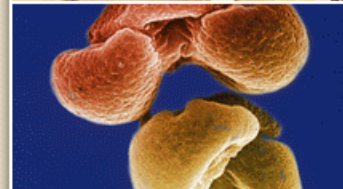


Rabies Situation in Cameroon: Role of a pilot initiative of surveillance system reinforcement in improving health authorities awareness

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Epidemiology and Public Health Service
Centre Pasteur of Cameroun





Outline



- **Cameroon: general information**
- **Rabies situation in Cameroon**
- **Pilot rabies surveillance system**
 - **Objectives and reinforcement of the surveillance system**
 - **Results**
- **Strength and weakness points**
- **Conclusions**

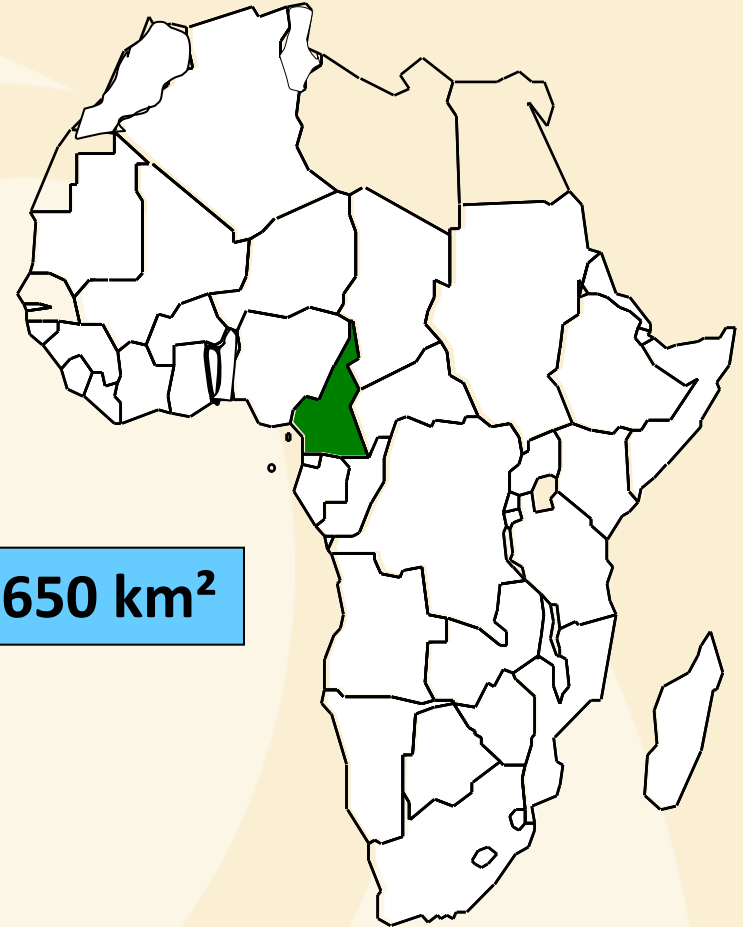


Cameroon : general information



- **Population : 19.4 millions inhabitants (2010)**

- 52 % in city / 48 % in rural
- Median age : 17.7 years
- ≥65 years : only 5%
- 10 administrative regions



Area : 475 650 km²



Rabies situation in Cameroon (1)



- **Very limited data about the frequency of both animal and human rabies despite the existence of lab facilities**
 - **Among 91 dogs specimen received from 2010-2013 at Centre Pasteur of Cameroon, 74.2% were tested positive** (Sadeuh-Mba *et al*, BMC Research Notes, 2015)
- **Rabies laws defining the general strategy for the control of animal rabies exist but not applied**



Rabies situation in Cameroon (2)



- **Lack of awareness among the population, medical practitioners and health authorities is common**
- **No rabies control program exist.**
 - **A national zoonosis control program has been launched recently and still in the implementation phase**
- **Persons who are bitten by suspect rabid animals have to pay for post-exposure prophylaxis**
 - **Animal rabies vaccination is also paid by the owner**
 - **Domestic animal mass vaccination campaign against rabies is organised at least once a year at reduced price**



Infrastructures for management of rabies exposure is scarced and located in big cities



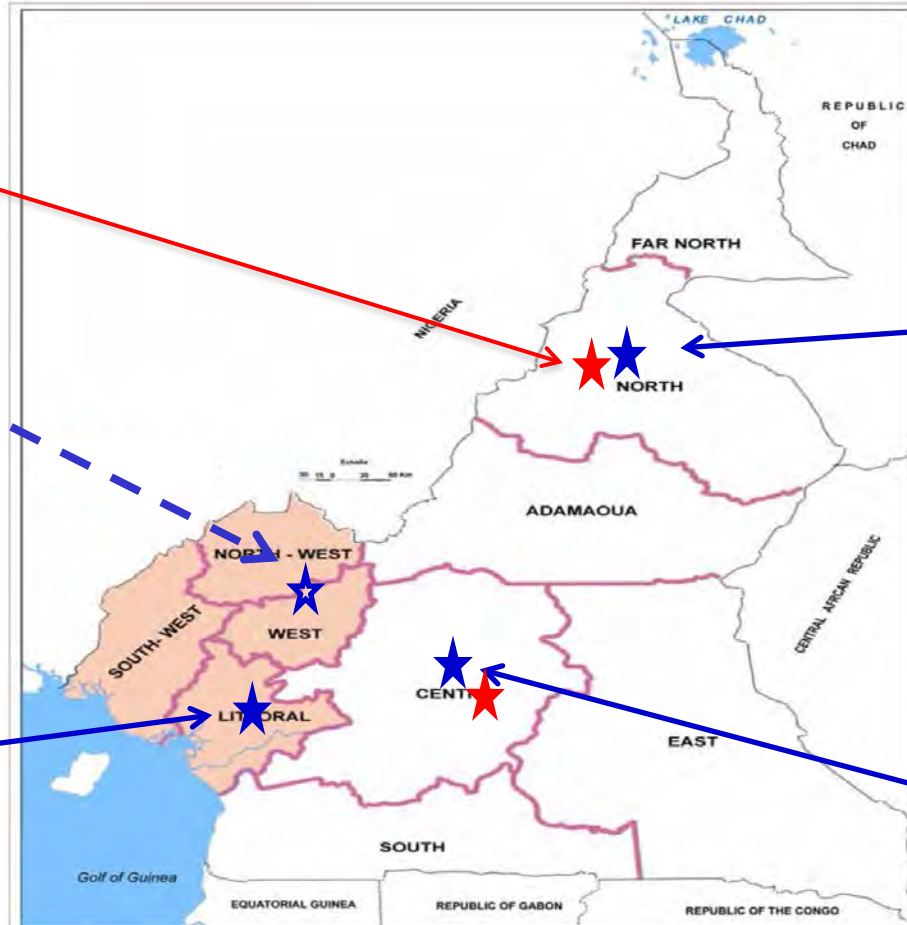
National veterinary Laboratory, LANAVET, Garoua

