

Wood

*An ever present domestic energy
priority for people
in emerging Africa*

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- **Wood energy for people:**
Main drivers and issues
- **Domestic energy for cities:**
Some key strategic factors
- **A case study in Republic of Guinea**
- **Actions to find solutions:**
The Makala project

Wood energy for people in Africa: *Main drivers and issues*



- **Wood resource**

- ✓ Wood energy is 90% of all wood removal from forests and woody ecosystems in Africa
- ✓ Situation vary amongst sub-regions (0.25 to $1 \text{ m}^3/\text{inh.}/\text{year}$)
- ✓ Productivity vary from 0.5 to $10 \text{ m}^3/\text{ha}/\text{year}$ for natural forests and $5\text{-}25 \text{ m}^3/\text{ha}/\text{year}$ for plantations
- ✓ Most resources taken from non managed multiuse forests.
- ✓ Urban and suburban forests provide major (and increasing) part of wood-energy supply
- ✓ Supply comes now from all sources, « fuelwood crisis ? » (forests, trees outside forests, agriculture residues...)



- Wood resource
- **Social drivers**

- ✓ Demography increases by 3-5% per year
- ✓ Urbanization increases
(18 towns more than 1 million in 1970, 70 planned in 2020)
- ✓ Trend from fuelwood to charcoal in cities (distance, money)
- ✓ Major health and gender issue in cities
- ✓ Provider of jobs and income for poorest populations
(jobs x 20 with charcoal compared to fossil fuel)
- ✓ Weak perception of commonweal heritage and future if populations are in precarious, fragile and poverty situation₅



- Wood resource
- Social drivers
- **Economic drivers**

- ✓ One of the most important when compared to others forest products (industrial wood, bush-meat, NWFP,..)
- ✓ Mainly unformal economy and fragmentised supply chain
- ✓ Offer/demand becoming unbalanced and degradation increases, with few effects on prices
- ✓ Shift towards other energies depend on subsidies from governments



- Wood resource
- Social drivers
- Economic drivers
- **Institutional drivers**



- ✓ Confrontation between government and traditional powers
- ✓ Secured land rights and tenure is essential before any long term management perspective
- ✓ Clear governance and effective application of laws and regulations not so common
- ✓ Alternative energies development rely on strong national policies and incentives, but LCA (Life Cycle Analysis) still to be done.

- Wood resource
- Social drivers
- Economic drivers
- Institutional drivers
- **Environmental drivers**

Environmental impacts of wood energy to be appreciated on 2 scales:

- ✓ **Space:** compartment or forest area to landscape and supply area
- ✓ **Time :** short term (supply distances) to long term (climate change)



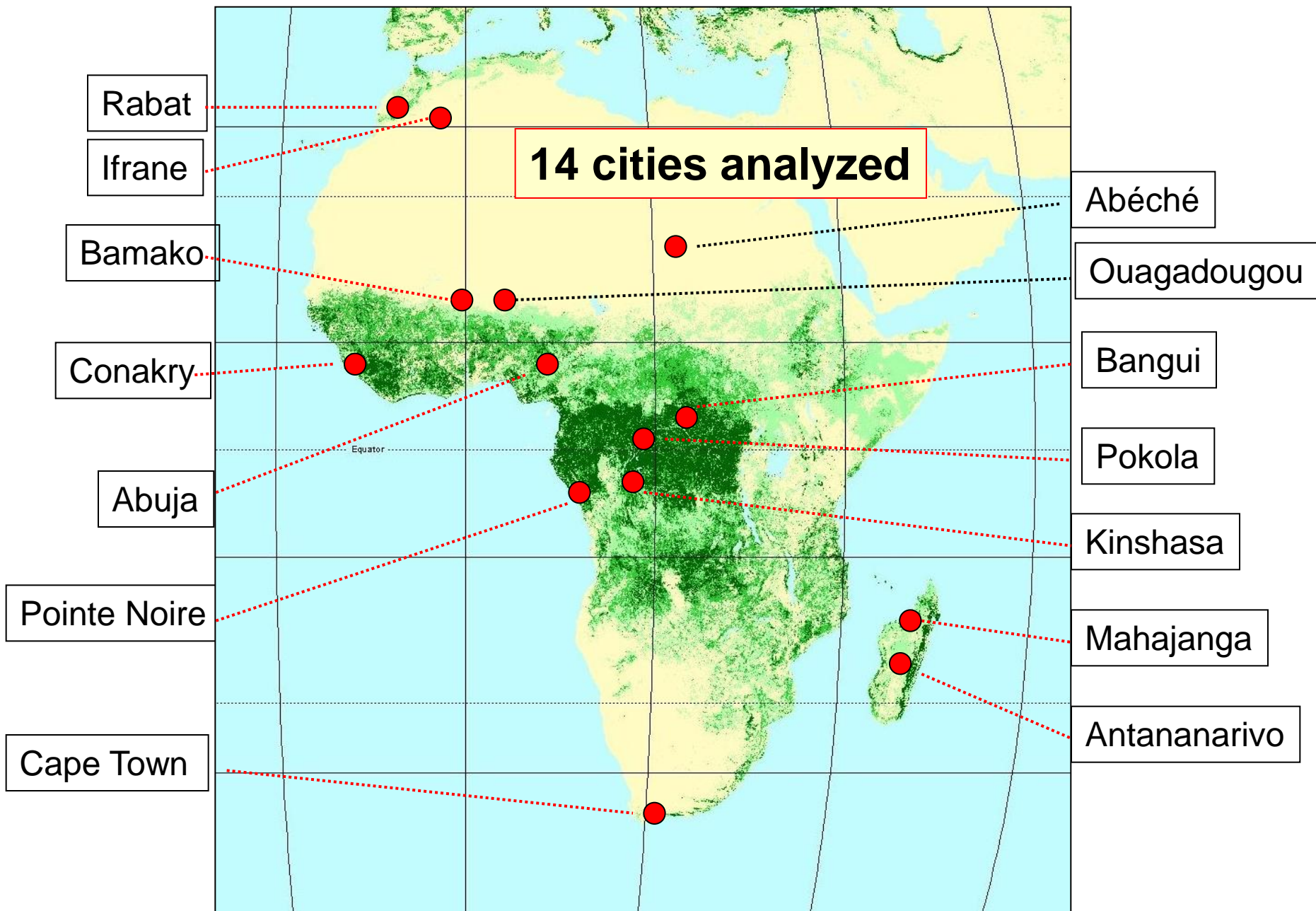
Domestic energy needs in cities: *some key factors*

