Research perspectives for an analysis of risks of exposure in an hypothetical context of malaria reemergence Camargue (France)

A socio-anthropological approach

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Research linked with :

- Eden Malaria programme
- WP 3 : Public health and human activities
- One of the objectives :

To evaluate the impact of public health activities, human movements (and parasite importation), and human activities.

This study

- Located in Camargue'site (South of France)
- Is at its beginning
- Could be useful for the other sites of Eden Malaria



Three questions :

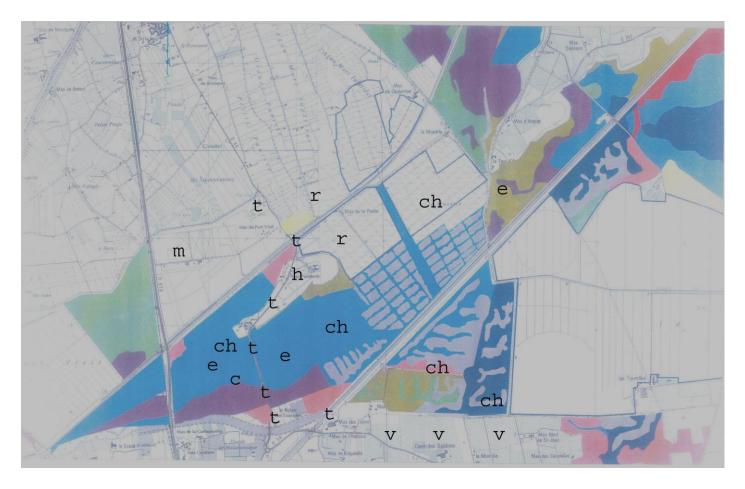
- which human activities can be linked with exposition to mosquito bites?
- which kind of population (residents/migrants) could be linked with the risk of reemergence?
- how importated or authochtonous cases are «managed» by health personnel and patients?

1. Activities and exposure to mosquito bites

Methodology

- To list all human activities in the research zone
- To determine the distribution in time and space of these activities
- To estimate the number of residents and persons passing trhough the zone throughout the different months of the year
- To collect the discourse of the actors on how they protect themselves against the mosquitoes.

1.1. Activities in the research zone



 $\mathbf{c} = \text{reed cutting } ; \mathbf{ch} = \text{hunting } ; \mathbf{e} = \text{cattle breeding (bulls and horses)}$ $\mathbf{h} = \text{horticulture } ; \mathbf{m} = \text{gardening } ; \mathbf{r} = \text{rice farming } ; \mathbf{t} = \text{tourism } ; \mathbf{v} = \text{wine-growing}$

1.2. Schedules of activities

	Summer	Winter		All the year
Agricultural Activities			Leisure Activities	
Horticulture	6 am-1 pm	8 am-2 pm	Guided tours	9 am-6 pm
Wine growing	6 am-10 pm	8 am-6 pm	Hunting	6 am-8 pm
Gardening	6 am-2 pm	8 am-2 pm		
Rice farming	9 am-7 pm	10 am-6 pm		
Cattle breeding	7 am-7 pm	8 am-6 pm		
Reed cutting	7 am-7 pm	8 am-6 pm		

Most exposed activities: rice farming, wine-growing, reed cutting, cattle breeding

1.3. Residents and persons passing trhough the zone

	« Low » season	« High » season	
Residents	200		
Permanent workers	105		
Seasonal workers	11 (jan-feb)	106 (may-june)	
Tourists	(nov-feb)	2840 (jul-aug)	
Fishermen/hunters	0 (march-jul)	400 (aug-feb)	

- Sesonal workers seem to come from the neighborhood (to verify)
- •Fishermen and hunters could be the most exposed (considering the season and the schedule of their activities)
- Tourists are exposed, less because their schedule than their inapropriate preventive attitudes

1.4. Protection against mosquito bites

The discourses reveals an opposition between « us » and « them ».

- Us » = residents, people who do not mind mosquitoes
- Them » = foreigners, tourists, people who adopt inapropriate attitudes, fears mosquitoes, claiming a more intensive fight measures against mosquitoes

Preventive attitudes facing mosquito bites is also a question of identity

2. Population movements

- Migration from countries where malaria is present is one of the main issue
- A lot of migrants in the south of France come from Northern and Subsaharan Africa.

Questions, in the perspective of reemergence of malaria are:

- •Who are the migrants and which countries they come from?
- •What kind of activities do they have?
- Where do they live ?

2. Population movements

An exemple of non « at-risk » [of reemergence] people : the Comorian population

- Comorian population is one of the most numerous migrant community in Marseilles
- One of the most often infected people by malaria (> 60% patients hospitalised for malaria in Hopital Nord in Marseilles)
- Resident Comorian people use to go to the Comoros for hollidays, with their children if they can

But

They live in town and their activities are in town

2. Population movements

Looking for « at risk » migrant population

- The variables we need :
 - The country they come from
 - Their residence place
 - Their activities
- The difficulties to collect the information :
 - Not always available in medical data
 - Very disseminated
 - The illegal immigration
 - Fear of employers (seasonal workers)

3. «Management» of malaria attack and prevention

- Malaria notified cases could be interesting for two reasons :
 - Considering the « snow ball » methodology, it could lead to identify groups (patient's family) exposed to malaria but not ill.
 - Patients are not always compliant to malaria treatments, especially children; incompleted treatment, and so far inefficient treatment, are not rare. Could this patients be « at risk » of transmission?

To go ahead with these questions should require microapproach

Conclusion

- Three questions :
 - Relationships between human activities and adequate « milieu » for transmission
 - Populations movements, migrations, and risk of transmission
 - Declaration and treatment of malaria
- These questions must be explored for other sites by social scientists ("not entomologists", Didier's remark)?