Regional Delegation of Public Health West , Bafoussam

Regional Delegation of Public Health Littoral , Douala

Centre Pasteur of Cameroun annex, Garoua

Centre Pasteur of Cameroun, Yaounde Virology Laboratory



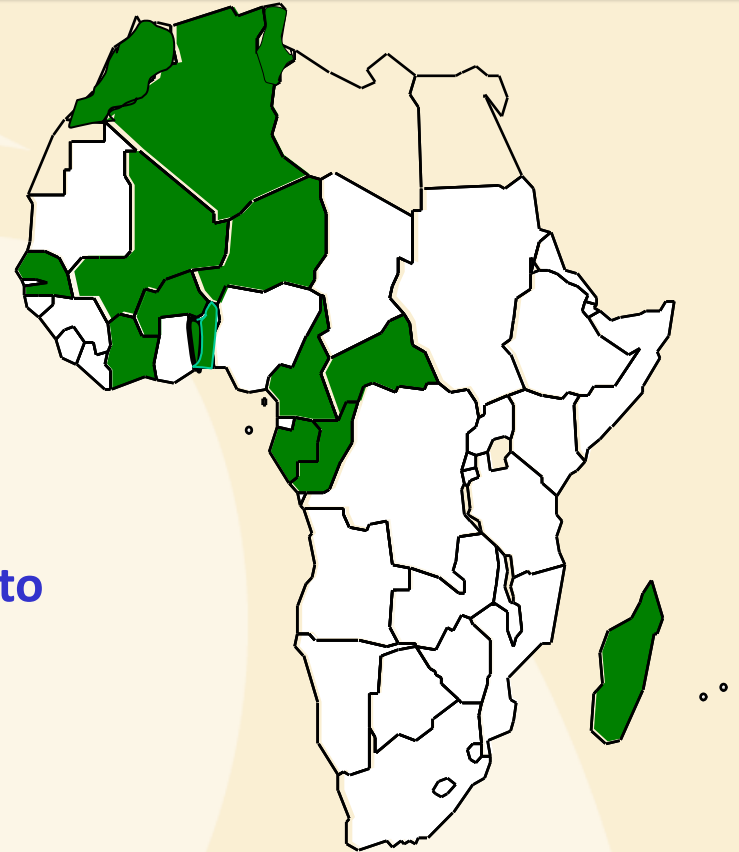
Anti-Rabies Clinics and laboratories



Rabies situation in Cameroon was similar to that of most of the subsaharan central and west Africa



- As discussed within the AfroREB network meetings
- **AfroREB: African Rabies Expert Bureau**
 - Created in 2008
 - An informal group of 15 francophone African countries
 - Objective : identify appropriate initiatives to fight rabies



All AfroREB experts unanimously agree that the priority is to bring reliable epidemiological data



Pilot initiative of rabies surveillance system reinforcement: Cameroon and Ivory Coast



- **Primary objective**

- To set up a pilot rabies epidemiological information system which will help to validate tools used, identify obstacles and find solutions

- **Secondary objectives**

- To sensitize human and animal health professionals to the rabid risk and his management
- To systematically collect informations on rabid risk exposition, on animal and human rabies cases
- To document obstacles to surveillance
- To set up a network of professionals working on rabies at different level of the health pyramid



A pilot surveillance system for rabies in the west region for a one year period – 2014



- **West region**

- **Population: 1 million inhabitants**
- **Area: $\approx 14000 \text{ km}^2$**
- **Number of health district: 20**
- **Number selected for the study: 11**
- **Selected sites were asked to participate in a voluntary basis**

- **Focal points identified and selected**

- **Chief medical officer of the health district**
- **Chief of the district veterinary service**

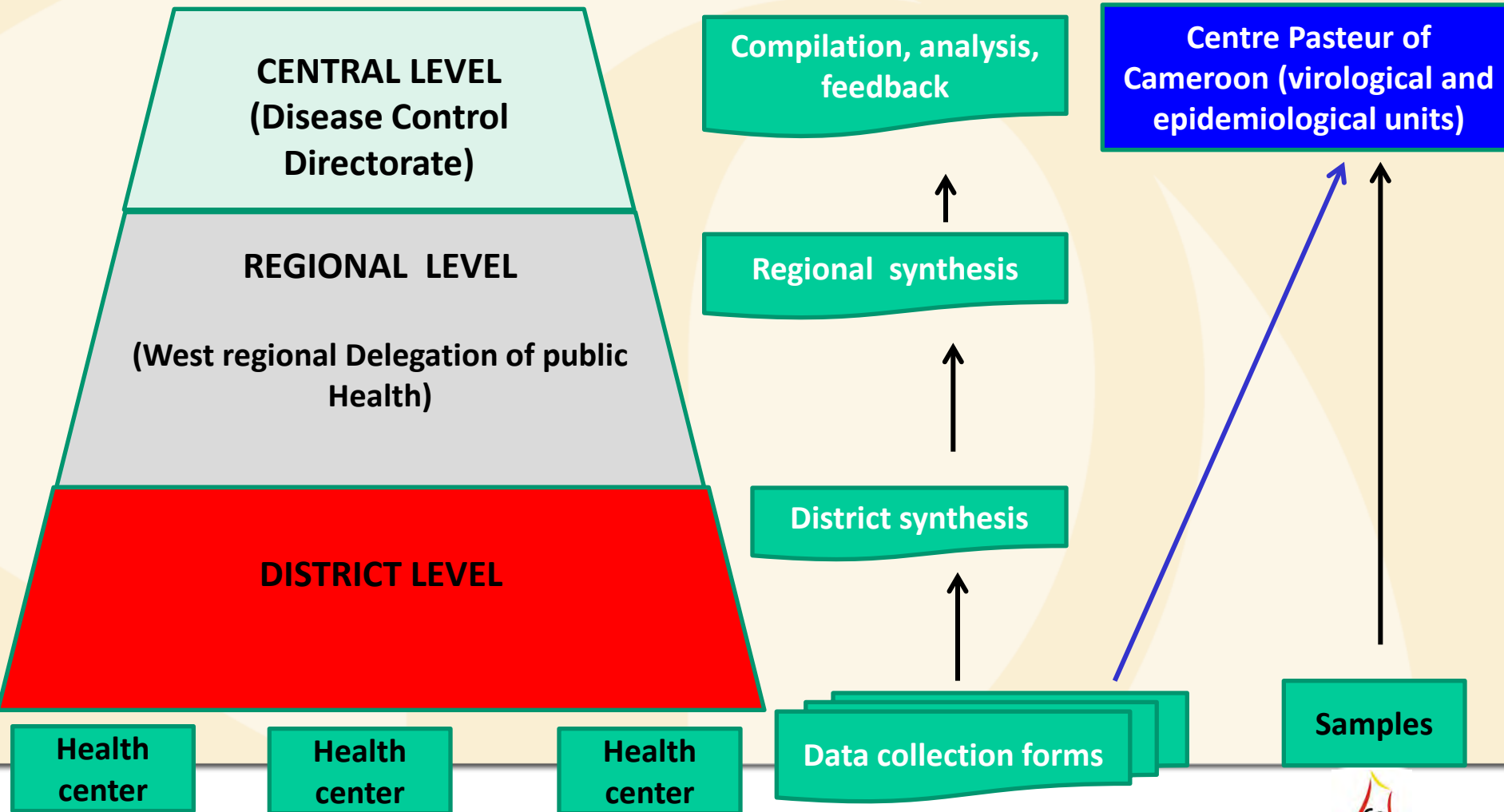




Cameroon EpidemioSurveillance system design



Ministries of Public Health / livestock and fisheries





Reinforcement of the existing information system





Opening of an antirabic center in the West region, oct2013



Ministry of Public Health & Ministry of livestock, Fisheries and animal industries