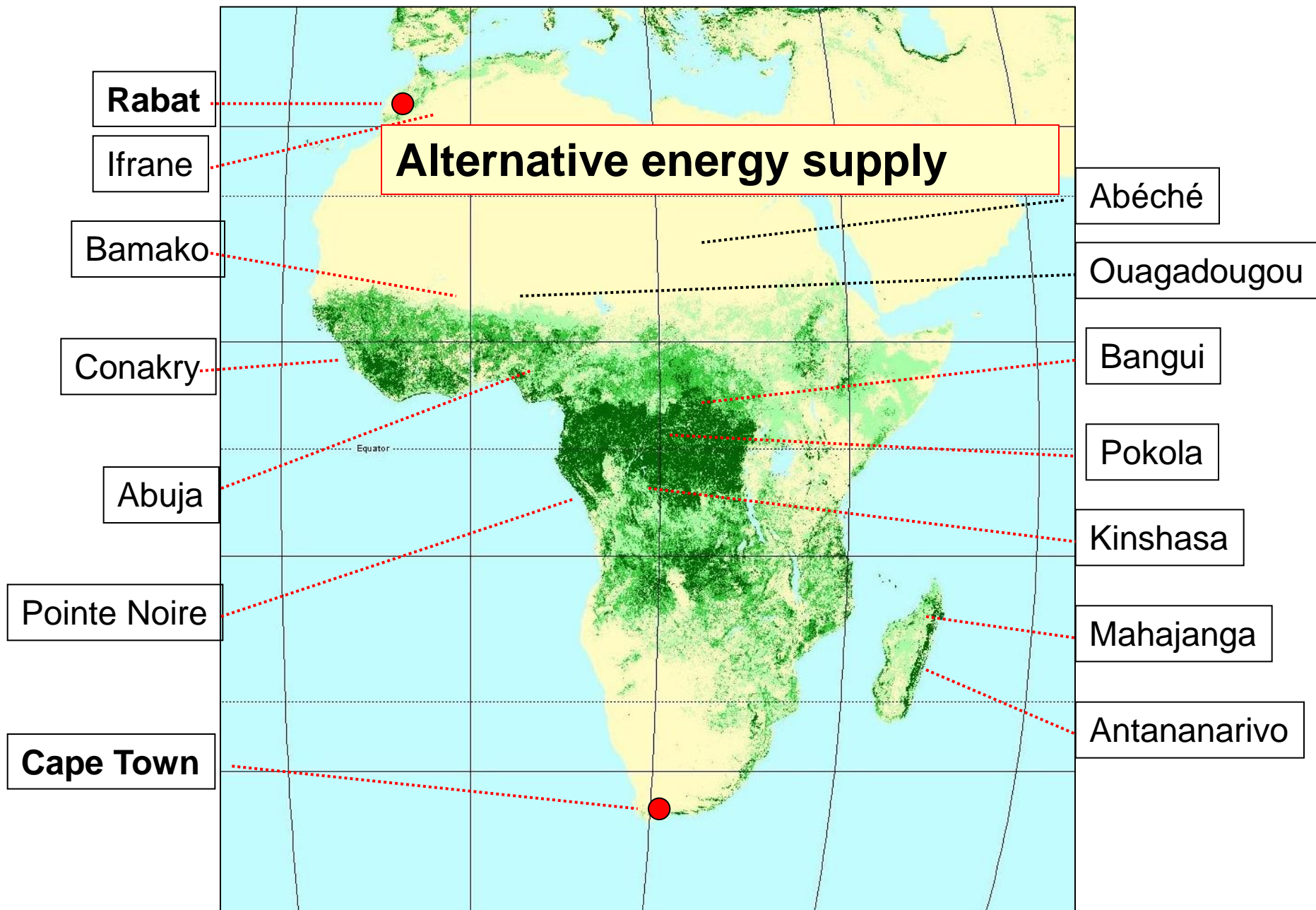
- More than 50% African population, now in urban areas
- But still often with rural approach on domestic energy supply
- Urban domestic energy needs always increase and have huge impacts of forest degradation and deforestation
- Energy supply typology is very different according to various factors

