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Local perceptions and endogenous technologies of *Carapa procera* oil production in Mali



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Outline of presentation

I. INTRODUCTION

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INTRODUCTION

- ❑ Role of wild tree species in the socio-economic life of rural populations: food, therapeutic, energy needs, etc.
- ❑ Oil tree species: potential value to increase and diversify the livelihoods
- ❑ *Carapa procera*: forest fruit species with high income in southern Mali (FAO, 1996) and multi-use values
- ❑ Oil extracted from seeds of *Carapa procera* is highly sought and used:
 - therapeutic,
 - cosmetic,
 - veterinary,
 - Insecticide and repellent properties

STUDY OBJECTIVES

- ❖ **Contribute to the understanding of local knowledge of *Carapa procera* oil production and related local perceptions**
 - Identify traditional technologies of *Carapa procera* oil production
 - Document the socio-cultural perceptions on the exploitation of *Carapa procera*.

MATERIALS AND METHODS

❖ Study sites

Region	Agro-ecological zone	Village	Majority ethnic group
Sikasso	South soudanian	Kountjila	Fulani
		Mourasso	Senufo
		Ziékorodougou	Senufo
Koulikoro	North soudanian	Koumabougou	Fulani

MATERIALS AND METHODS

❖ Qualitative and quantitative approaches

□ Socio-economic surveys

- Semi-structured questionnaire
- Individual interviews
- 30 operators / site

□ Tests of oil production

- 2-3 processors / site
- Monitoring of activities and participant observations

❖ Processing and data analysis

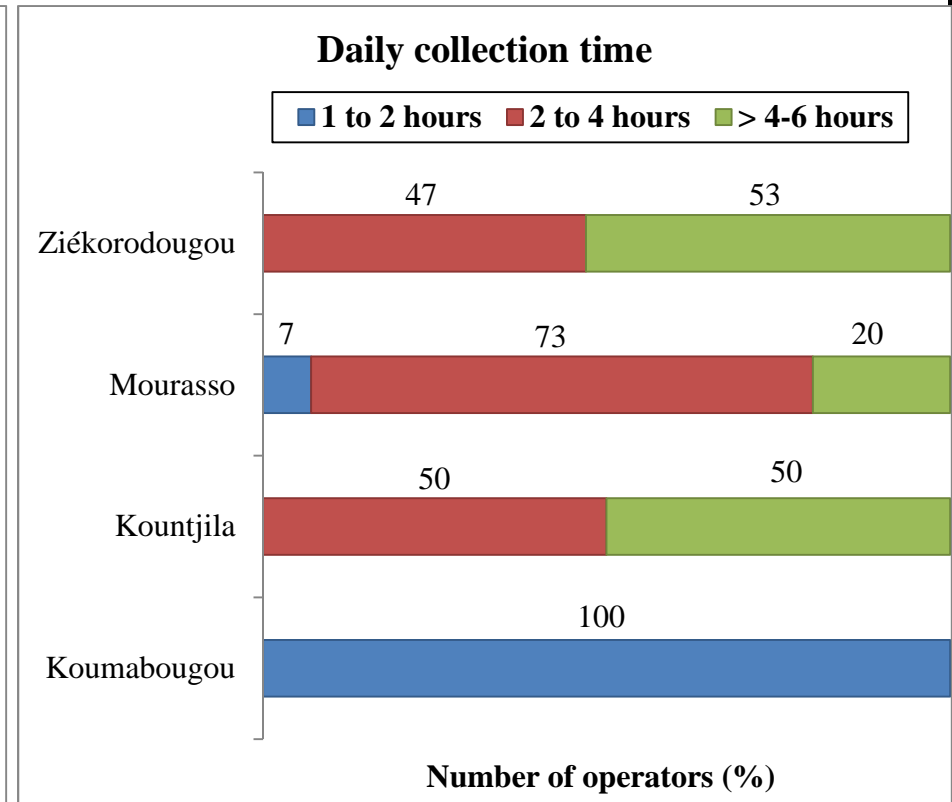
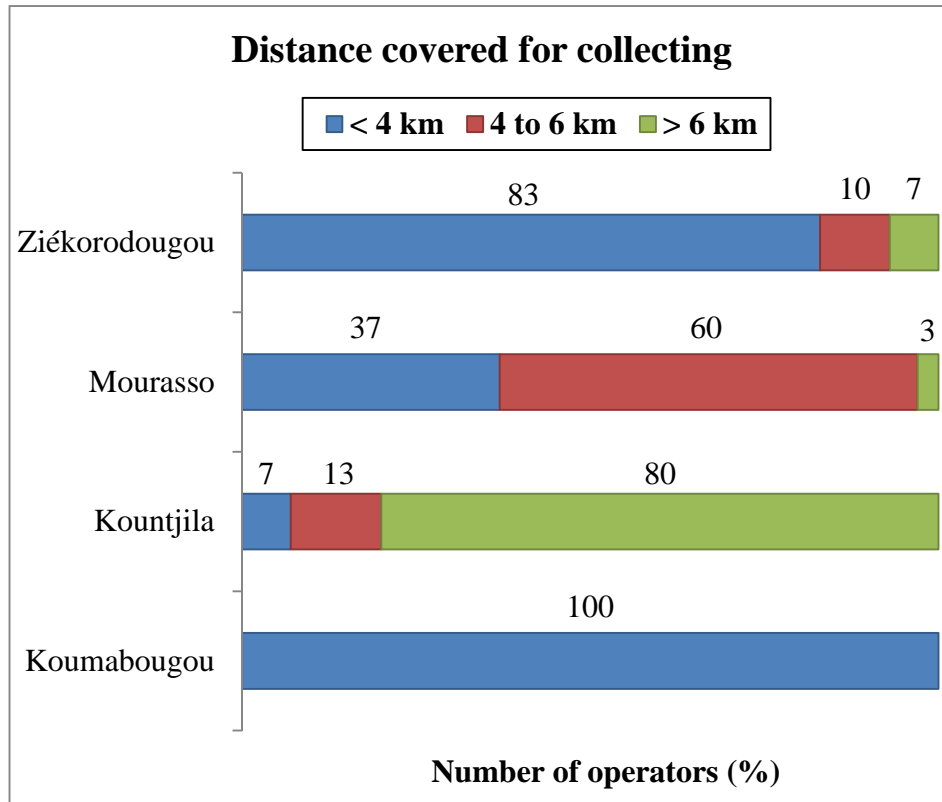
- Qualitative analysis
- Descriptive statistics through SPSS.18 and Excel
- Yield of extraction, $R_{ex} = \frac{Q_{Hex}}{Q_{Atr}} \times 100$, (Q_{Hex} : quantity of oil obtained; Q_{Atr} : quantity of almonds transformed)

