Rift Valley Fever Control

CRVOI: The regional strategy example in the Indian Ocean

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Eric Cardinale

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- One particular project: Animal Risk
- Expectations

CONTENTS

- **CRVOI**
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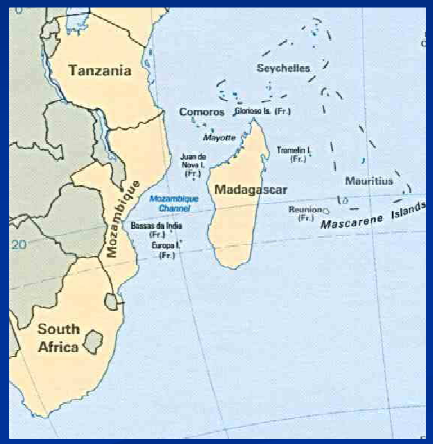


- **One particular project: Animal Risk**
- **Expectations**

Definition (1)

- **CRVOI:** ***C****entre de* ***R****echerche et de* ***V****eille sur les maladies émergentes dans l'****O****céan* ***I****ndien*

  Center for research and intelligence of emerging diseases in the Indian Ocean

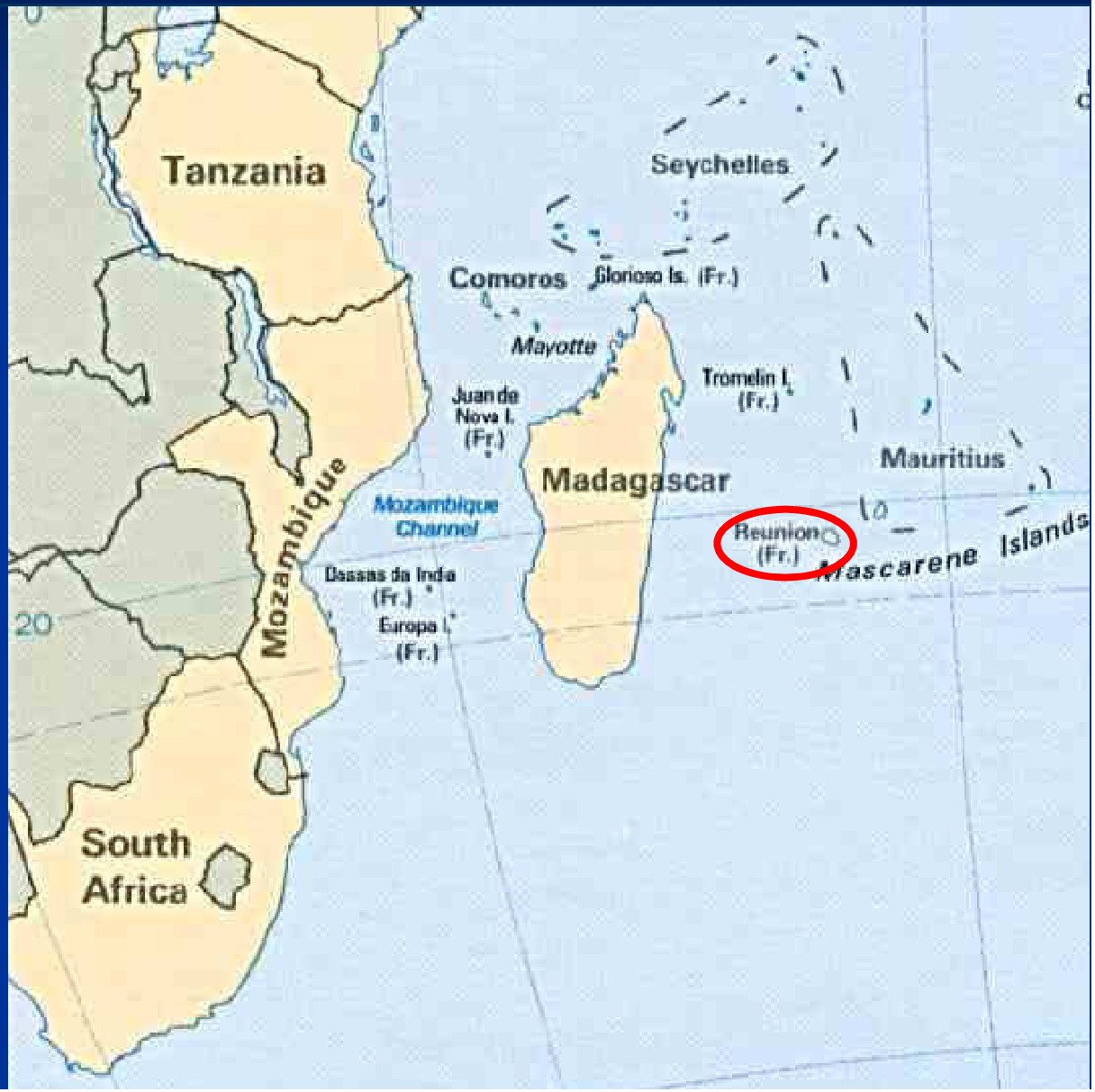
- **Scientific Association**, born in 2007, between:
  - French State (Ministry of Health and Ministry of Education and Research)
  - Institutions of Réunion (Regional concil and District concil)
  - 8 scientific French organizations (CNRS, CIRAD, INRA, IRD, INSERM, InVS, Pasteur Institute, AFSSA)
  - Réunion University
  - Regional Hospital Center of Réunion
  - Medical Doctor Association of Réunion

