10 mins
	• Mapping and spatial analyses (Vincent Herbreteau, IRD-IPC)	10 mins
14h45-15h15	Coffee Break *(Tropical Institute)*	
15h15-16h45 (1h30) *Tropical Institute*	***Session 2.2 – One Health Curriculum*** *(Facilitators: Clarisse Veylon-Hervet, MEAE)* Topic: Focus on OH Institutions trainings and their South-East Asian partners	
	• SEAOHUN [14], Southeast Asian One Health University Network (Vipat Kuruchittham, Chiang Mai University)	10 mins
	• VOHUN [15], Vietnam One Health University Network (Phuc Pham Duc, Hanoi University)	10 mins
	• Eco-EPIED [16] by Catherine Moulia (Montpellier Université) (remote)	10 mins
	• One Health Institute from VetAgroSup, Lyon (Amandine Gauthier, ScPo Lyon) (remote)	10 mins
	• WHO Academy[17] (Isobel RIVERA, Lyon) (remote)	10 mins
	• EURAXESS [18] (Jenny Elmaco, European Research Action Service, remote)	10 mins
	Roundtable and Q&A *(Facilitator: Clarisse Veylon-Hervet, MEAE)*	30 mins
16h45-17h	Wrap-up and presentation of the next day	
EVENING	DINNER AND COCKTAIL RECEPTION AT SOMERSET HOA BINH HOTEL **	

Tuesday 25th of April			
8h-9h	Registration		
9h-9h15	Presentation of the agenda		
9h15-9h30 (15-min) *Tropical Institute*	***Session 3.1 – One Health in practice*** (Facilitator: Eric Deharo, IRD Representative in Laos; Marieke Charlet, AUF Representative in Laos; Emma Russ, IRD) Topic: Overview and Lessons learned from the 16 projects		
9h30-10h	Coffee Break		
10h-12h (2h00) *Tropical Institute*	***Session 3.2 – One Health in practice (1h20)*** Topic: « World Coffee » workshop in 3 breakout groups***: 30 mins, 20 mins, 20 mins		
	Workshop 1 Local actors (*Michel de Garine-Wichatitsky)* *(Tropical Institute)*	***Workshop 2*** Wildlife (*Claire Lajaunie*) *(Room 710)*	***Workshop 3*** Vectors and reservoirs (*Sebastien Marcombe*) *(Room 702)*
	Return to initial workshop for final brief before restitution (10 mins)		
	Restitution of the three groups (30 minutes)		
12h00-12h30 (30 minutes)	***Session 3.3 – What's Next?*** Topic: Potential collaborations of participating actors		
12h30-13h30 (1 hour)	Lunch buffet *(Room 402)*		
13h45-14h45 (1 hour) *Tropical Institute*	***Session 4.1 – One Health surveillance capacity*** *(Facilitators: Yves Froehlich, FMX [19])* Topic: Enhancing collaboration and capacity in One Health surveillance network (Part 1)		
	• ZODIAC[20] (Noura El-Haj, International Atomic Energy Agency), remote intervention		15 mins
	• CDC (Florian Girond, CDC Cambodia)		15 mins
	• WAHIS [21] (André Furco, WOAH)		15 mins
	• GLOSOLAN [22], 900 laboratories on soil health (Nopmanee Suvannang former GLOSOLAN chair, current ITPS[23] member, GSP[24], FAO)		15 mins
14h45-15h15	Coffee Break		
15h15-16h45 (1h30) *Tropical Institute*	***Session 4.2 – One Health surveillance capacity*** *(Facilitators: Yves Froehlich, FMX)* Topic: Enhancing collaboration and capacity in One Health surveillance network (Part 2)		
	• Presentation of the technical implementation of ZODIAC, using Vietnam as an example (Gerrit Viljoen, International Atomic Energy Agency), remote intervention		30 mins
	• Mérieux Foundation (Yves FROEHLICH, FMX) - The strength of the clinical laboratory sector in national health systems - Discussion on how to extend the network		30 mins
	• Observatories network in South East Asia (Christian Hartmann, IRD) - From satellite observation to water quality control - How to extend the network		30 mins
16h45-17h	Presentation of the next day		
18h-21h: EVENING	FOOD TOUR IN THE OLD QUARTER OF HANOI****		