Sensitization and training of focal points and leaders (1)



- Operative definitions and procedures including questionnaires filling and submission, collection of samples and sending to central lab in Centre Pasteur of Cameroon



Sensitization and training of focal points and leaders (2)



- World rabies day
- Other health related occasions



Distribution of coolers to health professionals and financial support to send samples to the Centre Pasteur





Data and specimen collection / coordination



MINISTERE DE LA SANTE PUBLIQUE

 DELEGATION REGIONALE DE L'OUEST

 CENTRE ANTIRABIQUE DE BAFOUSSAM
 BP. 49 Bafoussam. Tél : 33 44 14 17

FICHE DE CONSULTATION ANTIRABIQUE n° ____

1. Date: |_|_|/|_|_|/|_|_|_|_|

IDENTIFICATION DU PATIENT:

2. Code ____

3. Noms (3 premières lettres): |_|_|_| 4. Prénom: |_|_|_| 5. Sexe: Masculin_M Féminin_F

6. Date de naissance: |_|_|_|/|_|_|/|_|_|_|_| 7. Age: an (s)

8. Adresse ou nom du village : 9. Région

10. District de santé:..... 11.Téléphone : ____/____ 12. Profession :.....

- **Sociodemographic, clinical data of persons exposed to rabid risk, data on animal implicated, samples (animal head and human if possible)**
- **Follow up and action**



Results





Epidemiological situation in year 2014 in the West region of Cameroon: exposition to rabid risk

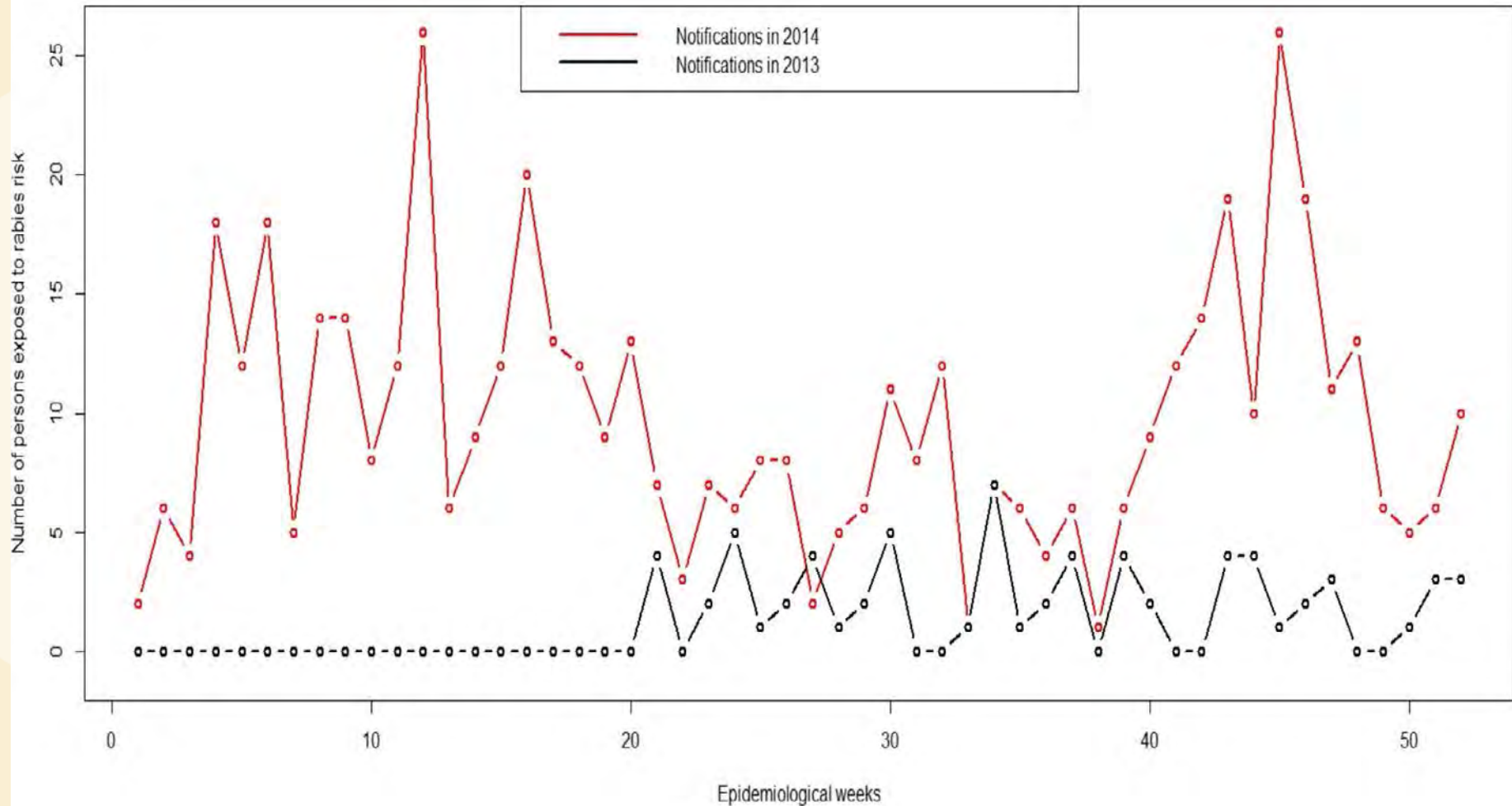


- 507 notifications in the West region / 2594 in total (2014)
- 440 notifications from the sentinel sites selected for the study (87%)
- **370 notifications accompanied with a file (73%)**

District	Total
BAFANG	9
BAHAM	11
BAMENDJOU	13
BANDJA	3
BANDJOUN	20
BANGANGTE	42
BANGOURAIN	3
BATCHAM	5
DSCHANG	19
FOUMBAN	10
FOUMBOT	7
GALIM	3
KEKEM	13
KOUOPTAMO	0
MALENTOUEN	5
MASSANGAM	0
MBOUDA	30
MIFI	169
PENKA MICHEL	3
SANTCHOU	0
NON SIGNALE	4
TOTAL	370