Definition (2)

- **CRVOI action program:**
  - Multidisciplinary investigation on infectious diseases of interest for the Indian Ocean Area
  - Training sessions: Master, PhD and seminars
  - Technical and scientific intelligence ("data mining") on infectious diseases of interest for the Indian Ocean Area
  - Regional co-operation on emerging infectious diseases with the other Indian Ocean countries.
- **Team:**
  - Pr Koussay Dellagi (Director)
  - 15 enthusiastic researchers or technicians

Localization

LA REUNION



Functions

- **Leadership/Coordination** of the research projects driven by CRVOI members'

- **Agency**: invitation to tender for research projects on emerging diseases with regional partners (ex: Rift OI)

- **Research Operator**: CRVOI is carrying 3 (almost 4) research projects (ex: Animal Risk)

Projects

CRVOI
Centre de Recherche et de Veille sur les Maladies Emergentes dans l'Océan Indien

CONTENTS

- CRVOI

- **One particular project: Animal Risk**
  - Context
  - Objectives
  - Partners
  - Calendar
  - Team




- **Perspectives**

Context (1)

- **Animal Risk =** *Scientific Cooperative Program on Animal Emerging Diseases*

- **Context:**
  - Global warming
  - Increasing of North-South exchanges (legal or illegal)

→ **Emerging or re-emerging diseases**

Context (2)

- Indian Ocean between Africa and Asia:
  - **Madagascar**: Anthrax, Johne's Disease, African and Classical swine fever.
  - **Comoros** : RVF, anthrax, Theileriosis
  - **Réunion** : Johne's Disease, Lumpy Skin Disease, Infectious bovine Rhinotracheitis
  - **Mauritius** : African and Classical Swine Fever
  - **Seychelles** : West Nile Fever
- **Insularity**: Major asset to protect against continental disease (East Africa)

Regional Initiatives

- FSP EpiReg (till the end of 2008) collective action of Indian Ocean Veterinary Services.
- COI countries do not belong to the same political set:
  - Madagascar and Mauritius : Print programs or FMD of SADC area.
  - COMESA

→ **But rare and recent**

- Indian Ocean is out of big network as PARC or PACE Programs

Why this project ?

- **Lack** of reliable and recent epidemiologic data

- Sates need **scientific advises** to:

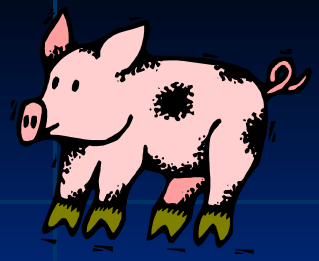
→ establish animal health programs

→ build up an efficient diseases control network to avoid introduction or spread of thoses diseases in the Indian Ocean

General Objective

Better control of animal health risks in the Indian Ocean

- **Focus:** Zoonotic diseases or animal economic diseases of importance for the Indian Ocean Area

