

Urban malaria in Brazzaville: Local heterogeneity and global challenges

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Geography
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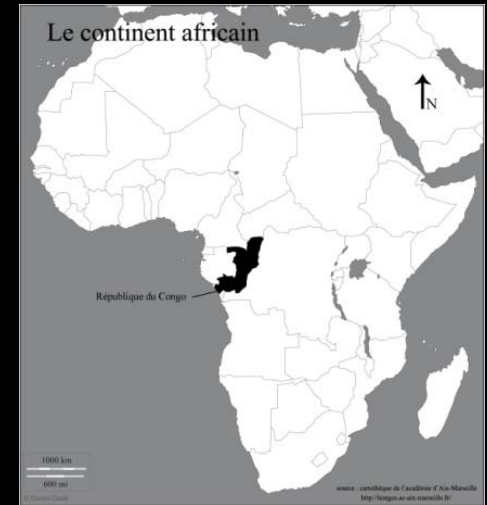


June 10-11, 2010

Research context

The interests of a Brazzaville' study :

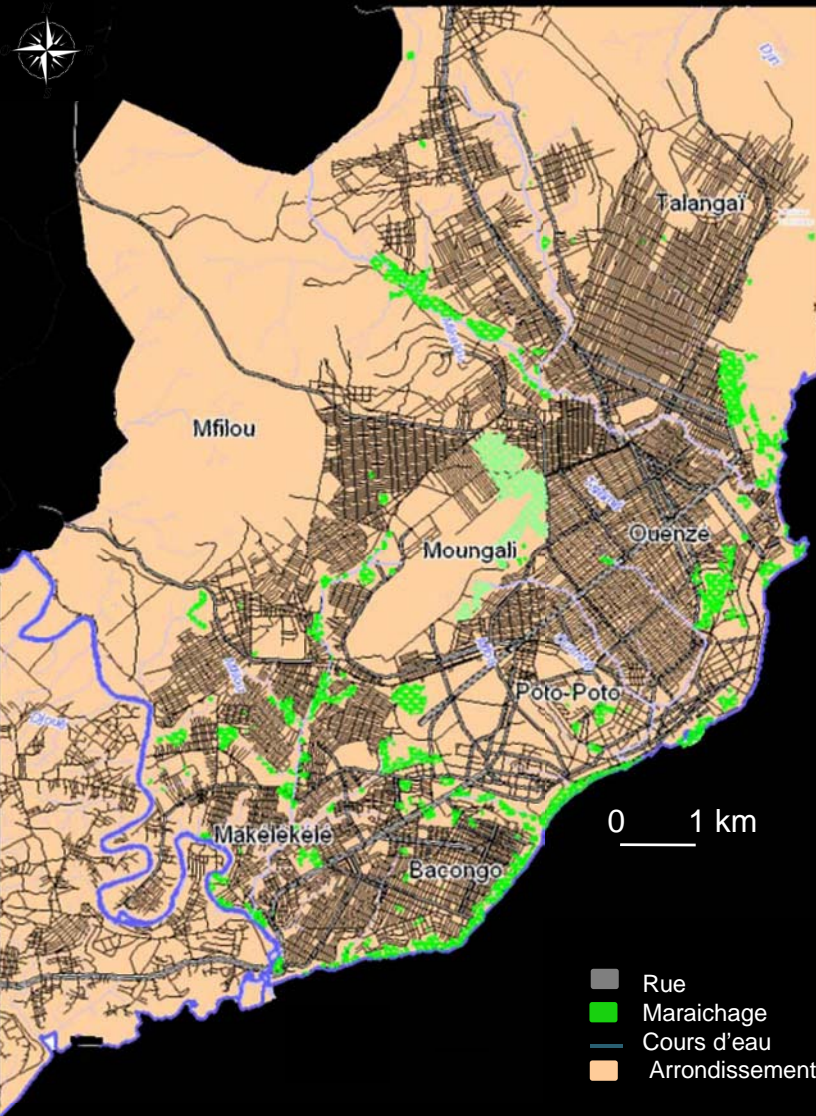
- ▣ an holoendemic area
- ▣ A country in reconstruction after 12 years of civil war.
(So the most laboratories have gone back in the nineties)



The goals :

- ▣ To consider and to update researches about malaria in an urban setting like Brazzaville taking into account the evolution of the city and the evolution of the pathogen complex

General Problematic



Which are the factors responsible for the geographic distribution of malarial risk in Brazzaville?