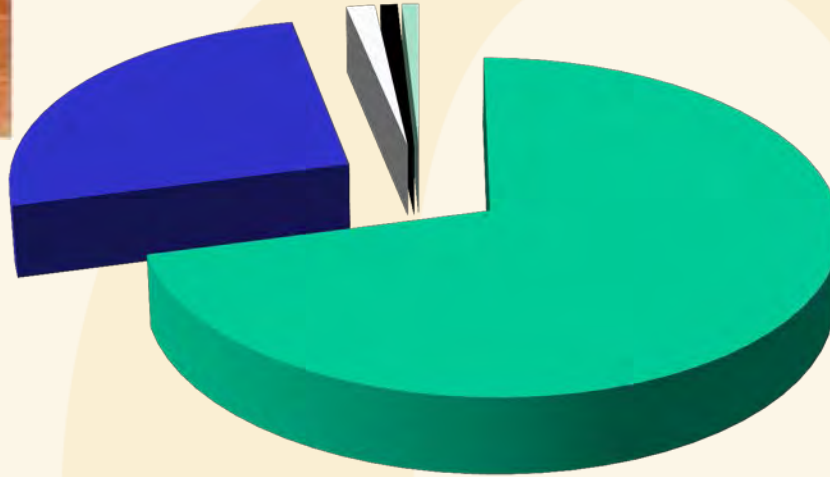


Comparison of animal bites situation notification in year 2013 and 2014 in the West region





Animals implicated



- Dog
- Not indicated
- Cat
- Monkey
- other



Some characteristics of animal implicated



	Total
	N(%) ou median (EIQ)
	N=370
Known animal (m : 8.1%)	
No	112 (32.9)
Yes	228 (67.1)
Vaccinated animal (m : 23.3%)	
No	162 (82.2)
Yes	35 (17.8)
Animal vital status at patient consultation	
killed	21 (5.7)
spontaneous death	7 (1.9)
disappeared	112 (30.3)
alived	230 (62.2)
Veterinary consultation	
No	193 (74.8)
Yes	65 (25.2)

m: missing data



Some characteristics of patients



	Total
	N(%) ou médiane (EIQ)
	N=370
Gender (m : 3.0%)	
Female	193 (52.3)
Male	166 (44.9)
Age at consultation (median, IQR, years)	19.0 (9.0-43.5)
Stage WHO (m: 22.2%)	
1	30 (10.4)
2	207 (71.9)
3	51 (17.7)
Administration of antitetanic serum to patient (m : 8.9%)	
No	53 (15.7)
Yes	284 (84.3)
Rabies post exposition prophylaxis (only vaccine)	
No	198 (53.5)
Yes	172 (46.3)

m: missing data



Biological analysis



Samples received 2014

Total

Positive results

Dog heads

5

4

Pig head

1

0

Human (saliva and skin biopsy)

1

0

Human rabies suspicion:
3 cases

Persons exposed where
informed for
management



Strength points



- **Sensitization, awareness of the professionals concerning the risk of rabies**
- **Consolidation of surveillance activities in health district concerned**
- **Radiance of pilot sites activities to other health districts which have started to report animal bites**
- **Reduction of number of patients transferred to the capital city for management of animal bite**
- **Identification of some constraints of the surveillance system of infectious disease**



Weakness points



- Subnotification
- Incomplete filling of rabies files
- Delay in transmission of data
- Suboptimal implication of certain professionals due to concurrent activities
- Most Veterinarians were alone in their district area and focused more on breeding activities
- Insufficient collaboration between human and animal health professionals

**Lack of
human
ressources
and
motivation**



Conclusions



- Rabies is still killing in Cameroon as in many subsaharan west and central African countries
- Organisation, follow up and coordination could help in obtaining reliable data but:
 - Full implication of professionals is needed
 - Intersectorial collaboration
 - Implication of politics with their partners
- As perspectives
 - The activity will continue for one more year (thanks to the donor) in order to identify ways for sustainability
 - The health authorities are preparing for the opening of antirabies clinics in the remaining 6 regions of Cameroon



Help us to
help you

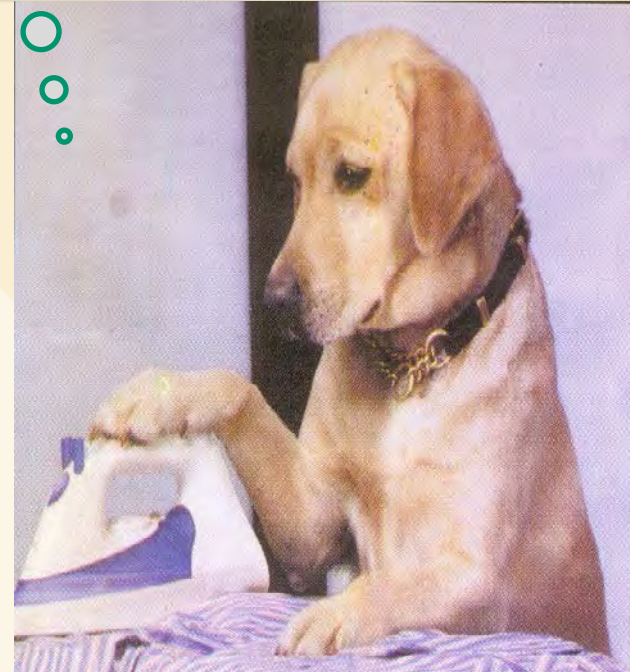


Thanks !!!

SANOFI PASTEUR 

Réseau International
des Instituts Pasteur 

- **West Regional Delegation of Public Health**
 - Dr Mache, Dr Simo and Mrs Monkam
- **West Regional Delegation of livestock, fisheries and animal industries**
 - Dr Otang
- **Study team, different health professionals and participants**



Sanofi Initiative against Rabies in Africa

A “One Health” programme

Pan-African Rabies Control Network Conference
South Africa, June 2015

Isabelle DESCHAMPS, PhD

Head of Immunization Policy
Africa and Global health organizations
Sanofi Pasteur

Sophie RANDOUX, DVM

Director of Feline and
Rabies Vaccines Franchise
MERIAL



Why this initiative?

- **The context:**
 - **Human rabies is preventable but continues to kill.**
 - Rabies controlled in PAHO region, still bulk of human cases (~60K annually) in Africa and Asia
 - **In Africa rabies is often misdiagnosed and underreported**
 - **Rabies disproportionately burdens poor rural communities (mainly < 15 y of age)**
 - **Lack of access: Rabies post-exposure prophylaxis is only available in big cities**
 - **Almost all cases transmitted by a rabid dog (99%)**
 - **Dog vaccination is compulsory to achieve rabies elimination**
- **We wish to design and propose a holistic and integrated approach based on a sustainable model:**
 - **Build on existing partnerships and on social responsibility**
 - Sanofi initiatives to Fight Rabies in Africa: Support the Rabies Expert Bureau, Epidemiological studies to improve rabies surveillance, Advocacy and Communication (incl WRD), Rabies clinics in FSA
 - **Create a singular focus for an innovative and impactful project**
 - **Define our strategy for engagement on rabies elimination in Africa**

Our Ambition

Sanofi strengthens its long-term commitment to fight against Rabies and its contribution to the ambitious objective of Rabies elimination in Africa

Our proposal

- **Sanofi Pasteur and Merial** promote the “One health” approach by actively engaging multi-sectorial local partners, in order
 - to break the virus circulation (focus on dogs)
 - to raise awareness and education for rabies prevention in high risk groups (i.e. children) and among health care workers.
 - to improve access to human and veterinary vaccines and to immunoglobulins by creating rabies centers in endemic and remote places
 - to create a financial mechanism which decreases the total cost of a post-exposure treatment by 80% for the patient.