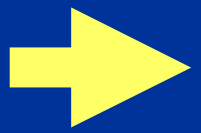


Animal Diseases

- Poultry : HPAI + Newcastle Disease + West Nile Fever
- Pork: Classical and African Swine Fever
- Ruminants : RVF

Objectives

- **4 objectives**
  - Updating data for 6 diseases (HPAI, ND, CSF, ASF, WNF, RVF)
  - Risk Assessment for RVF and ASF
  - Developing diagnostic tests (dip stick) useful to take fast decisions in the field
  - Cost-Benefits evaluation in the socio-economic context of the country
- **4 years:** **!!! STARTS NOW !!!**



Example for RVF

RVF: Objective #1

- **Updating data**

  - Serological survey (ELISA commercial kits)
  - Virus isolation (RT PCR)

Where ?

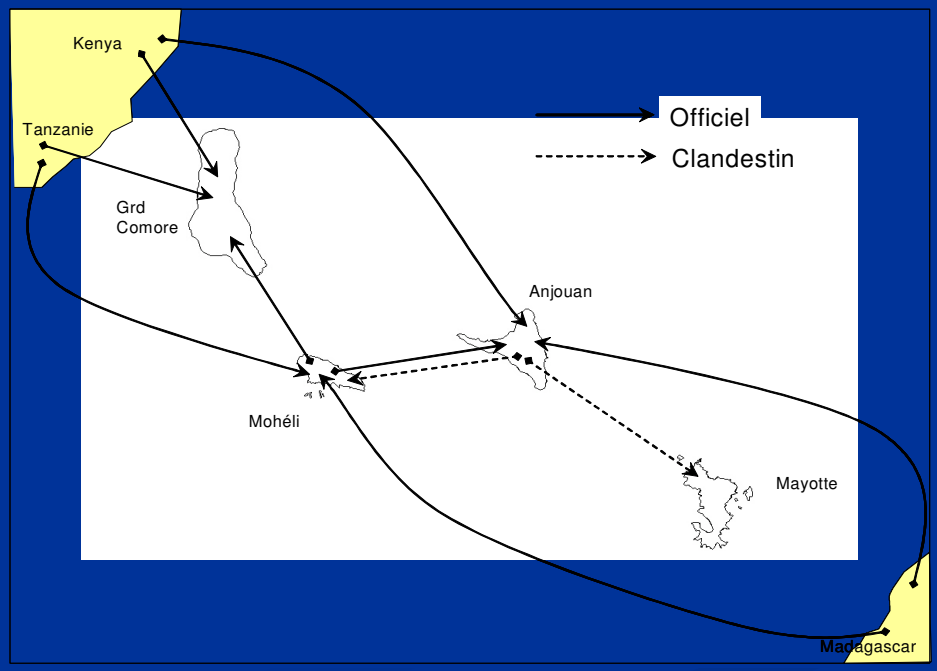
- Madagascar
  - Sampling in South and West
  - Complementary with Rift OI & FAO projects
- Comoros
  - 3 islands
- Mayotte
- Seychelles
- Maurice
- Réunion

How ?

- 2 weeks missions (more for Madagascar) for
  - Representative sampling
    - Geographically
    - Age
    - Species
  - Lab work when possible
- Field and lab work in collaboration with the local partners
  - Ex: Madagascar
    - Field team composed with the Veterinary Services
    - Lab work (ELISA) with FOFIFA-DRZV
- Particularity
  - Comoros
    - Master student: 3 months of field work 05/09 > 07/09
    - Specific area for insect trapping
  - Mayotte: 1 member of the team permanently on the spot (link with Comoros)