RESULTS

❖ Characteristic of actors

Characteristic of actors	Study sites			
	Koumabougou	Kountjila	Mourasso	Ziékorodougou
Sex (%)				
Women	100	100	100	100
Education (%)				
Illiterate	67	40	83	70
Primary school	10	-	7	-
Coranic/arabic school	10	-	3	10
Literacy rate	13	60	7	20
Marital status (%)				
Married	77	93	90	100
Widow	23	7	10	-
Age (in years)				
Mean	48±2	46±2	51±3	42±2
Min.	28	30	20	29
Max.	80	75	79	63
Experience of <i>Carapa procera</i> (in years)				
Mean	25±2	12±2	21±3	23±2

❖ Collecting nuts

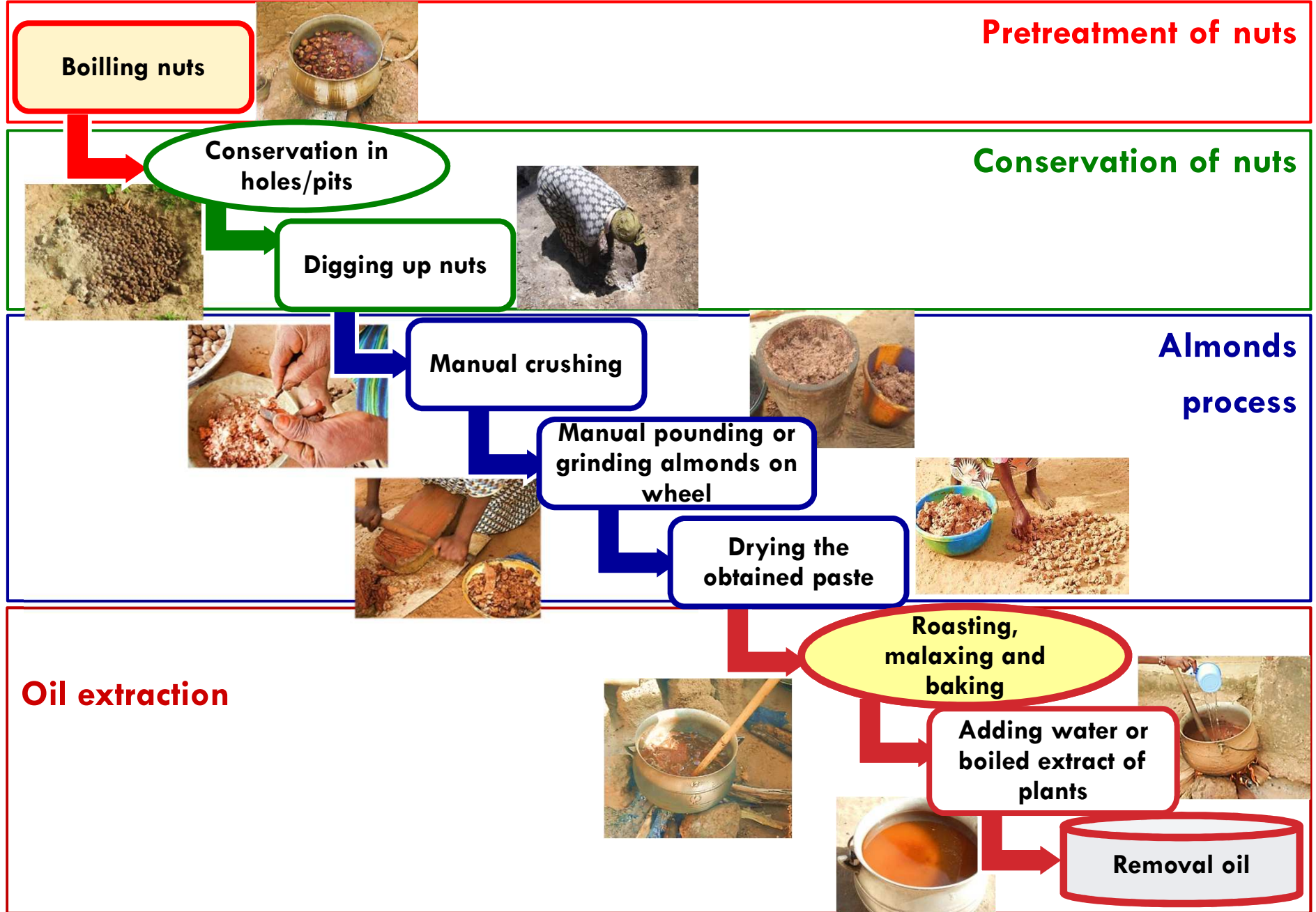


Average of quantity of nuts collected per day: $9,3 \pm 0,7$ kg (in Kountjila)