How do we get there ?

● New Dog Bite Center models



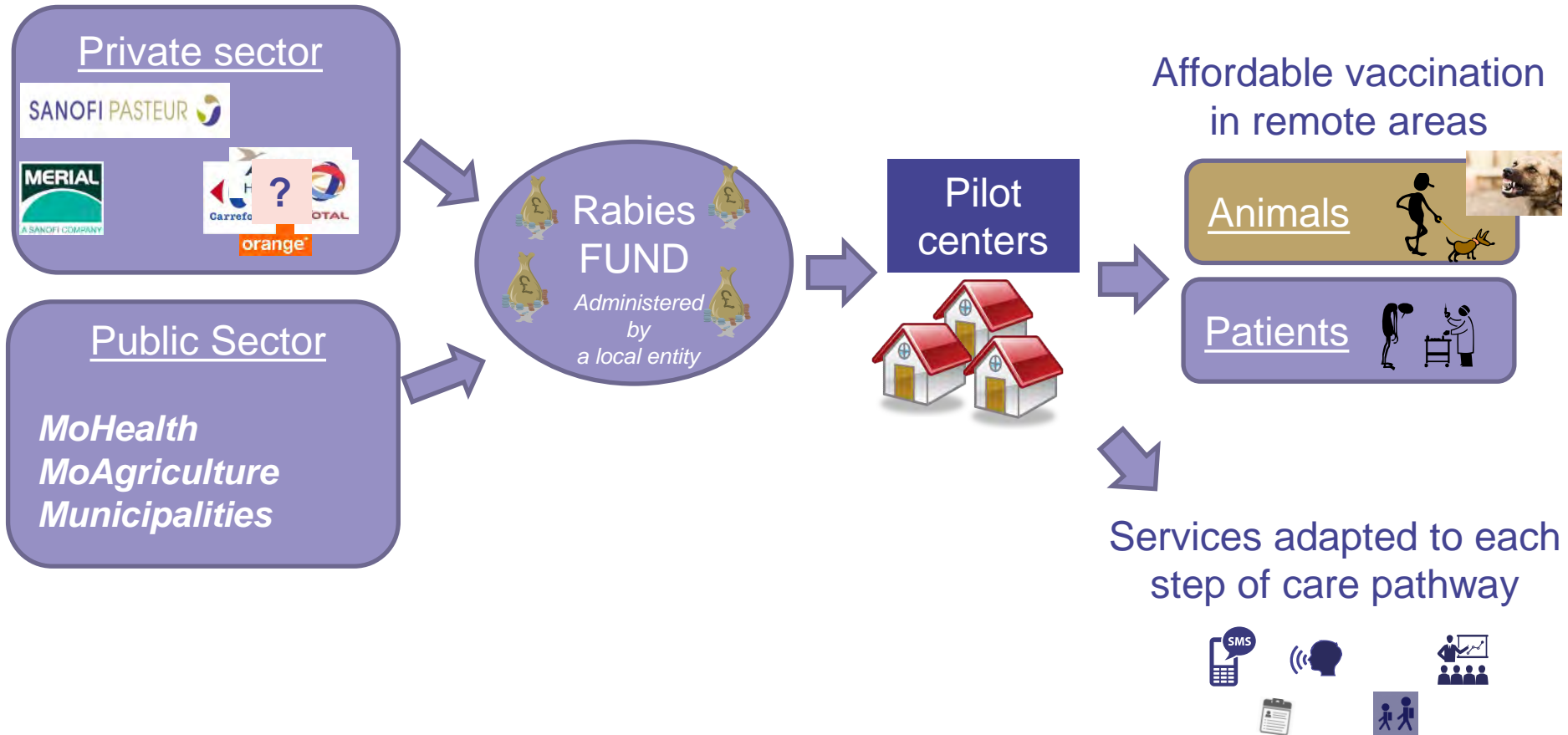
- Multi-sectorial partnership with public and private partners committed to the fight to eliminate rabies
- Associating Human and Animal vaccination program - One Health
 - Dog vaccination coverage : 70% of the animals in contact with Humans
- Scalable to other countries/regions

● A National approach: engage first at country level

- Country ownership
- Contribute to the empowerment of underprivileged local populations
- Show a positive impact prior to regional expansion



Funding Model



Developing targeted services at each step of care pathway to improve vaccination programmes





Patient is bitten by a dog



Break the virus circulation:

- Among dog's population.
- Transmission to humans





Increase Awareness on Rabies

- mHealth (awareness, alerts) 
- Community rabies advocates 
- Training for HCPs 
- School-based awareness 

Health Care Facility



Increase Awareness on Existence of Rabies Center

- mHealth (info on center) 
- Call center 
- Training for HCPs 
- Community rabies advocates 

Availability of vaccine and Ig
Affordability of vaccination






Make sure treatment is available and affordable

- Ensure vaccines and Ig stocks 
- Innovative financing model to decrease the cost of PEP for the patient 