Projection WGS84 UTM 33 SUD

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« Brazza-la-verte »

Methodological approach

Landscape
analysis

Questionnaire
survey

Interviews with
public health actors

Entomological
survey



*Orthophotos 2006, 1 000ème, dalle 530 860 et 530 920.
WGS 84 UTM 33S*

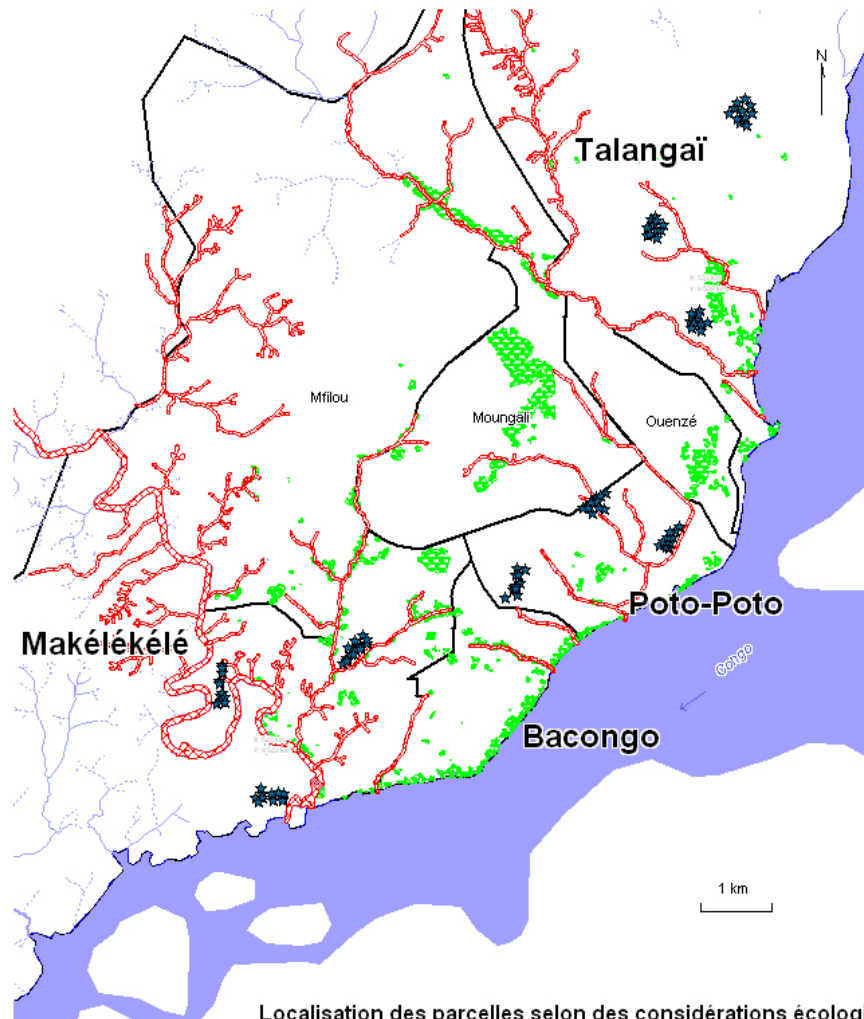
Population survey

Targets: To evaluate population behavior about malaria consideration (preventive and curative family behaviors).

Method of survey : Survey carried out by giving one questionnaire to each of the 100 households.

Location : 100 investigated parcels in 9 districts of Brazzaville. The investigated zones were delimited by environmental perimeters. (spatial stratification method)

Location of investigated parcels



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Localisation des parcelles selon des considérations écologiques :

