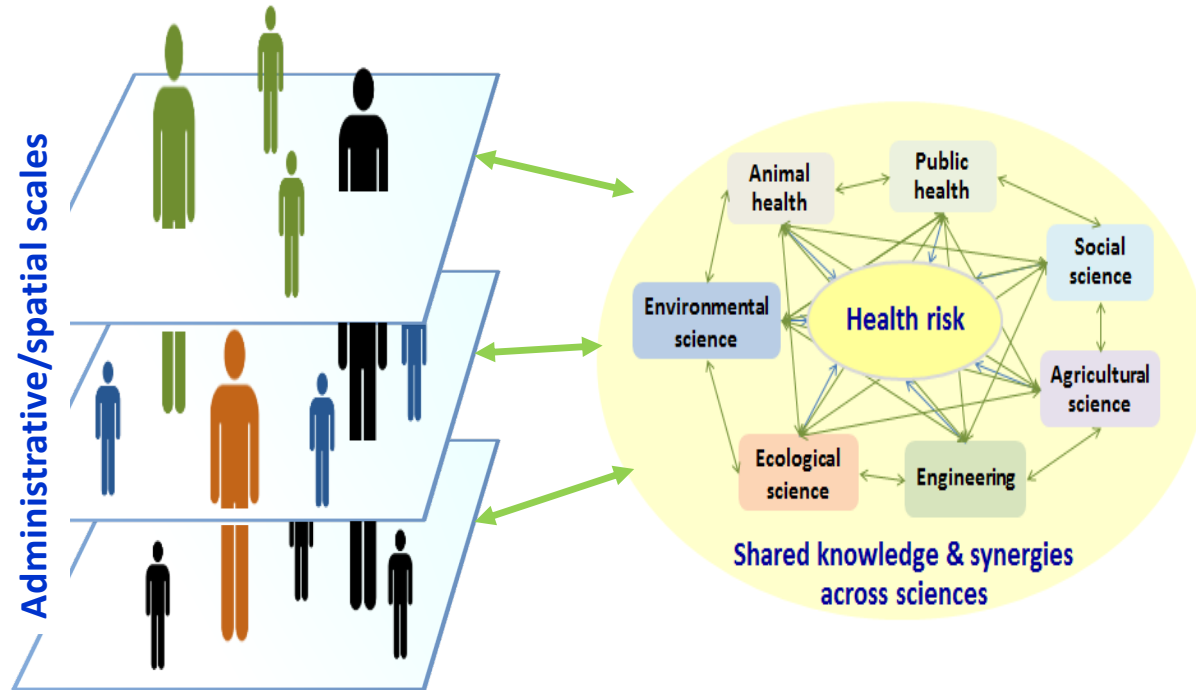


Accompagner l'approche
One health
en Asie du Sud-est

Aurelie Binot, CIRAD-ASTRE

Across multi-level arena, cross-sectoral OH issue:

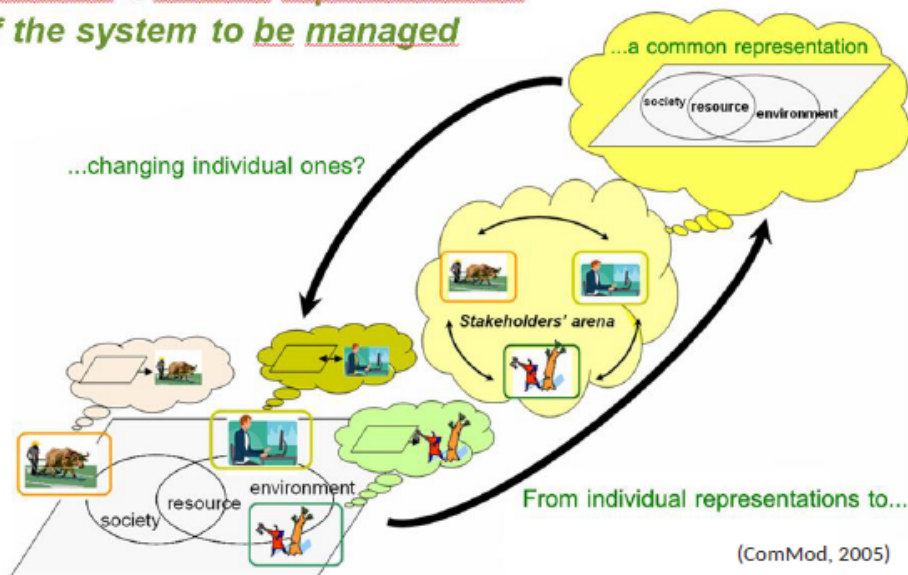


Articulation between
Health/Environment/Agriculture policies
Multi-stakeholders

Relying on participatory and collaborative methods and tools to promote systems thinking