Wednesday 26th of April		
8h-9h	Registration	
9h-9h15	Presentation of the agenda	
9h15-10h (45 minutes) *Tropical Institute*	***Session 5.1 – PREZODE initiative*** *(Facilitators: Anne-Laure Bañuls, IRD ; Serge Morand, CNRS ; Clarisse Veylon-Hervet, MEAE)*	
	• PREZODE [25] Strategic Agenda (Benjamin Roche, IRD ; Marie-Isabelle Peyre, CIRAD) remote	10 mins
	• PREACTS AFRICAM [26] (Cambodia) – ASAMCO [27] (Thailand-Lao PDR)	5 mins
	• Nature4Health (Jake Brunner, IUCN [28])	10 mins
	• TRAFFIC [29] (James Compton)	10 mins
	• Asean Center for Biodiversity (ACB) introduction and future One Health plans (Kris Baleva)	10 mins
10h-10h30	Coffee Break	
10h30-12h30 (2h00) *Tropical Institute*	***Session 5.2 – PREZODE workshop (1h30)*** Topics: Which scientific projects to prevent and improve surveillance of zoonotic diseases in a One Health approach « World Coffee » workshop in 3 breakout groups***: 30 mins, 20 mins, 20 mins	
	Workshop 1 Data in OH Projects (Paula Caceres et Clarisse Veylon-Hervet) *(Room 710)*	***Workshop 2*** Environment in OH Projects (Serge Morand et Claire Lajaunie) *(Room 702)*
	Return to initial workshop for final brief before restitution (10 mins)	
	Restitution of the three groups (15 minutes)	
12h30-13h30 (1 hour)	Lunch buffet *(Room 402)*	
13h45-14h45 (1 hour) *Tropical Institute*	***Session 6.1: One Health Data (PREZODE)*** *(Facilitator: André Furco, WOAH)* Interventions and topics: Access and sharing data for One Health	
	• Timothée Dub (THL Finland)[30] MOOD [31] - European project (Remote)	10 mins
	• Paula Caceres (INRAE [32]) PEPR PREZODE WP Data [33]	10 mins
	• Vincent Herbreteau (IPC) Remote Sensing data ECOMORE 2/3 [34]	15 mins
	• Nagoya Protocol and One Health research (Laurie Casalot, IRD Nagoya)	10 mins
	• Round table and Q&A (André Furco, WOAH ; Anne-Laure Bañuls, IRD)	15 mins
14h45-15h15	Coffee Break	
15h15-16h45 (1h30) *Tropical Institute*	***Session 6.2: One Health and Soil Health*** *(Facilitator: Lucrezia Caon, FAO)* Interventions and topics: Introduction and presentation of Soil Health monitoring in Southeast Asia and its important inclusion in the One Health app	
	Introduction to Soil Health • "The concept of Soil Health for FAO – how to include it in the one health concept" (Ronald Vargas GSP) • "Philippine Experience in the implementation of National Soil health Program" (Gina Nilo, BSWM [35]) • SoilBON (https://soilbonfoodweb.org/): Soil Biodiversity and soil-borne diseases (Kittipong Chaisiri, Mahidol University)	10 mins 10 mins 10 mins
	Countries soil monitoring report: • Cambodia (Hin Sarith, CARDI [36]) • Indonesia (Linca Anggri, ISRIC [37]) • Malaysia (Lim Keat Seong, Department of Agriculture of Malaysia) • Thailand (Nattaporn Prakongkep, LDD [38]) • Vietnam (Vu Manh Quyet, SFRI [39])	30 mins
	Discussion on way forward to link soil health with One Health	20 mins
16h45-17h	Concluding remark and advocacy (Clarisse Veylon-Hervet)	
18h15-21h30	FAREWELL DINER IN THE OLD QUARTER WITH A GREAT LAKE VIEW*****	

*For the participants taken fully in charge by IRD and who have received a confirmation email, you will be picked up from the airport and dropped off at your hotel.

** *A cocktail reception will be held at Somerset Hoa Binh Hotel with all of the participants.*

***Workshop organised as a "World Coffee": The participants will be divided in 3 groups that will each attend 3 workshops. While the 1st group is attending the 1st workshop, the 2nd group is attending the 2nd workshop and the 3rd group is attending the 3rd workshop. Once time is up, the groups will be touring on the 2 other workshops.