Compliance



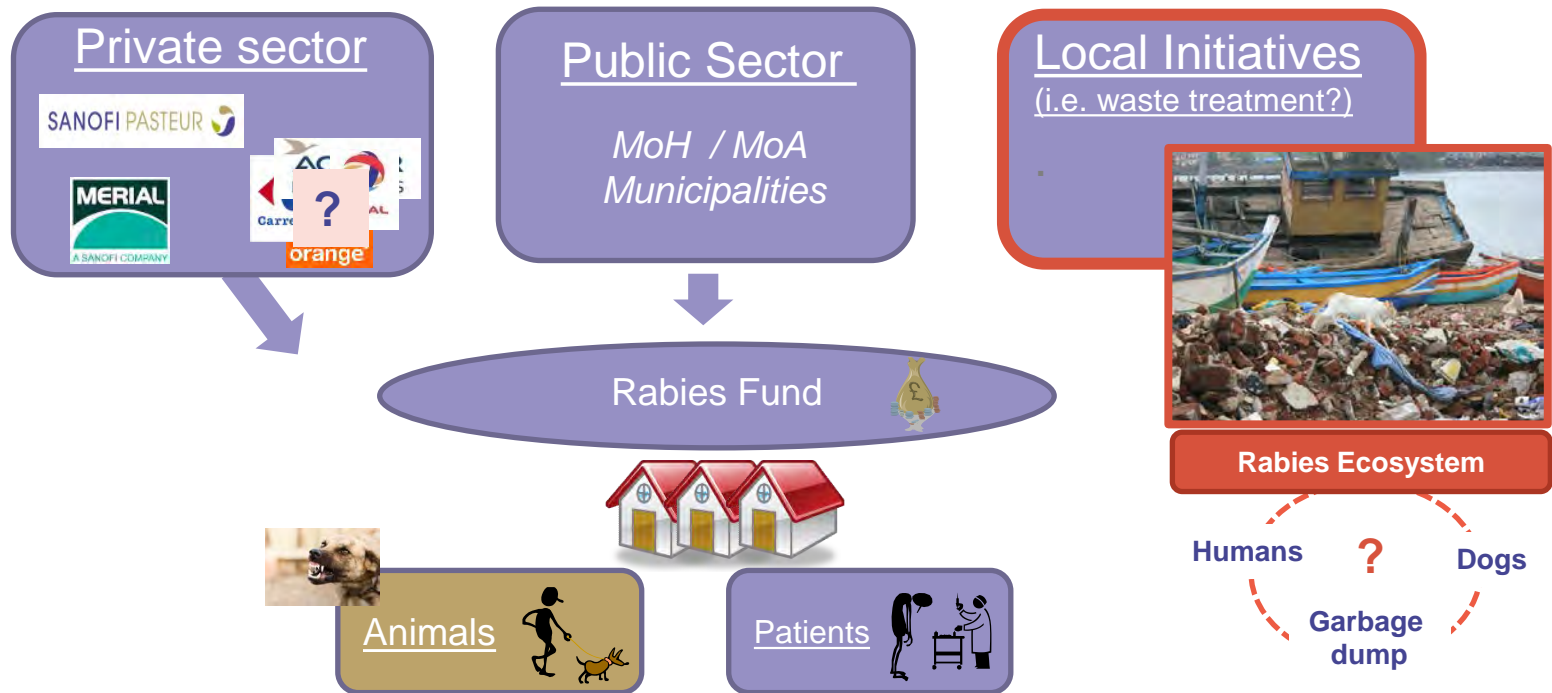
Ensure compliance

- Training for HCPs 
- mHealth (compliance messages) 
- Decrease the total cost of PEP for the patient (consultation fees, transport, vaccines and Ig) 

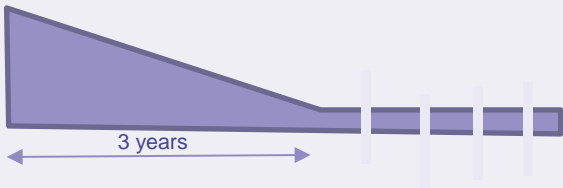

 KPIs measurements

Community's involvement

- Associate the Dog Bite Centers with a local Initiative to the benefit of the community.
- Explore opportunities with local social entrepreneurship organizations.
 - **ASHOKA, Business Fights Poverty, Aide et Action,.....**



Breakdown per country (3 centers)

Dog Bite Centers funding			
Sanofi		Other	
SP/ Merial	 <p>3 years</p> <p>- Financial contribution</p>	Local Private Companies, Foundations, Institutes....	 <p>3 years</p> <p>Financial contribution</p>
		Patients	20% of the treatment is paid by the patient
	<ul style="list-style-type: none"> - Ensure rabies vaccines/Ig stocks through a distribution channel agreed with partners - Skills sponsorship: i.e. Medical training 	Ministries / municipalities	To be discussed: could be the operating costs of the centers

Impact measurement

- **Measuring impact is key**
 - **Key Performance Indicators will be designed to measure how well Dog Bite Centres (DBC's) meet the needs of patients as well as public and private partners**
 - **The KPI initiative should ensure that programs remain sustainable, accountable and effective in meeting the needs of stakeholders**
- **Study protocol: objectives, target indicator, measuring method, responsible person – work in progress**
 - **Surveillance, human vaccination, animal vaccination, national ownership and financial sustainability, services**
 - **Should be simple and measurable in the local context**
 - **Will be approved by all the project partners**

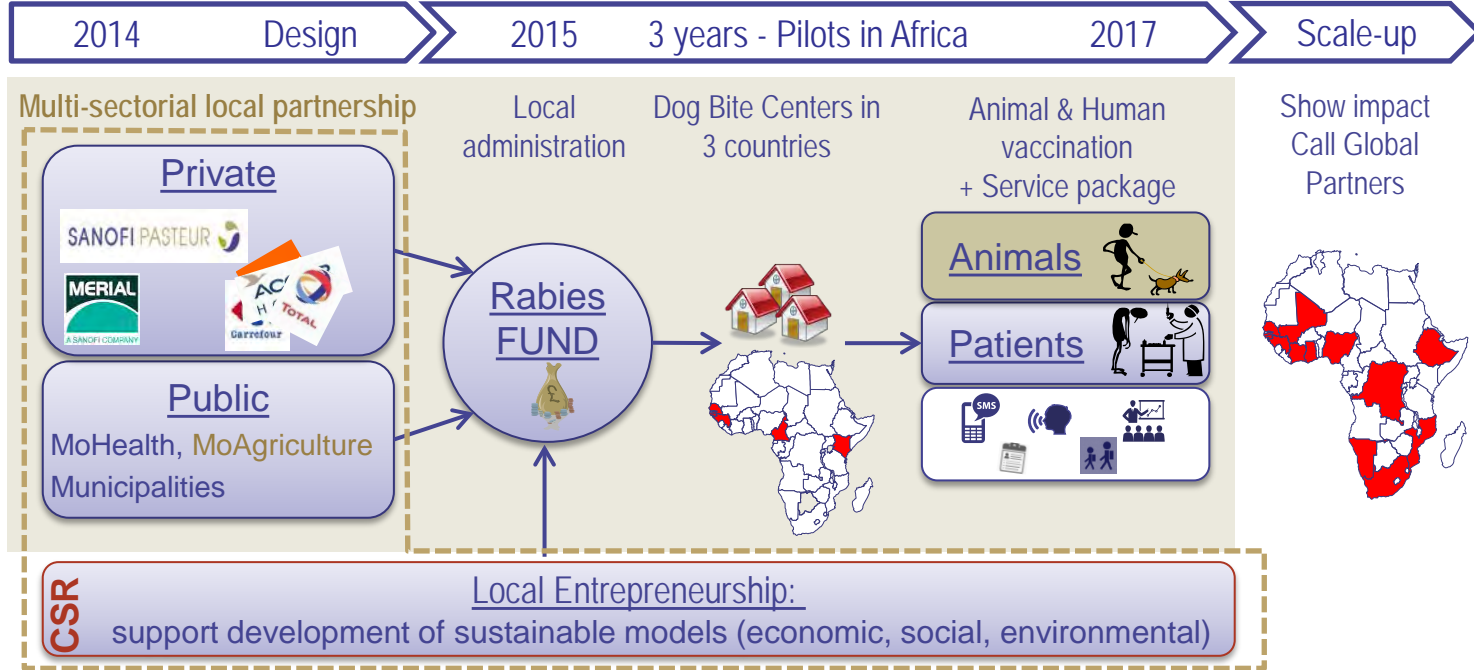
Timelines and next steps

AMBITION

Commit to long-term **WHO objective:**

“Eliminate Rabies in Africa”

with **innovative & sustainable models**



Country 1 Senegal: Project presented to Ministry of Health, Ministry of Animal Production, Patseur Institute and local Foundations to test their interest and possible contribution.