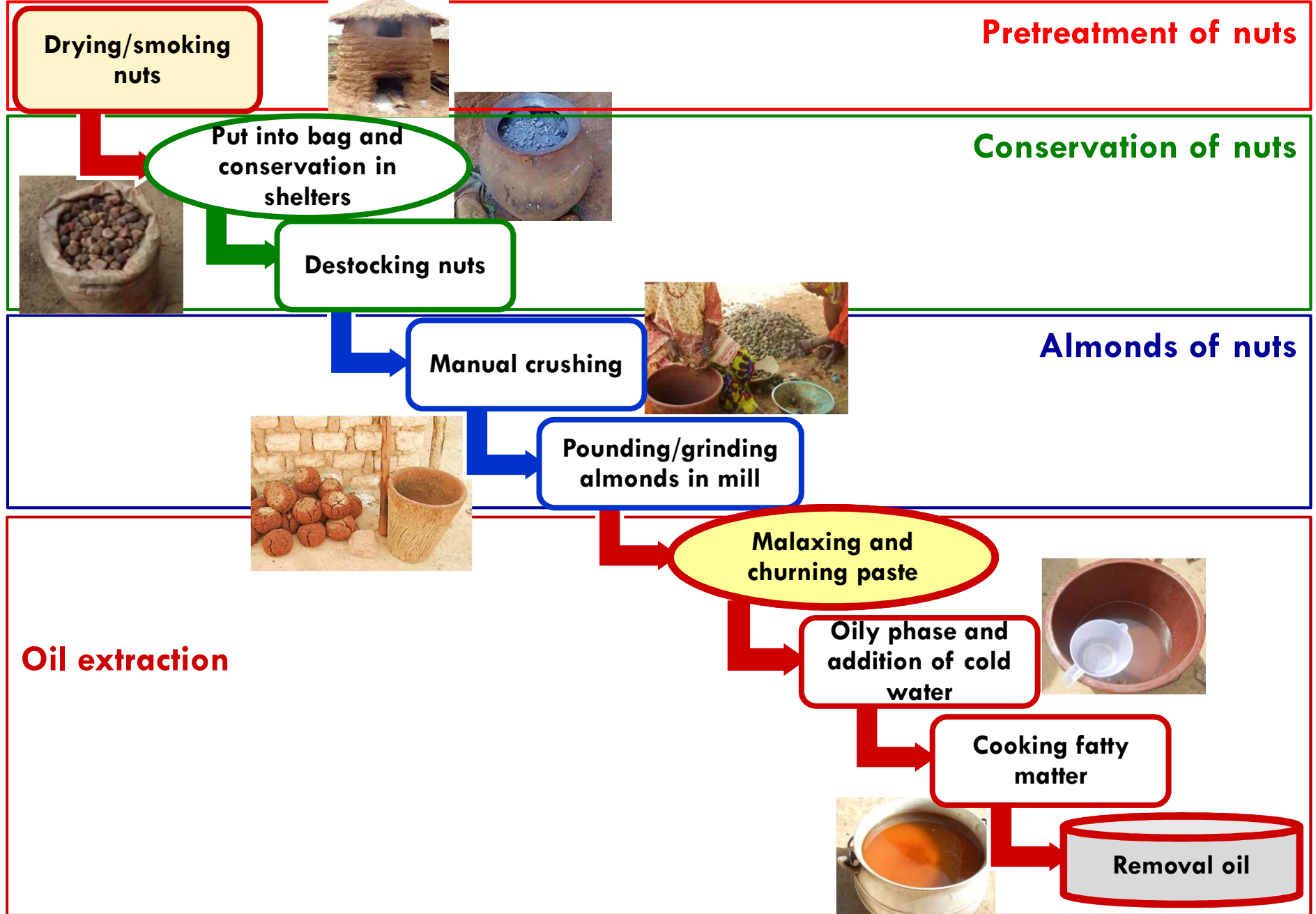
❖ Constraints in collecting nuts

- Decrease populations of *Carapa procera* and remoteness of collection sites
 - Hence, increasingly large distances to be covered for collecting nuts
- Increased number of women operators
- Some collection sites are hardly accessible (leafy vegetation, thorny shrubs, reptiles, etc.)
- A certain quantity of nuts are washed away.

❖ Method of extracting oil by dry process



❖ Method of extracting oil by wet process



❖ Yield of oil extraction

Study sites	Yield of extraction (%)		
	Mean	Min.	Max.
Koumabougou	21.1 ± 1.0	19.8	23.3
Kountjila	25.2 ± 0.8	24.4	26.1
Mourasso	24.7 ± 0.9	23.8	25.7
Ziékorodougou	22.4 ± 1.5	19.6	26.0
Overall average	23.01 ± 1.0	19.6	26.1