★ Parcelle enquêtée

Découpages administratifs

— Arrondissement

Ecologie du vecteur

 berges de cours d'eau

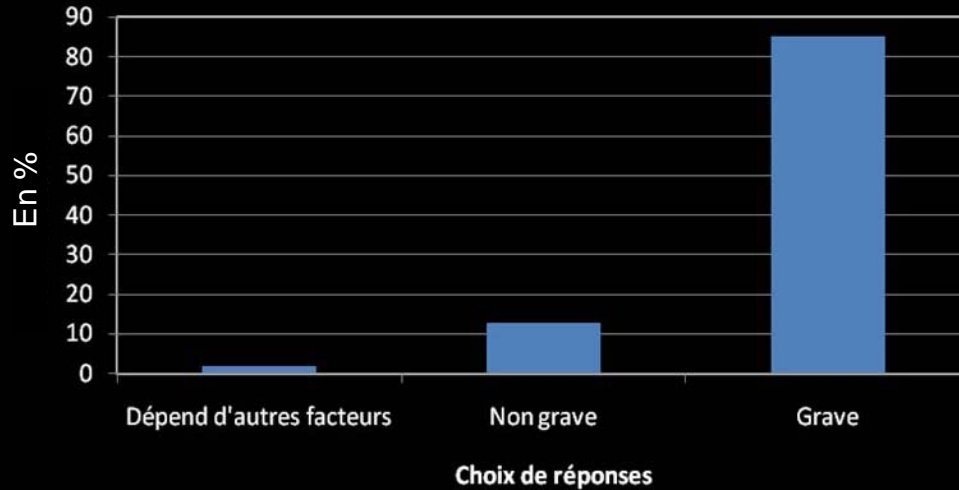
 Maraichages

Source : Cours d'eau à partir des orthophotos 2006 MAPS-DGGT
Couche vecteur des berges de cours d'eau et des zones de maraichages
à partir des orthophotos 2006 Université de Provence - LPED
Limites administratives du ministère de l'intérieur congolais 2002.

Projection : WGS84 - UTM 33 Sud

Descriptive statistics

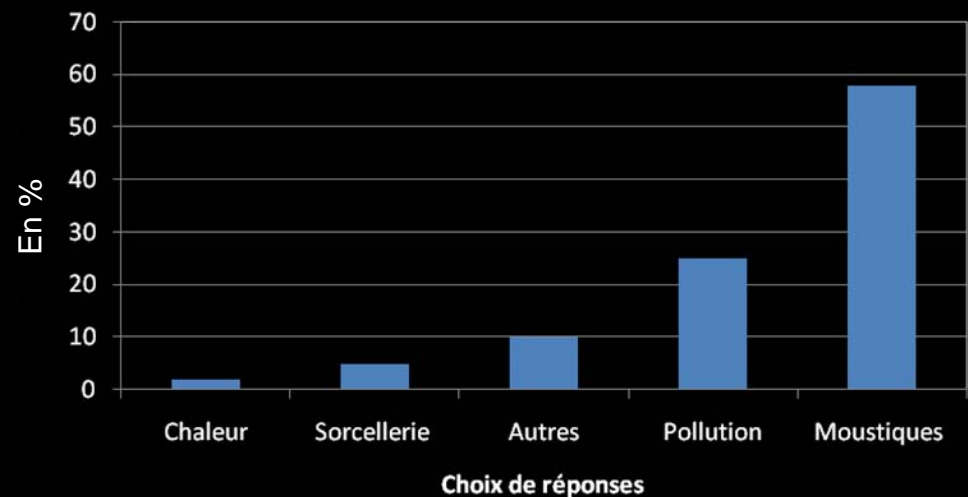
Representation of the disease



Most of the population of Brazzaville is concerned by Malaria and 85% considers it as a serious disease.

However, their ignorance about the disease involves risk behaviors and an adoption of wrong measures of prevention.