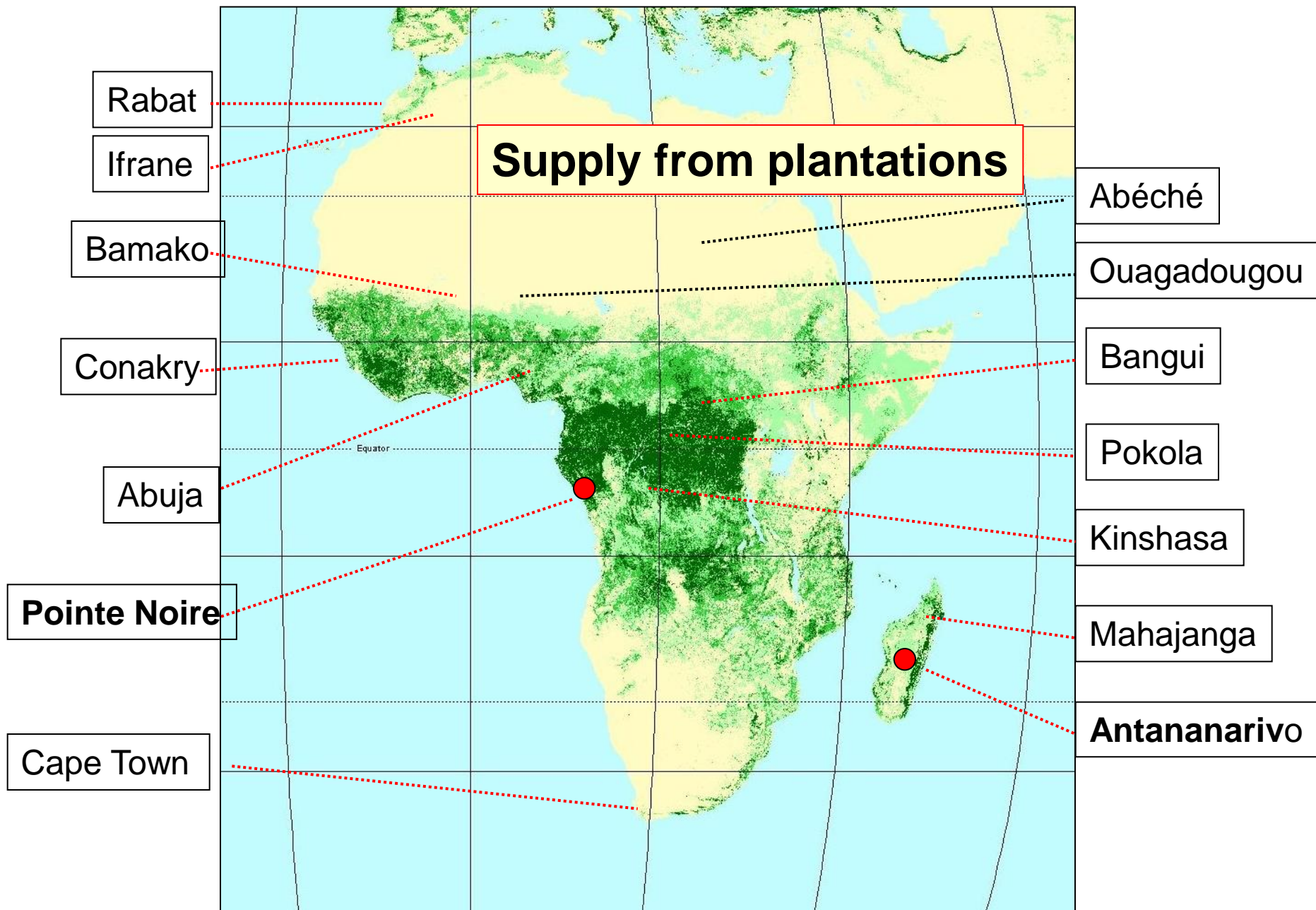


A typology study has been made on 14 African towns

- 8 criteria
- several indicators

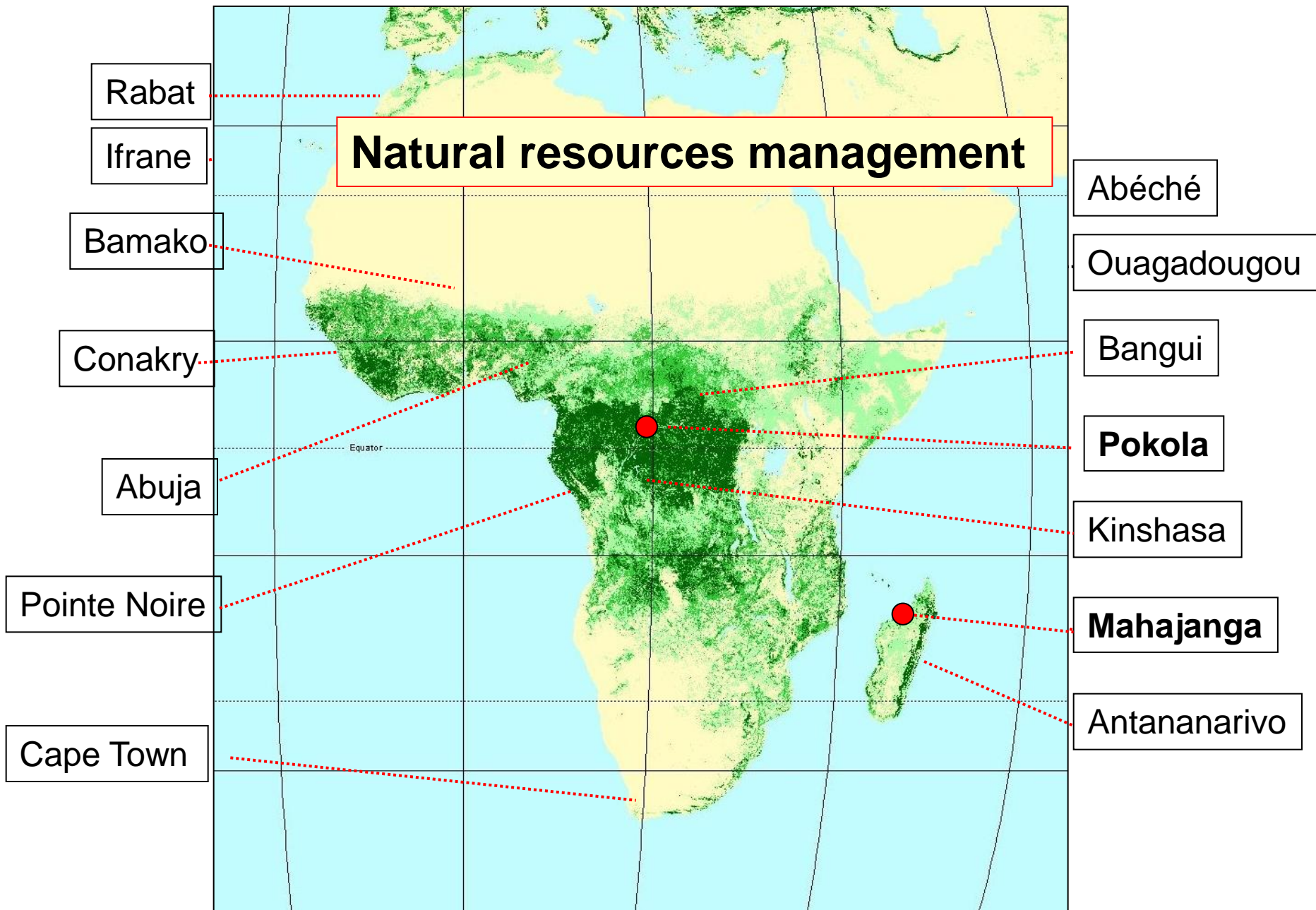


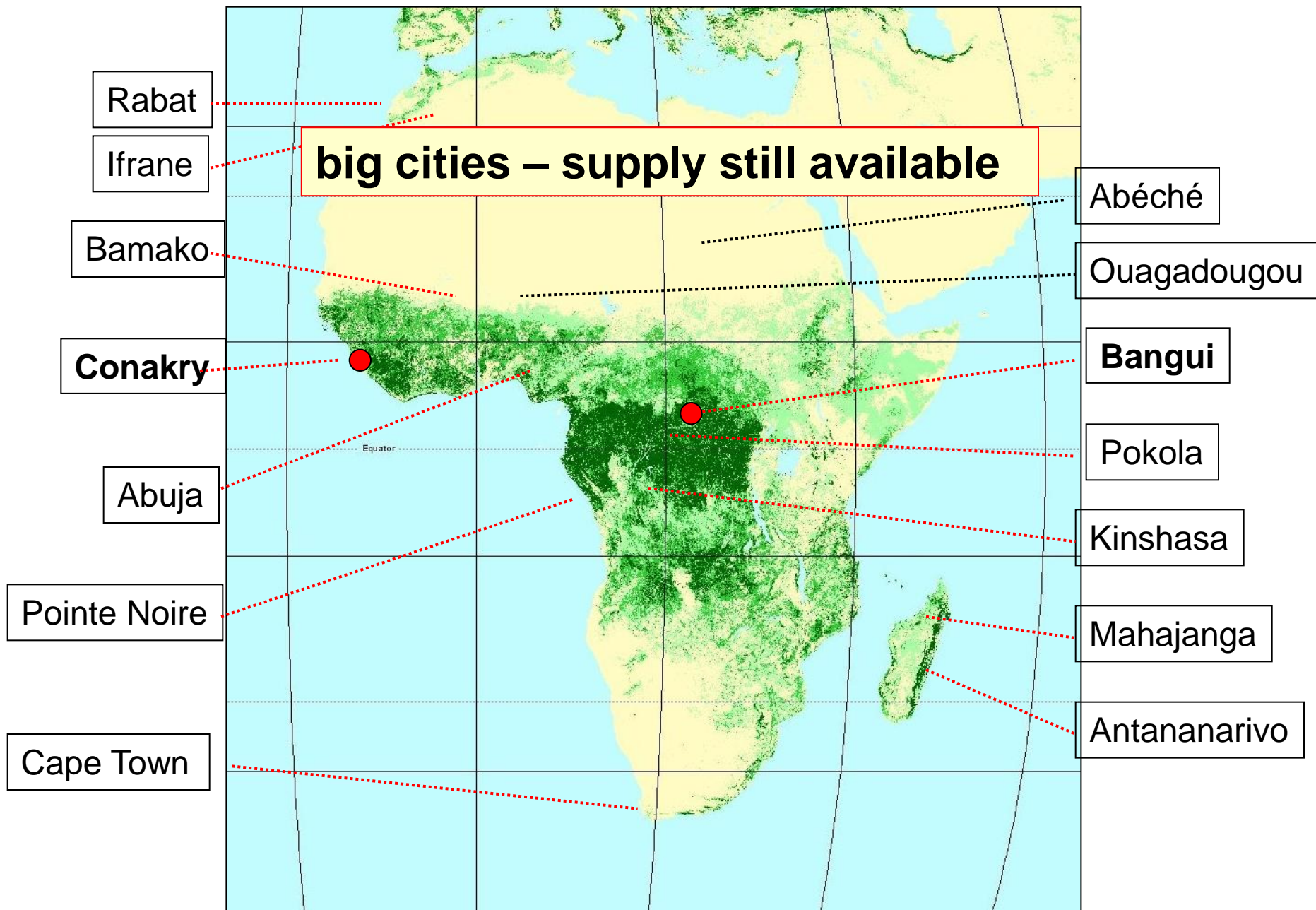


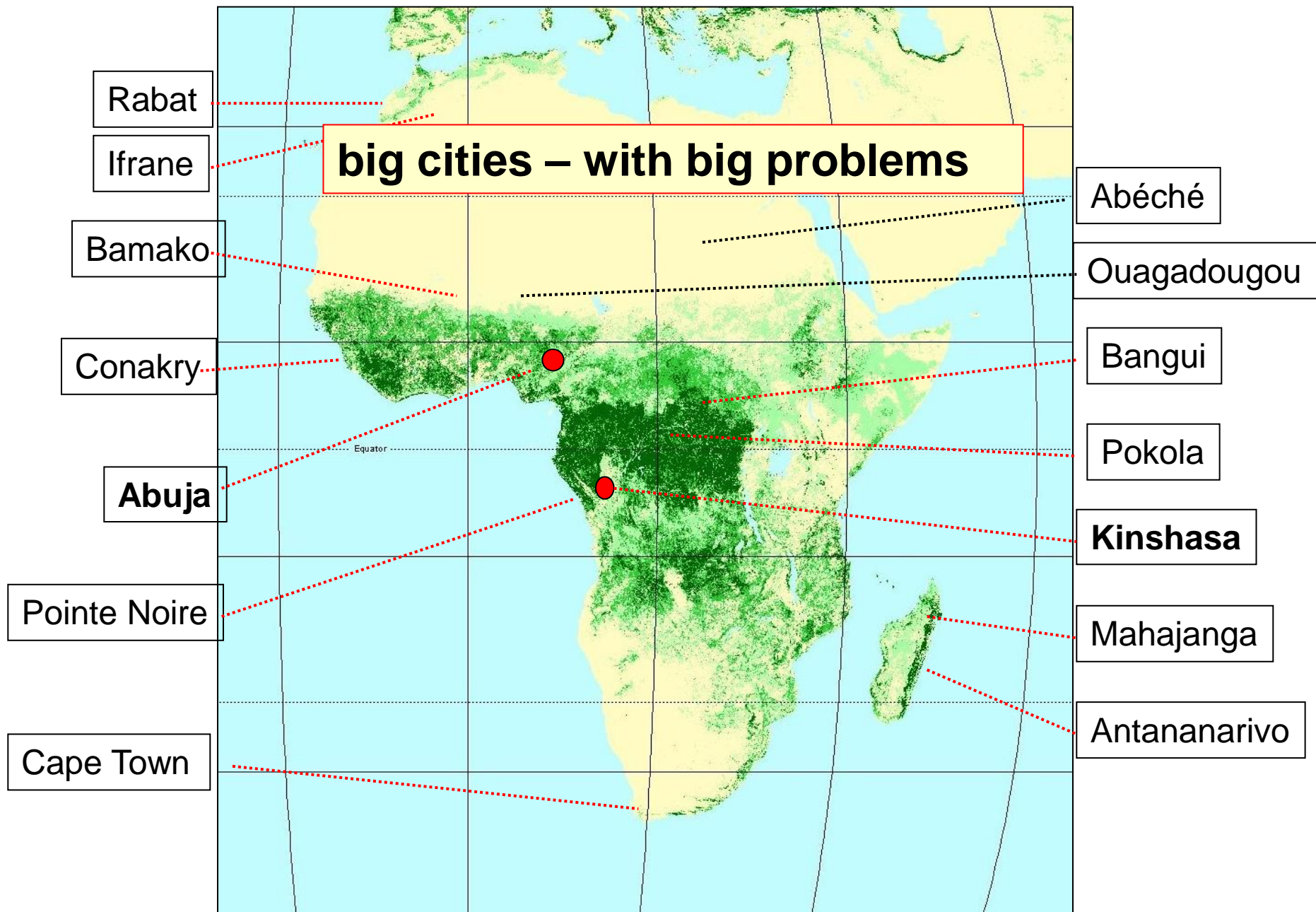


Markets and supply chain organization