**** *A transport vehicle will come pick you up at your hotel and will bring to the old quarter of Ha Noi, where guides will take you to the best street food places of Ha Noi.*
You'll enjoy a gastronomic masterpiece as you enjoy a private tour of Hanoi's best street food offerings in the Old Quarter of the city. Your guide will meet you at your hotel before you head out to try some of the local fares.
The hustle and bustle of the old quarter is a sight to behold as the vast array of goods and produce on sale come into view. You'll set off with your guide around the maze of alleyways and streets. On our journey we will stop by a Pho shop where you'll savour this world-renowned noodle soup, we will go on the hunt for some BBQ pork in the form of Bun Cha and wolf down some deep-fried spring rolls by the curbside. Whilst sampling these local food hotspots we will also try the famous egg coffee shop and learn about the history of this famous dish or grab a sugar cane juice with Kumquat as we go. Our final stop of the night will be a local Bia Hoi where you can sit back relax and soak up the atmosphere.
Note: one of the groups will be vegetarian, please send me an email if you want to be part of it.

***** *A transport vehicle will come pick you up at your hotel and will bring to a restaurant with a view on Hoan Kiem Lake, in the old quarter of Ha Noi. There you can taste traditional Vietnamese cuisine and taste a lot of specialities of Ha Noi and other regions of Vietnam.*

(1) IRD – French National Research Institute for Sustainable Development
(2) USTH – University of Science and Technology of Hanoi : Location of the "OHSEA, What's Next?" Colloquium
(3) CIRAD – Center of International Cooperation in Agronomical Research for Development
(4) AUF - The Francophone University Agency
(5) IPC – Pasteur Institute of Cambodia
(6) CDC – Center for Disease Control
(7) WOAH – World Organization for Animal Health
(8) OHHLEP – One Health High-Level Expert Panel
(9) CNRS – National Center of Scientific Research
(10) FAO – Food and Agriculture Organization of the United Nations
(11) MEAE – Ministry of Europe and Foreign Affairs
(12) One Health student training to One Health skill professional training – Two OHSEA funded projects who inspired two trainings
(13) INSERM – National Institute for Health and Medical research
(14) SEAOHUN – Southeast Asia One Health University Network
(15) VOHUN – Vietnam One Health University Network
(16) Eco-EPIED – Eco-EPIdemiology of Emerging Diseases
(17) WHO Academy – World Health Organisation Academy
(18) EURAXESS – European Research Action Service
(19) FMX – Mérieux Foundation
(20) ZODIAC – Zoonotic Disease Integrated Action
(21) WAHIS – World Animal Health Information System
(22) GLOSOLAN – Global Soil Laboratory Network
(23) ITPS – Intergovernamental Technical Panel on Soil
(24) GSP – Global Soil Partnership
(25) PREZODE – Preventin Zoonotic Disease Emergence
(26) PEACTS AFRICAM – PREZODE in Action in the global South (Africa and Cambodia)
(27) ASAMCO – Asia, America, Congo
(28) IUCN – International Union for Conservation of Nature
(29) TRAFFIC – Trade Records Analysis of Flora and Fauna in Commerce
(30) THL Finland – The National Institute for Health and Welfare
(31) MOOD – Monitoring Outbreaks events for Disease
(32) INRAE – National Institute of Agronomic Research
(33) PEPR PREZODE WP Data – Program and Equipment of Priority for Research, World Package around Data
(34) ECOMORE: Project in Cambodia that aims to estimate the effectiveness of an integrated vector management (IVM) targeting schools combined with an educational program to mitigate peaks of dengue and dengue-like syndromes (DLS) for reducing subsequent overcrowding of health centers.
(35) BSWM – Bureau of Soils and Water Management Website
(36) CARDI – Cambodian Agricultural Reseatch and Development Institute
(37) ISRIC – International Soil Reference and Information Centre
(38) LDD – Land Development Department
(39) SFRI – Soil and Fertilizers Research Institute

5.3. USEFUL LINKS FOR YOUR OWN COMMUNICATIONS

5.3.1. OHSEA Website

https://ohsea.ird.fr/en/

5.3.2. OHSEA Brochure

https://ohsea.ird.fr/en/ohsea-brochure-what-was-funded-by-the-ohsea-project/?doing_wp_cron=1689401210.6033918857574462890625

5.3.3. Numerical backdrops

https://ohsea.ird.fr/en/communications-around-the-ohsea-whats-next-colloquium/

5.3.4. Link to all the presentations

https://ohsea.ird.fr/en/ohsea-whats-next-colloquium-april-2023-discover-the-presentations-made/

5.3.5. Link to the Facebook group

https://www.facebook.com/groups/976254886701539/