Capacity building: Articulation and INTEGRATION challenge

Towards a shared representation of the system to be managed



- Systems Thinking Involving multiple stakeholders
- **Transdisciplinary Research**
- Participation
- Sustainability

- ❖ Facilitate mutual learning
- ❖ Reinforcing the environment dimension (socio-ecological system's health)
- ❖ From knowledge to Action

Applying systems thinking:

- characterization of the complex system (modeling) and definition of the problem
- Designing solutions through participatory approaches

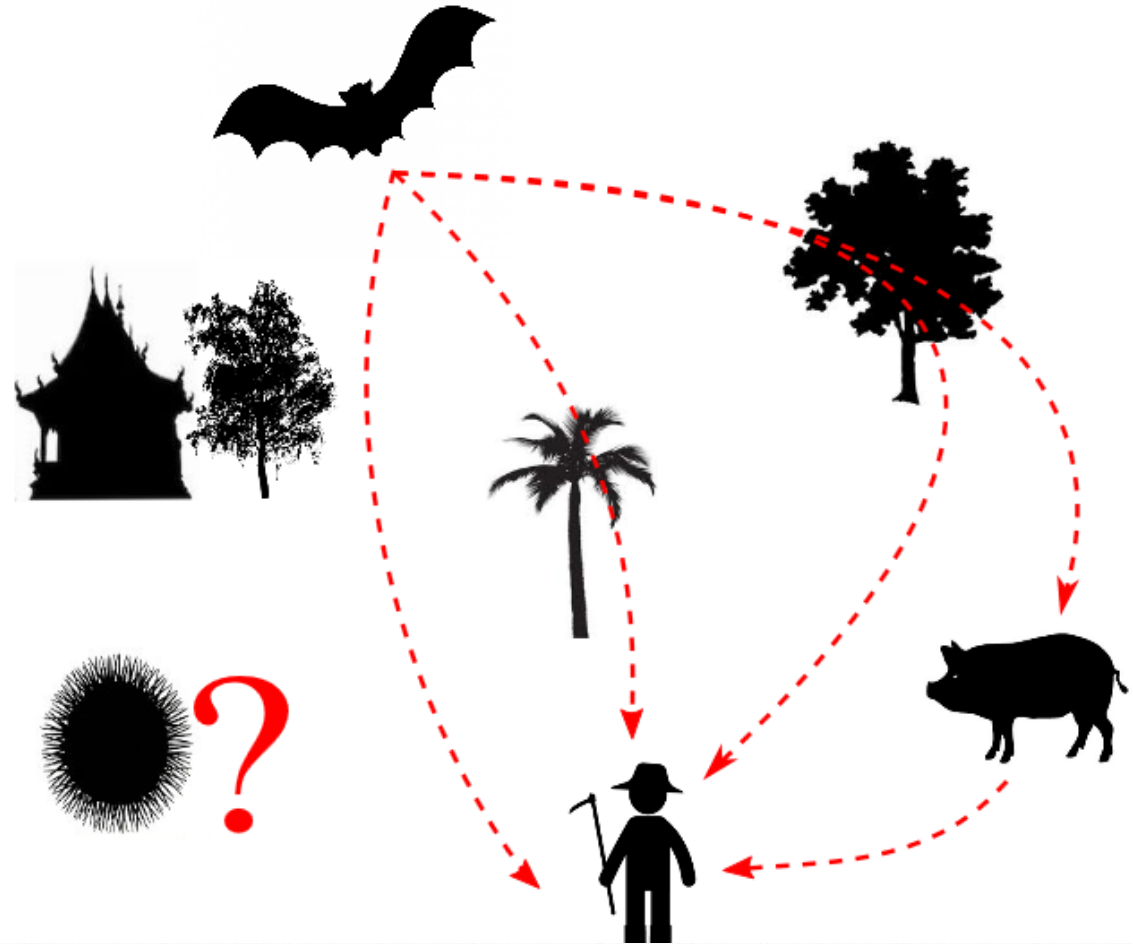
Liens avec l'anthropologie ?