RVF: Objective #2

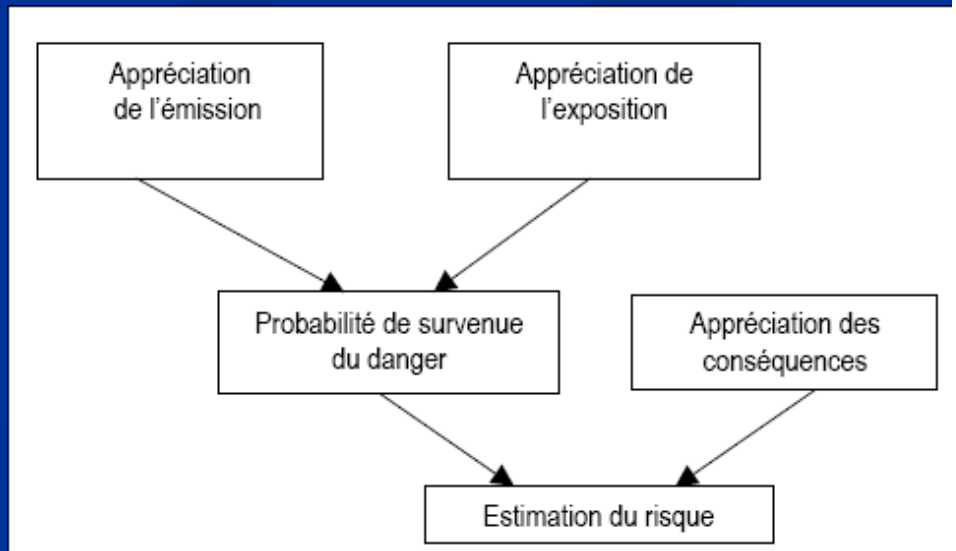
- **Risk Assessment**
  - Introduction/Spread risk assessment
  - Comoros/Mayotte/Madagascar



How ?

- Collection of information
  - Animal Samples (ELISA, Virology)
  - Questionnaires
  - Vectors trapping
- Semi qualitative AFSSA procedure

Qualificatifs	Échelle ordinale
Nulle (N)	0
Quasi-nulle (QN)	1
Minime (M)	2
Extrêmement faible (EF)	3
Très faible (TF)	4
Faible (F)	5
Peu élevée (PE)	6
Assez élevée (AE)	7
Elevée (E)	8
Très élevée (TE)	9

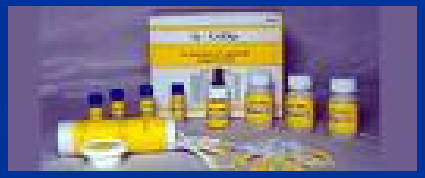


RVF: Objective #3

- **Development of diagnosis field test:**

  - Quick and ready to use

  - Especially for countries without any equipped laboratory



How ?

- Identification of existing tests
- Field information/Sera analysis for evaluation of Se, Sp and PPV
- Genomic data bases and viral antigenic specificity
- Collaboration with Pasteur Institute of Paris

RVF: Objective #4

- Cost Benefits Evaluation

How ?

- Comparison of
  - Zootechnic efficiency
  - Cost/benefits of disease control measures (stamping out, treatment, vaccination, vector control…)
- Co-missions with experts:
  - Animal performances
  - Expert evaluation