Malaria causes

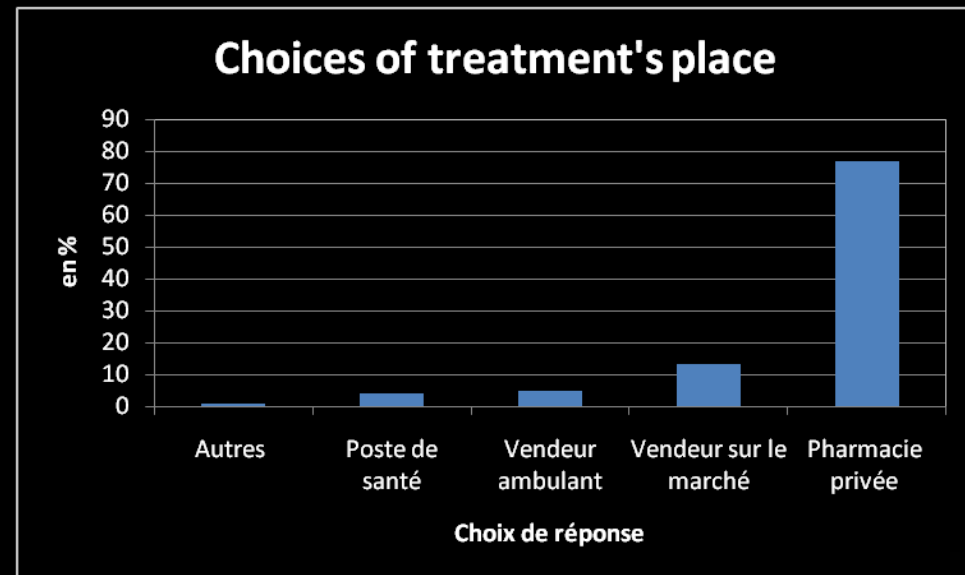


Descriptive statistics

M212 : Do you know about a program giving free care to children from 0 to 15 years and to pregnant women?

		NB		%	
		Informés	Non informés	Informés	Non Informés
Talangai		11	22	33	66
	Q65	5	6		
	Q65	4	7		
	Q67	2	9		
Poto-Poto		7	26	21	79
	Gare Centrale	1	10		
	Q35	2	9		
	CHU	4	7		
Makélékélé		6	27	18	82
	16B	2	9		
	Mafouta	2	9		
	Château d'eau	2	9		
Total		24	75	24	76

M305 : Where do you usually buy your medication?



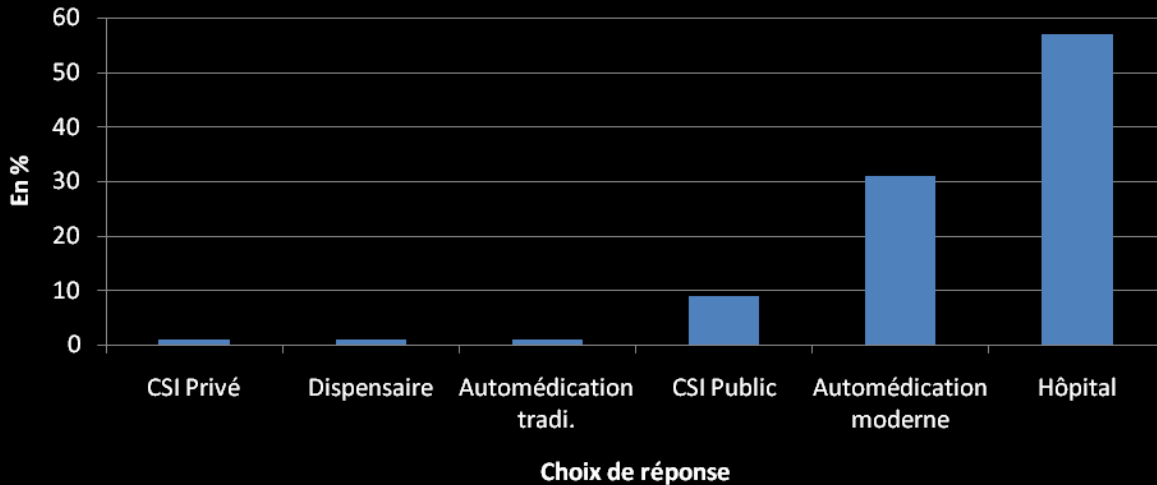
Descriptive statistics

M210 : What do you do in case of fever?

		1	2	3	4	5	6	7
M210		Hopital	CSI Public	CSI privé	Dispensaire	Guerisseur	Automédication Traditionnelle	Automédication Moderne
Arrondissement	Quartier							
Talangaï		69	16	1	2	0	0	25
	Q65	26	3	1	0	0	0	18
	Q68	14	7	0	2	0	0	7
	Q67	29	6	0	0	0	0	1
Poto-Poto		50	6	2	0	0	1	29
	Gare centrale	16	0	2	0	0	0	4
	CHU	20	2	0	0	0	1	8
	Q35	14	4	0	0	0	0	17
Makélékélé		45	5	0	0	0	3	36
	16B	9	5	0	0	0	0	10
	Mafouta	23	0	0	0	0	3	14
	Château d'eau	13	0	0	0	0	0	12
Brazzaville		164	27	3	2	0	4	91

A third of the inhabitants investigated use modern self-medication.