Good adhesion of all stakeholders met: The principles proposed in this model meets their needs and expectations and will be supported by the MoH and MoA.

Next steps: project to be presented to local foundations/companies for co-funding

Country 2 and 3: to be confirmed

Conclusion

- Rabies remains a regional health concern in Africa BUT 100% preventable by education and vaccination
 - For several years, Sanofi supports various activities to fight against rabies in Africa
- Sanofi is the only pharmaceutical company bringing together the expertise and solutions in animal (Merial) and human health (Sanofi Pasteur).
- Based on our experience and our pipeline, Sanofi Pasteur and Merial want to play a key role in elimination of rabies in Africa and propose new Dog Bite Centers:



A SUSTAINABLE MODEL

FACILITATE RABIES VACCINATION ACCESS

PROMOTE THE « ONE HEALTH APPROACH »

Merci

Thank you



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Lutte contre la rage au Tchad (Ndjaména)

PARACON 10 Juin 2015

Naissengar Kemdongarti



Institut de Recherche en Elevage pour le Développement Unité de Diagnostic de la Rage

La rage canine est endémique avec une incidence annuelle de 1.5/1000

Evolution du programme de lutte

2001-2002

- Introduction de l'IFD
- Étude démographique canine
- Campagne pilote gratuite (>70% couverture)

2005-2006

- Introduction du DRIT
- Campagne pilote payante 3USD (23% couverture)

2008-2009

- Estimation de la rage humaine à partir des cas de morsures → 7décés/ans

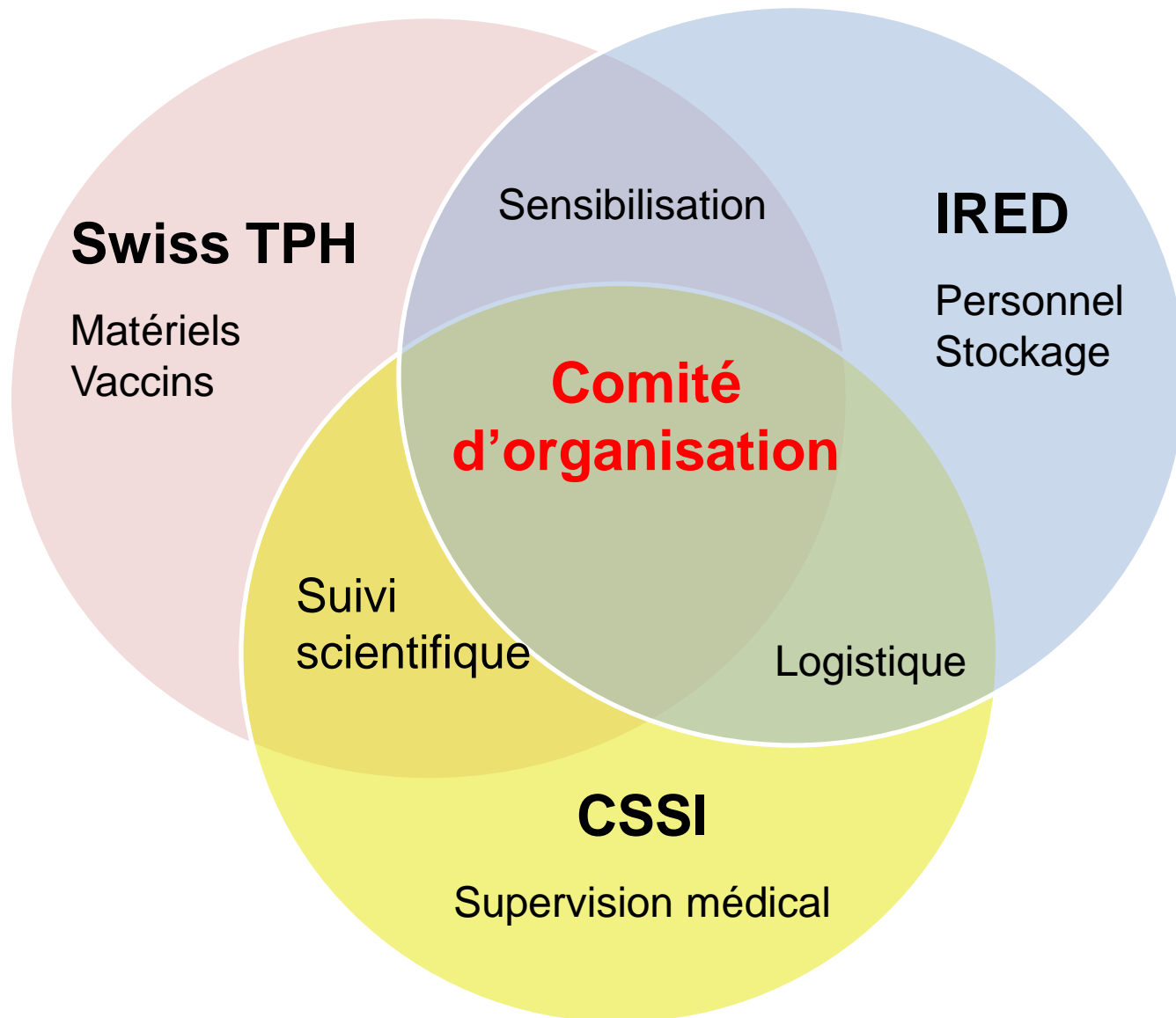
Conclusion de 10 ans de recherche: la vaccination de masse des chiens à Ndjaména est faisable!

- Organisation de 2 campagnes de vaccination de masse 2012/2013
- Utilisation du Test Immunochromatographique (Anigen) en parallèle de l'IFD