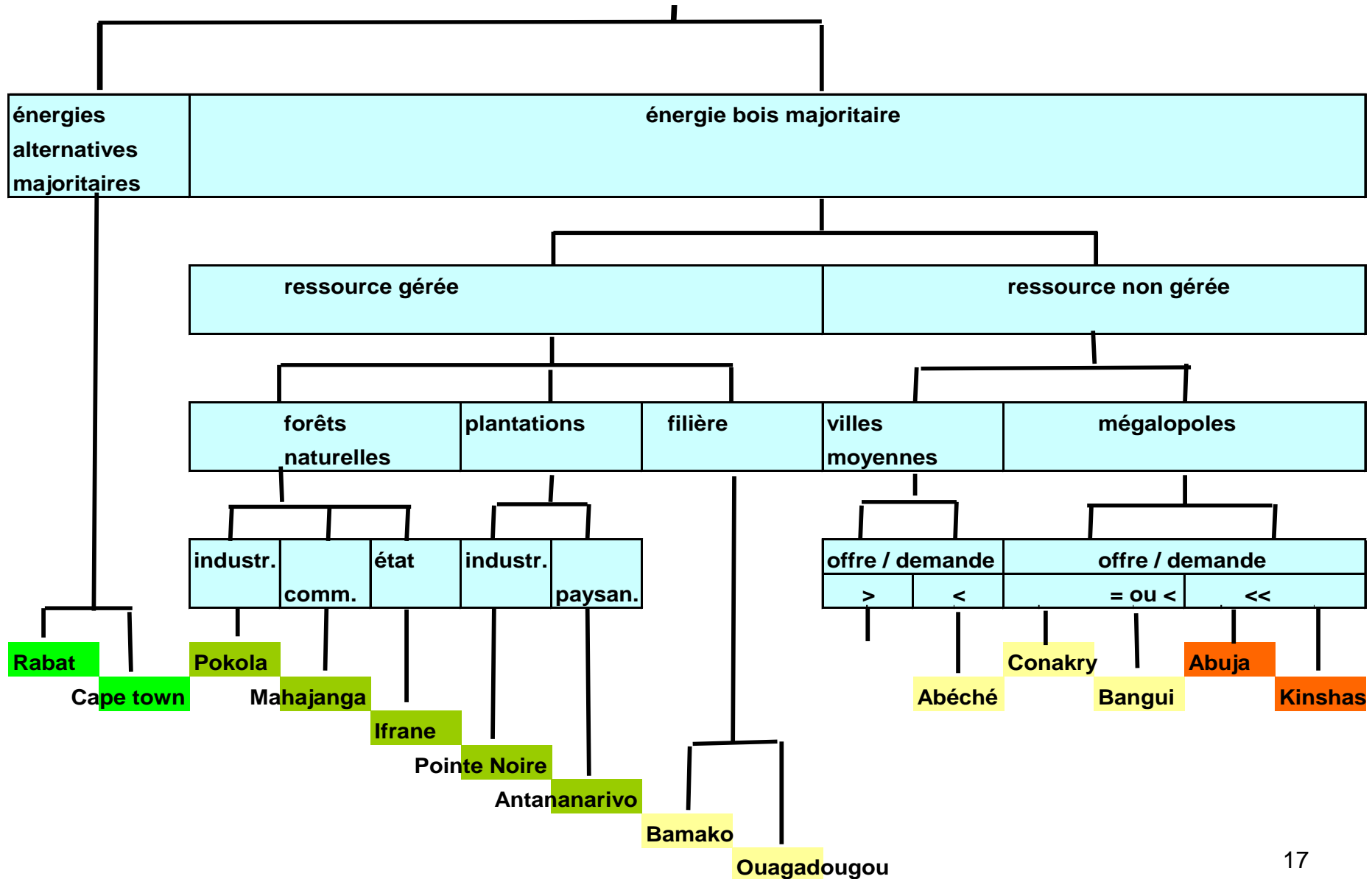








Wood energy supply for the cities: Urban and suburban forests typology



A case study: The Republic of Guinea (Conakry)



An existing institutional and fiscal framework , but not often applied

Forest Code (draft)

Wood energy: wood with a diameter greater than or equal to 10 centimeters, intended for firewood or charcoal

Authorization required or not, according to forestry regime

Collection of taxes and royalties

Operation and movement of WE, without authorization, are offenses

Decree 5019 (September 2016)

Charcoal considered as NWFP

Professional card required

Decree 6009 (September 2016)

Cutting royalties: Firewood 5,000 F / stere

Charcoal 1,000 F / kg

Allocation of revenue

Development fund 50%

Functioning local structure 50%

Contribution determined at the national level (UNCAC 2016)