Choices of treatment's place



Moreover the ignorance of the appropriate treatments increases the danger of this phenomenon

Three other surveys (one of which was entomological) have been linked with the previous data.

Evaluate the malaria transmission

Entomological prospection

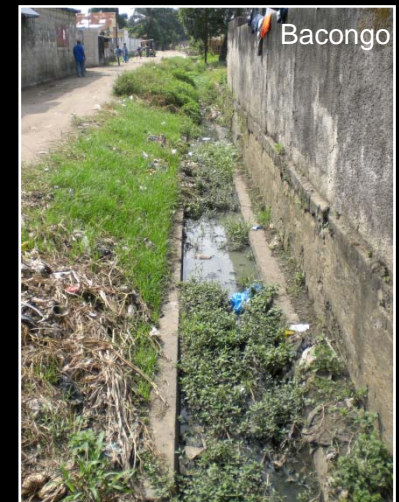
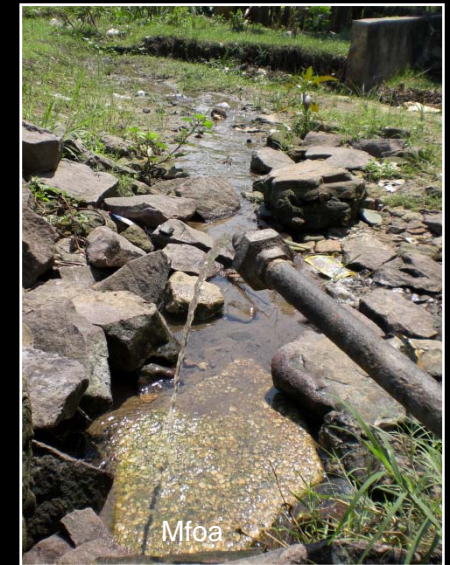
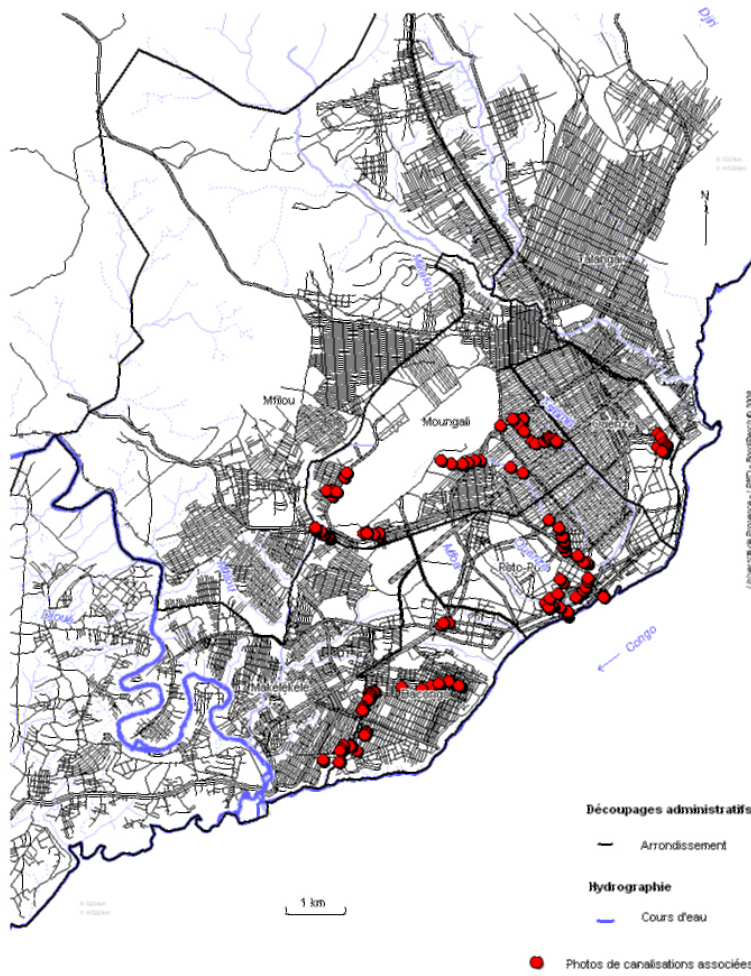
Targets : Recognition and measure of the potentiality of the meeting between man and vectors zones

Survey method : Larval prospecting by the technique of the deeping (taking made in the ladle) to measure the productivity of breedings.