- « Sustainability Sciences/Science postnormale »: Champ de recherche qui se définit plus par les questions qu'il aborde que par les disciplines, interroger les dynamiques complexes entre systèmes sociaux et systèmes biologiques, réduction de inégalité, adaptation CC, planetary health,...
 - S'engager dans des démarches transdisciplinaires à l'échelle des socioécosystèmes
 - Relation asymétrique experts/profanes dans le domaine de la santé: légitimation des savoirs profanes, face aux nouveaux risques émergents, la recherche de solutions co-construites, l'importance de l'innovation sociale en complément de la dimension technique
- Décloisonner les secteurs et communautés d'acteurs en contextualisant les problématiques sanitaires dans un cadre socio-écologique (nexus Santé/Environnement/Agriculture). Recherche d'accompagnement des acteurs sociaux

Complex interactions at Human/Animal/Environment/interface

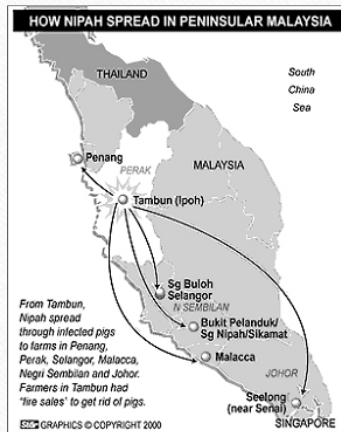


Nipah virus



- Nipah is an **emerging disease** threatening both Human and Animal health with ecological, environmental, and socio-cultural implications.
- Nipah is listed among the 19 **priority zoonotic diseases** by the WHO-OIE-FAO Global Early Warning System (GLEWS).

Nipah Emergence in Malaysia in 1998-1999



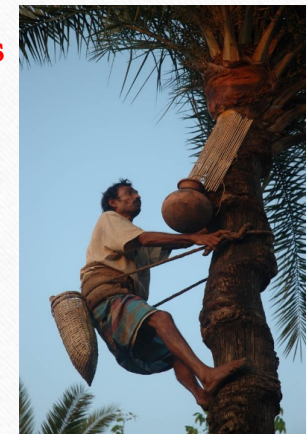
- 265 persons hospitalized
- 105 deaths (40%)
 - Mostly adult males - pig farmers
 - 1.1 million pigs culled
 - Pig population prior to outbreak was 2.4 m
 - Great economic loss



Nipah Re-Emergence in Bangladesh since 2001

Contamination by Flying foxes

- Since 2001: Bangladesh
 - >200 cases
 - 136 deaths (67%)
 - **Palm sap** drinking
 - Human to human transmission



- **Bats** are considered to be the main reservoir of the virus and transmission of NiV to pigs and to humans, likely through contamination of fruits in the vicinity of pig farms.
- **Environmental factors** such as land use change and livestock intensification were pointed out as potential risk factors.
- Other transmission of the virus to Humans can occur through **cultural practices and wildlife**: drinking of raw palm sap contaminated by bats, guano collection.

- **Reservoir** : Flying foxes (*Pteropus sp*)

- Carry the virus
- Are not affected
- Virus found in
 - Urine
 - Saliva
- Migratory
- Roost in large colonies



What are the potential route of transmission from Bats to Humans and domestic animals?

**Potential route of transmission:
Palm Sap drinking**



Farming practices and Risk of spill-over

**Potential route of transmission:
Pig Farming**



Farming practices and Risk of spill-over

Potential route of transmission:
Food contamination



Commercial practices and Risk of spill-over

Potential route of transmission:
Hunting



Cultural practices and Risk of spill-over

How to prepare potential Nipah Virus Emergence in Laos?