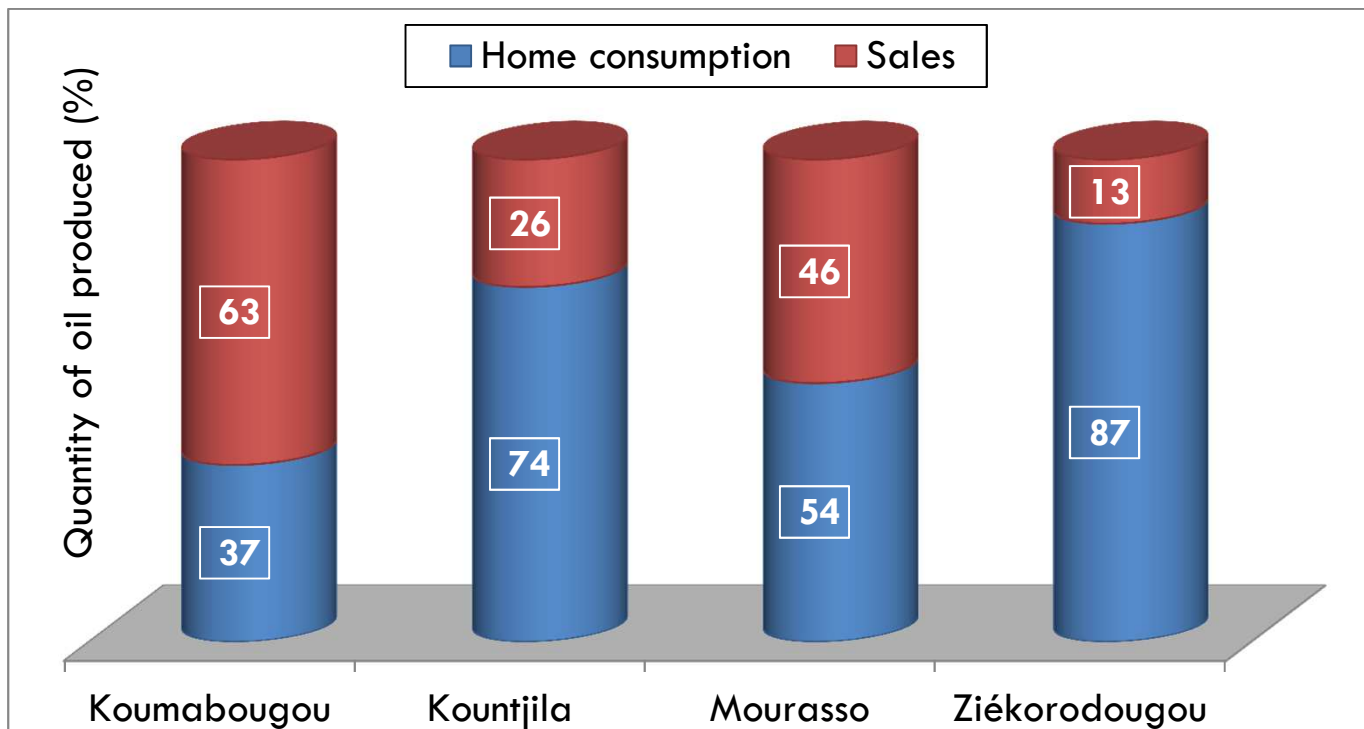
Processors has explained the yield of extraction trough some parameters as:

- maturity of nuts
- storage conditions
- extraction method
- know-how of the processor related to sociocultural aspects.

❖ Oil production and sales in 2012

Study sites	Oil produced/processor, 2012, (litre)			Total
	Mean	Min.	Max.	
Koumabougou	5	1.5	11	145.5
Kountjila	12	3	40	365.5
Mourasso	4	2	10	112.5
Ziékorodougou	16	4	30	478

Study sites	Sale price of oil, (FCFA/litre)		
	Mean	Min.	Max.
Koumabougou	1 733	1 500	1 750
Kountjila	1 500	1 500	1 500
Mourasso	2 438	1 500	2 500
Ziékorodougou	1 750	1 250	2 500



An overall average of 37% sales and 63% home consumption transformed into soap.

❖ Constraints of transformation

- Traditional processing methods: duration and arduous process
- Manuel crushing
- Lack of appropriate equipment
- Problem of product quality.

❖ Constraints of marketing

- Lack of organization in marketing
- Lack of adequate market
- Lack of product promotion

❖ Sociocultural perceptions related to *Carapa procera*

The exploitation of *Carapa procera* nuts has certain sociocultural considerations related to magico-mystical specificities:

- Do not steal or cheat during collection otherwise the nuts do not produce oil
- Preserve nuts away from the urines
- Avoid the collection and processing during periods of menstruation for women

❖ Sociocultural perceptions related to *Carapa procera*

- Do not be angry and exempt from criticism and reproaches when you want to begin the transformation
- The failure to obtain oil during the processing is often perceived as a sign of bad omens related to the operator or those around him (illness, accident, death, tragic events, etc.).

CONCLUSION

- ✓ *Carapa procera* oil: opportunity for diversification and income generation for women
- ✓ 2 traditional processing methods identified
- ✓ Low yields of extraction
- ✓ Poor sales of a large part of the production transformed into soap
- ✓ Sociocultural considerations.

RECOMMENDATIONS

- ❑ Improve traditional processing technologies following the example of shea butter presses to enhance the yield of oil extraction and the quality
- ❑ Develop strategies for financing the activities of value chain actors and product promotion
- ❑ Improve market organization and linking actors
- ❑ Promote strategies for domestication of *Carapa procera* species to increase production.



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THANK