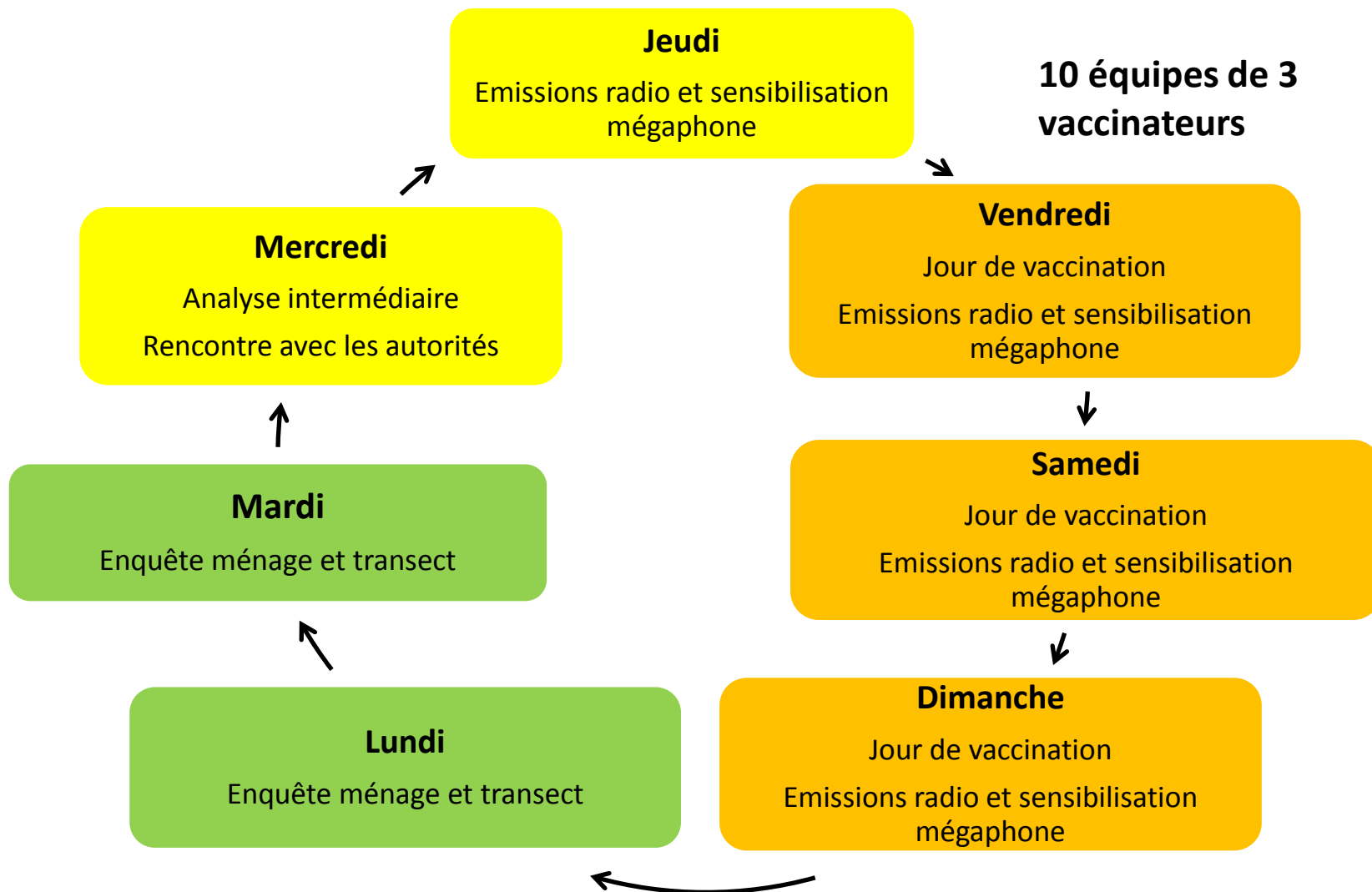
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VACCINATION ET ENREGISTREMENT DES CHIENS





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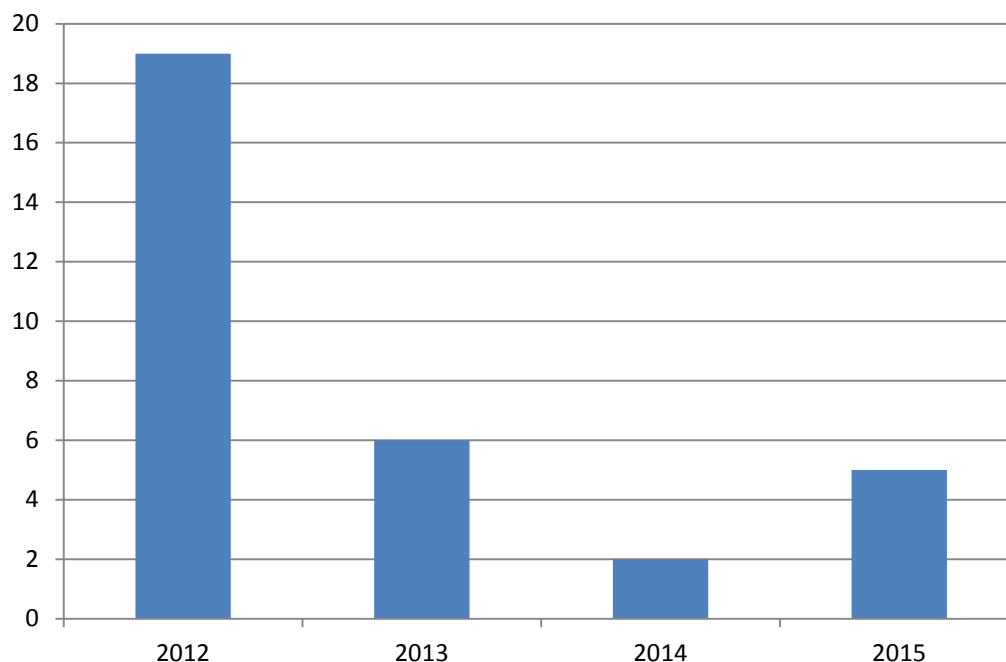
Chiens vaccinés: 2012 = **18182**

2013 = **21340**



EFFET DE LA VACCINATION

cas de rage canine annuel



- avant campagne 2012: incidence = 0.7/1000
- Après campagne 2014: Incidence = 0.07/1000
- 5 cas en 2015 → tous dans le 9^{ième} arrondissement



CONCLUSION GENERALE

On peut éliminer la rage dans une circonscription donnée par la vaccination massive gratuites des chiens

Pour établir le meilleur plan opérationnel il faut étudier le contexte culturel du milieu

Une surveillance intensive est sollicitée pour détecter les cas émergents ou d'éventuelle réintroduction du virus



RAISONS DU SUCCÈS

Global

- Partenariat durable entre l'état tchadien l'ONG local (CSSI) et le Swiss TPH
- Investissement et la motivation de tous: coordination, superviseurs, vaccinateurs, maires, delegues de quartier, chefs de carres et propriétaires des chiens

Couverture élevée en 2013

- Déplacement répété des postes
- Sensibilisation mégaphone renforcée pendant les journées de vaccination



PERSPECTIVE

Court terme

Introduire le theme de la rage dans le programme scolaire primaire

Valider et etendre le test d'ANIGEN au niveau national

Longue terme:

Etablir un systeme de surveillance "one health" (contact direct entre les veto et les agents de sante publique) sur toutes les 23 regions du pays afin de guider un programme national d'elimination.



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PRESIDENCE DE LA REPUBLIQUE

PRIMATURE

MINISTERE DE L'ELEVAGE ET DE
L'HYDRAULIQUE

SECRETARIAT GENERAL

INSTITUT DE RECHERCHE EN ELEVAGE
POUR LE DEVELOPPEMENT

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UNITE - TRAVAIL -
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جمهورية تشاد

رئاسة الجمهورية

رئاسة الوزراء

وزارة التنمية الرعوية والإنتاج الحيواني

الأمانة العامة

معهد بحوث الثروة الحيوانية
للتربية

PROGRAMME NATIONAL DE LUTTE CONTRE LA RAGE AU TCHAD

Premier Draft

Budget total pour 1 année = 4 milliard FCFA = 8 million Dollars



Institut de Recherche en Elevage pour le Développement
Unité de Diagnostic de la Rage



Je vous remercie





Études démographique
canine dans 963 Ménages

900'000 chiens au Tchad