- Understand the biology and ecology of NiV and the socio-economic dynamics to identify and manage potential risk of infection in humans
- Understand the modalities of Human/Bats contact in order to better understand the associated risk factors

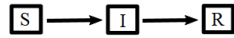
→ Better understanding the determinants of Bats/Human contacts

Setting up a questionnaire on the basis of an anthropological study :

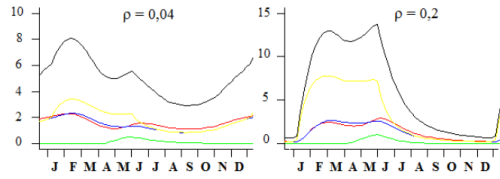
- ✓ Farming practices and risk of spill-over
- ✓ Cultural practices and risk of spill-over
- ✓ Commercial practices and risk of spill-over
- ✓ Perception about bats

Objective:

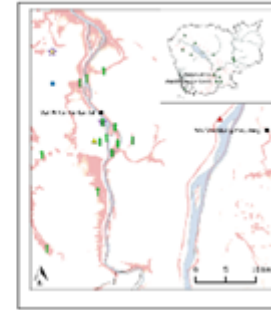
- Understanding **general schemes of interactions between human/bats**
- (palm fruits collection and consumption, bats hunting practices, bats consumption, bats' fresh blood consumption, bats' perception and knowledge, opportunities of bats/human contacts, fruit collector's/traders strategy and the way they perceive bats)



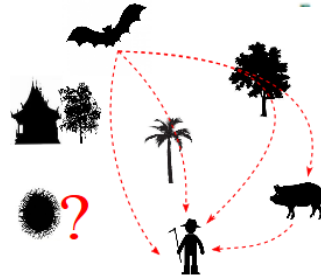
Eco-Epidemiology modelling study



Ecology



Epidemiology

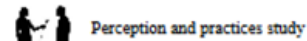
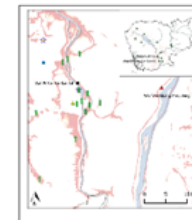
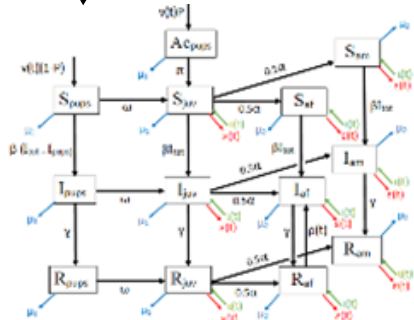