Partners

CIRAD

CRVOI

L.V.D
la Réunion

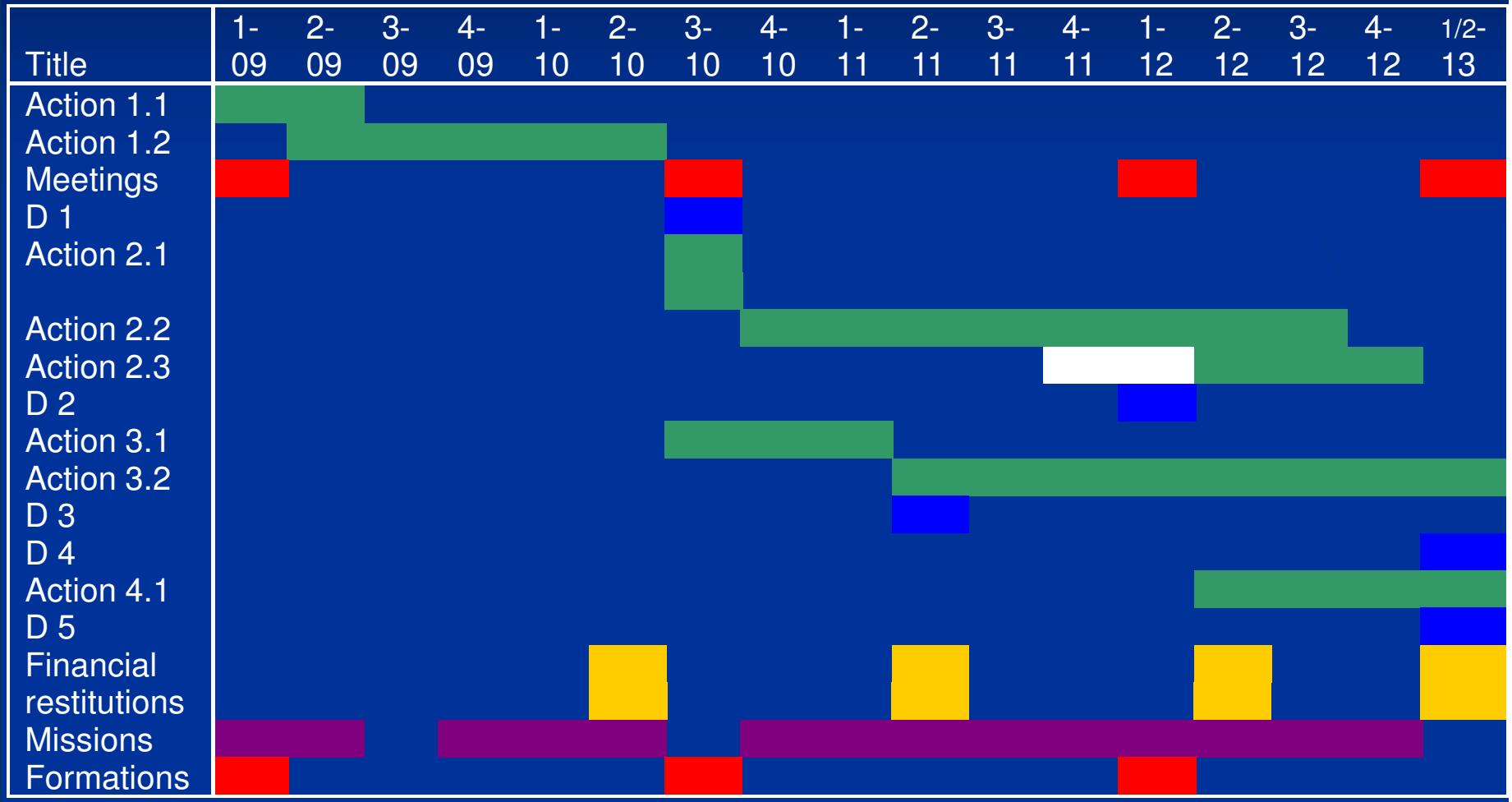
INSTITUT PASTEUR
DE MADAGASCAR

GROUPEMENT RÉGIONAL DE
DÉFENSE
SANITAIRE
DU BÉTAIL DE LA RÉUNION

INRAPE

Service de
santé publique

Calendar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Action 1.1
Action 1.2
Meetings
D 1
Action 2.1
Action 2.2
Action 2.3
D 2
Action 3.1
Action 3.2
D 3
D 4
Action 4.1
D 5
Financial restitutions
Missions
Formations

Animal Risk Team

- 7 people
  - 1 coordinator: E Cardinale
  - 1 vet (Field work, epidemiology): M Roger
  - 1 epidemiologist (Risk Analysis): MM Olive
  - 1 lab technician: B Didelot
  - 1 Post-doc virologist (now)
  - 1 virologist (end of 2009)
  - 1 entomologist (end of 2009)

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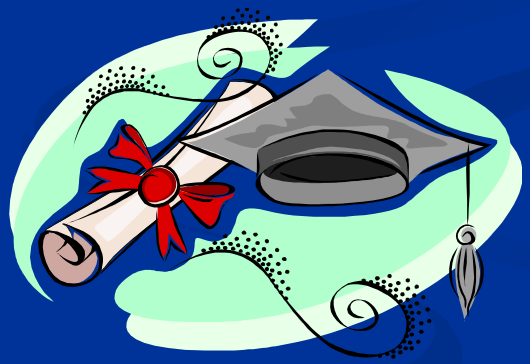
Expectations



Expectations

- Fulfill a data base accessible online for the country
- Definition and estimation of the introduction/spread risk for particular disease (ex: RVF)
- Development of quick diagnostic tests for field decision
- Build up new surveillance/research projects
- Publications
  - Reports for countries and financers
  - Scientific publications


Thank you for your attention