Mitigation commitments

Technologies and practices

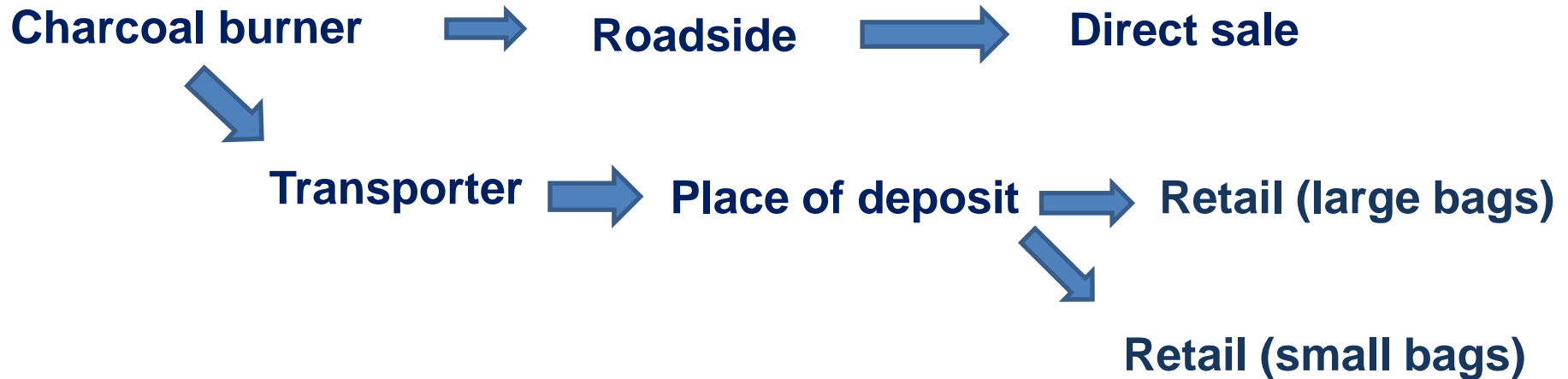
Sustainable forest management

AN IMPORTANT AND EVER INCREASING NATIONAL CONSUMPTION

- 1m^3 eq. wood/ inhabitant / year
Urban 80% charcoal Rural 90 % fuelwood
0,5 kg charcoal/person/day
- 10 à 12 millions m^3 eq. wood/year
- 9,6 million tons eq. wood/year
- 4,8 millions tons carbon
- 11,5 millions tons CO_2
Towards a national REDD strategy ?