Environmental Sciences

Veterinary Sciences

Virology

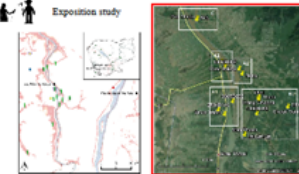
Anthropology



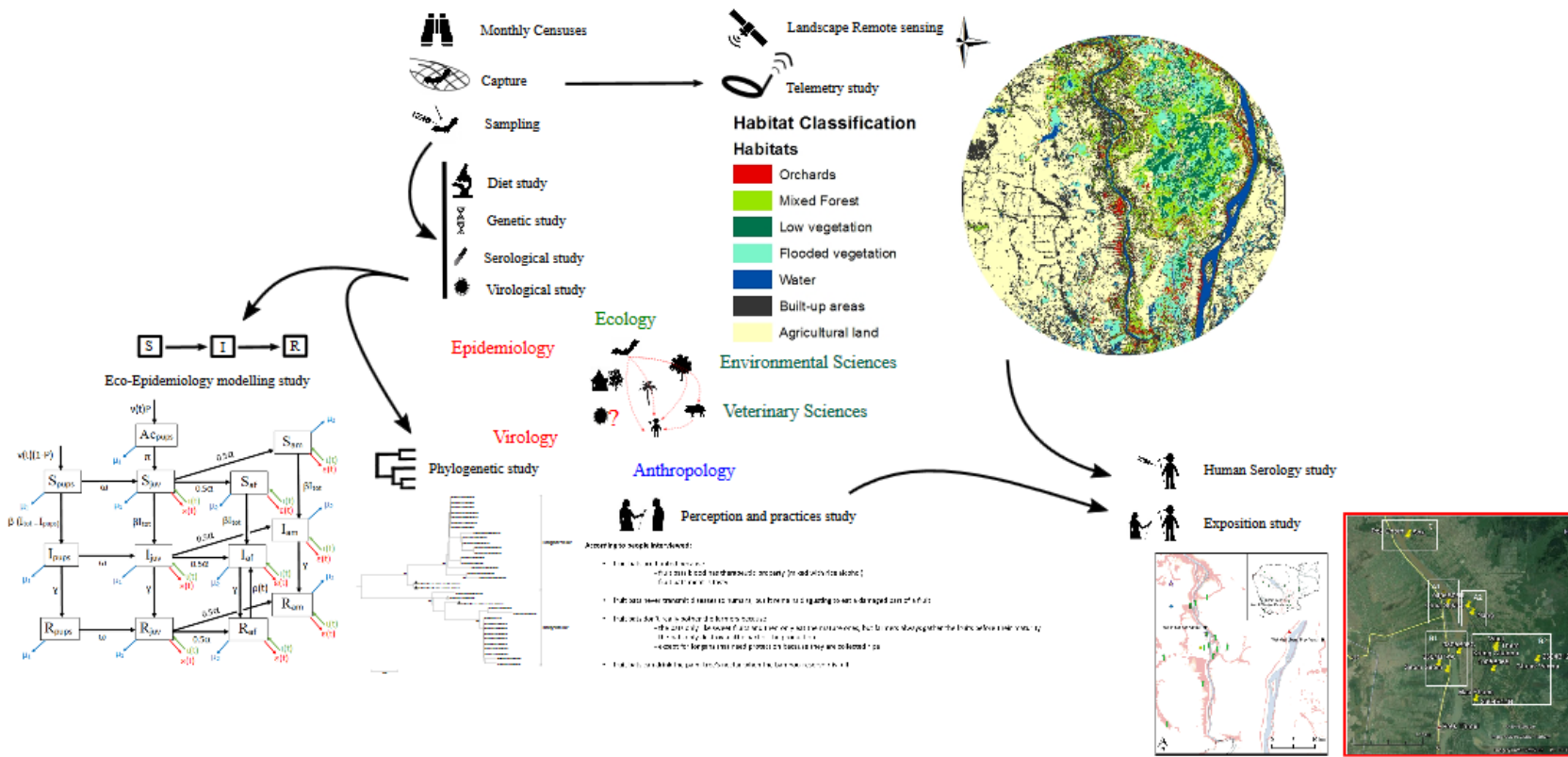
Perception and practices study

According to rough interviews:

- The water is not clean (what is not good for the animals' immunity (for antibodies for disease) for the human's immunity)
- The water is not enough (distance to the water, and the rain is not regarding to water degraded zone of the area)
- The water is not safe to be drunk (it is not safe to be drunk because of the water contamination, but the water is not safe to be drunk because of the water contamination, but the water is not safe to be drunk because of the water contamination)
- The water is not safe to be drunk (it is not safe to be drunk because of the water contamination, but the water is not safe to be drunk because of the water contamination)



Integration of epidemiological, ecological and socioeconomic data (NV and JE) in a role playing game for at risk populations



Improving control measure involving at risk populations

Human-Animal-Environment interface of the RPG



Participatory epidemiology: the experimental contribution of a role-playing game to reveal risk perception and management in zoonotic diseases



Purpose of the game: keeping the village in common good health while realizing at every cultural season your different rural practices in your natural environment

Enabling knowledge sharing for risk communication

Collective discussion about the diseases



Introduction of the scientific knowledge progressively

Developing role playing games to promote integration and learning

- **Cooperative game** → gamers win or loose together
- example: curb the spread of rabies and eliminate it (based on interactions diagram here below)



Difficultés

- Risque d'instrumentalisation (rôle de « sensibilisateur »), caution SHS, incompréhensions mutuelles démarche quali/quantitative, approche statistique versus compréhensive
- Pas de question de recherche à l'intérieur du processus transdisciplinaire et peu de temps pour faire du processus l'objet de recherche...

Leviers

→ Porter un regard anthropologique sur les objets du CIRAD, trouver du sens, assurer un rôle de passeur, être dans un **démarche de traduction** pour accompagner des processus de co-construction, participatifs, d'articulation de liens, dans un cadre systémique

- Rôle de l'anthropologue ; **Accompagner les acteurs dans l'échanges de savoirs** (y compris les chercheurs), approches participatives, poser les problèmes complexes et s'engager dans des solutions qui ont du **sens**.
- Gestion de biens **communs** ou publics « non experts-centré ».
- Chercher les **leviers et les freins aux collaborations intersectorielles/multi-acteurs** sur base d'attributs « sociaux » (capital social/techniques), des conceptions, des relations sociales et des systèmes de valeurs.