Epidemiological study of Newcastle disease and avian influenza in Madagascar

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Objectives

- Describe the epidemiology of Newcastle disease (NCD) and Avian influenza (AI) in avian farms and poultry industries

  → Characterize the type of avian farms and poultry industries according to the epidemiology of NCD and AI

  → Describe , analyze and model the spatial and temporal dynamics of NCD/AI in relation with poultry industries structures and viruses population
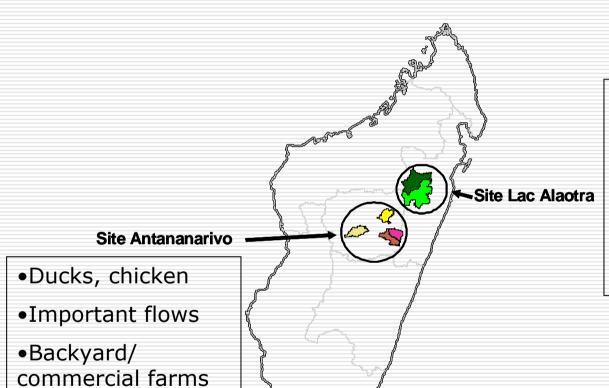
Research questions

- ☐ What are the different types of avian farms in accordance with NCD/AI risk factors ?

- ☐ What are the poultry industries which exist? How do they work? and what are their relations with avian farms?

- ☐ What is the role play by poultry industries (avian species, network of actors, flows) in spread of different strains of NCD and AI viruses?

- ☐ What is the dynamic of NCD and AI?

Methods

☐ Review of literature

☐ Typology of avian farms with risk factors as criteria

☐ Poultry industries study (diagrams , typology of actors, flows)

➔ **Conceptual model of spread**

☐ Study Prevalence (cross-sectional)

➔**Accurate the site of study, level of prevalence, hypotheses of risk factors, viruses**

☐ Surveillance and detailed outbreak investigations

➔ **dynamics, system and actors involved, viruses**

☐ Modeling (SNA)

Study areas

- Wetland (Lake, ricefield)
- Ducks, geese, chicken
- Wild birds populations
- Commercial connection with other areas

Site Lac Alaotra

Site Antananarivo

- Ducks, chicken
- Important flows
- Backyard/ commercial farms