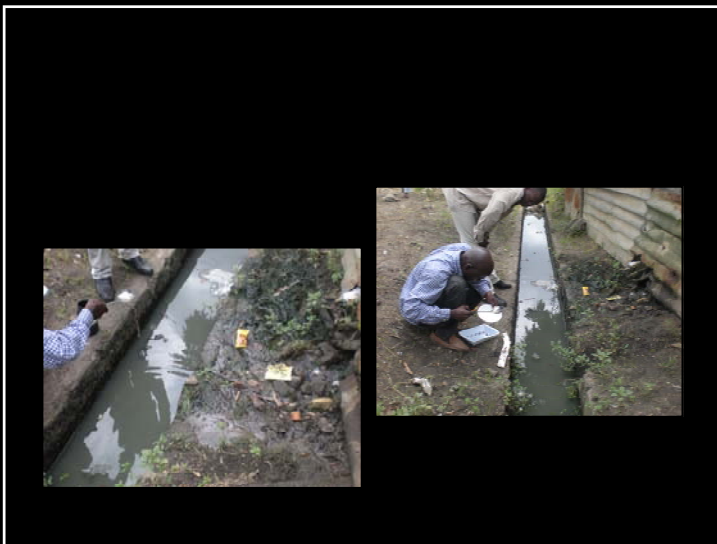
Location : Prospecting 20 areas in 6 districts (Makélékélé, Bacongo, Mfilou, Poto-Poto, MOUNGALI et Talangai).

Gutters and pipes in Brazzaville

Base photographique sur l'état des canalisations dans le centre de Brazzaville



To link the different surveys



INFORMATION COLLECTED DURING THE QUESTIONNAIRE SURVEY

Q35 is the only district where mosquito is not the main answer to the question about malaria causes

7 households out of 11 answered that pollution was the cause of the disease

The significant insalubrity in this district seems to influence the answers.

The district 35 of Poto Poto

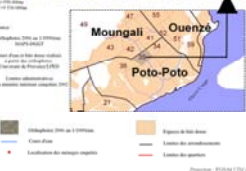


Tableau croisé dynamique

M304: causes du paludisme	M303: quartiers de résidence des ménages enquêtés										Total général
	16B	Château d'eau	CH	Gare centrale	Maifouta	Q35	Q65	Q67	Q68		
1. Moustiques	7	8	7	9	7	4	3	5	2		62
2. Pluies			1		1				1		3
3. Chaleur	1				1						2
4. Pollution	2		2	2	1	1	3	5	3		20
6. Autres	1		3		1			1			6
Total général	11	11	11	11	11	11	11	11	11		92

Between risk perception and potential risk

Larval prospectings

Description

Gutter close to the road filled by rainwater and waste water from the parcels around.

Habitat of high density,

Results

Number of ladles : 9 or 720 ml of water

28 larvas found or 3 larvas/ladle



*Prospecting in the urban area ,
in the gutter.*

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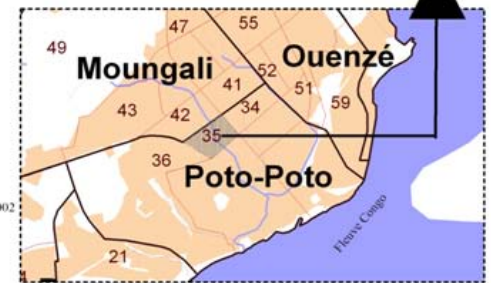
X=550 000m
Y=9 530 000m

Source :

Orthophotos 2006 au 1/1000ème
MAPS-DGGT

Cours d'eau et bâti dense réalisés
à partir des orthophotos
Université de Provence/LPED

Limites administratives
du ministre intérieur congolais 2002



Projection : WGS-84 UTM 33 Sud

Tableau croisé dynamique

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3. Chaleur	1				1					2
4. Pollution	2		3	2	1	7	3	5	3	26
6. Autres	1	3			1			1		6
Total général	11	11	11	11	11	11	11	11	11	99

Conclusion and outlooks

Controlling the heterogeneity due to micro larval breeding

Considering the risk in the South countries



Measuring the risk

- to link the data and to measure of exposition rate

THANKS FOR YOUR ATTENTION



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