AN INFORMAL BUT WELL ORGANIZED CHAIN

- A short supply chain

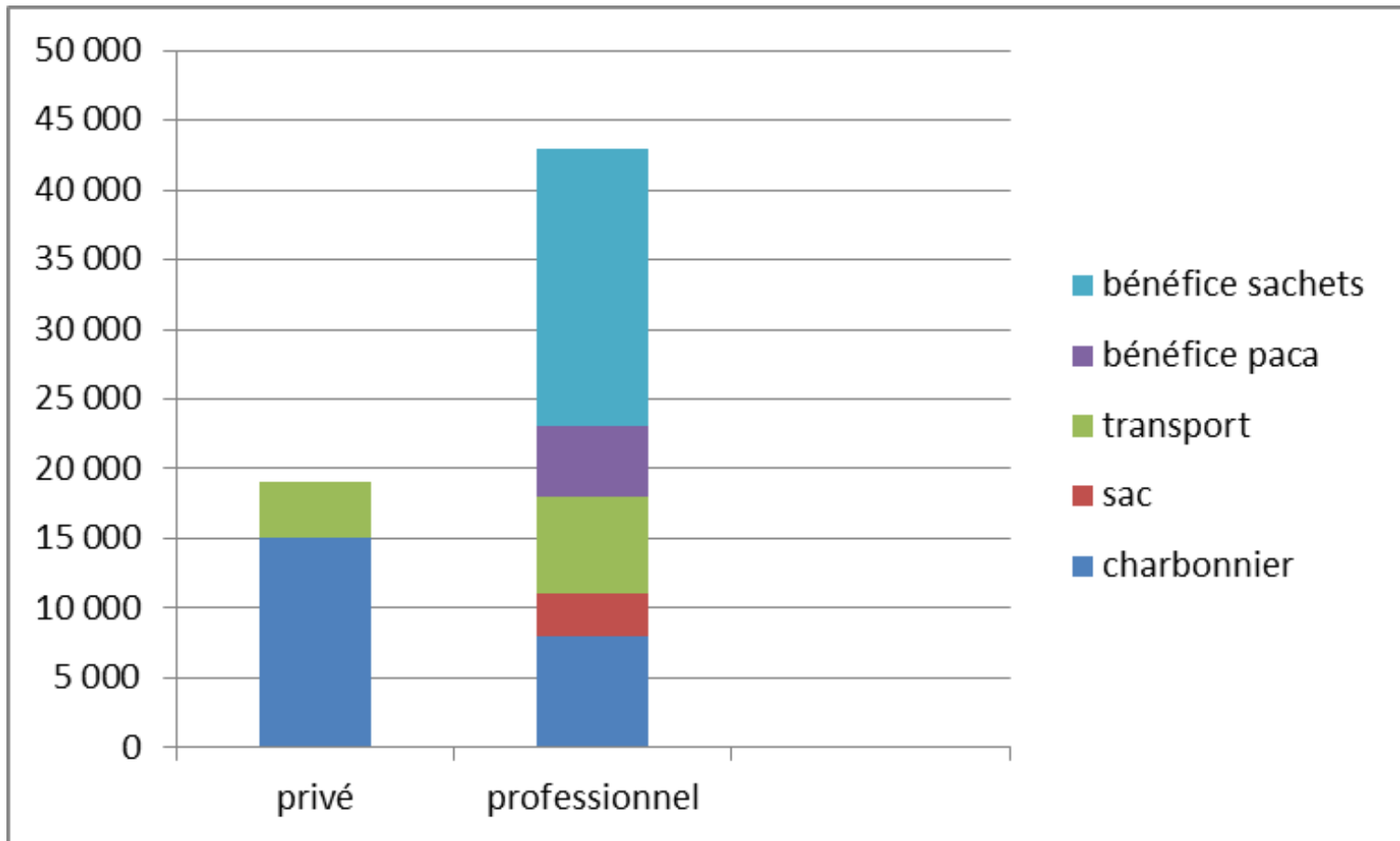


- Low productivity charcoal processes

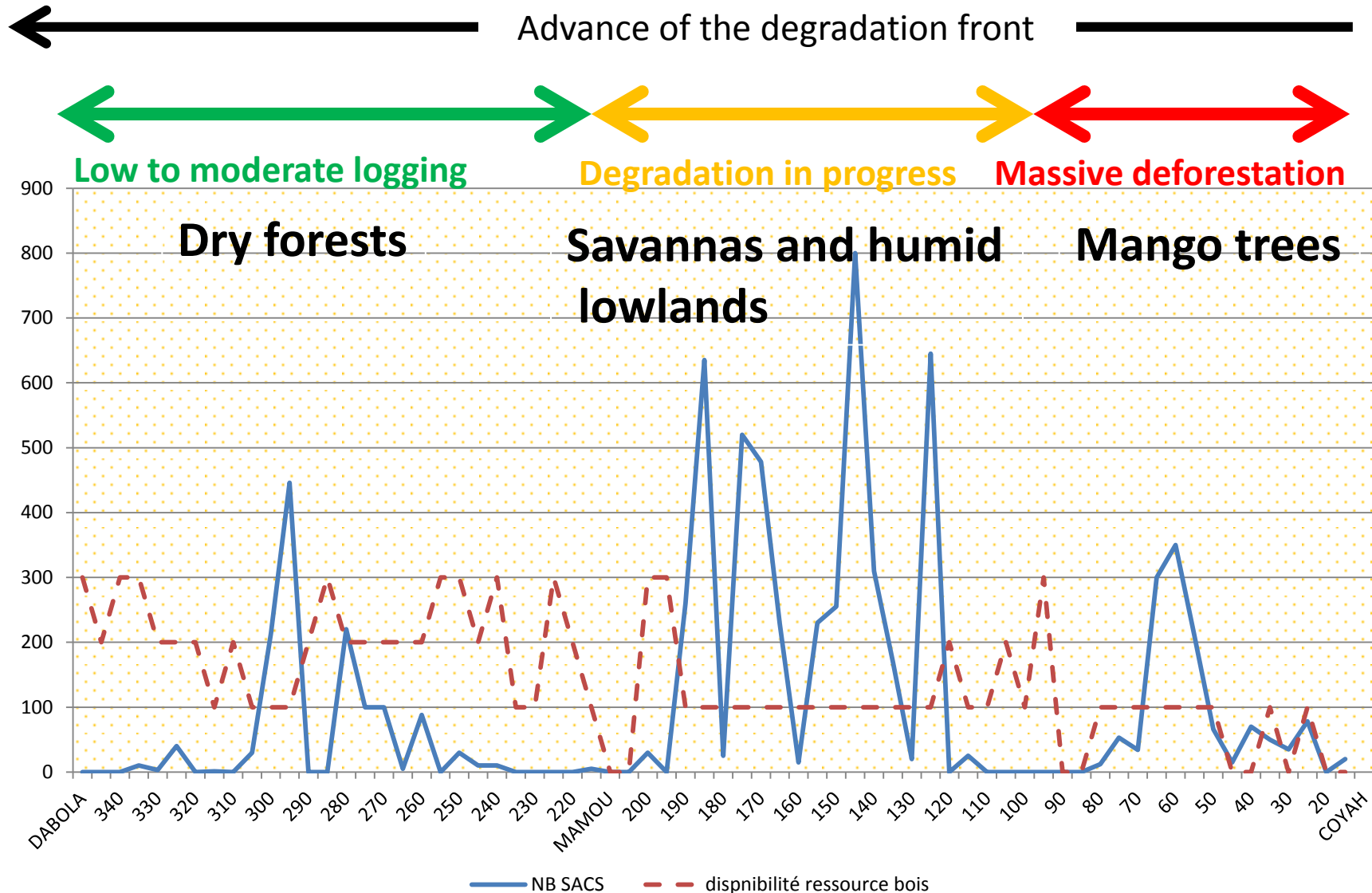
Mean charcoal productivity is 15 % (20 à 25% if improved)

AN IMPORTANT ECONOMIC CONTRIBUTION AT ALL LEVELS OF SUPPLY CHAIN

- An income opportunity at all levels, including in rural areas



BUT A MAJOR CONTRIBUTION TO NATURAL RESOURCES DEGRADATION



DABOLA

MAMOU

CONAKRY

Actions to find solutions: The MAKALA(*) Project

(*) Makala means charcoal in Lingala

Sustainable management of wood energy resource in central Africa

Some key points of Makala project



Shared observations on wood energy:

- ❑ 90 % of wood export out of forests in central Africa
- ❑ First factor, together with shifting cultivation, of forest ecosystems degradation and deforestation
- ❑ Ever increasing unbalance between supply and demand expected in the future
- ❑ Supply areas are always wider
- ❑ Supply chain 100% informal, but very well organized
- ❑ Unequal share of profits
- ❑ Laws and regulations weak and/or not applied
- ❑ Land tenure securitization: A global problem with no short term answer

Shared observations on wood energy:

But also:

- ❑ Existing and efficient technical solutions
- ❑ Job and money opportunities in remote and poor rural areas
- ❑ Major economic and social opportunities
- ❑ Favourable forest ecosystems natural regeneration and growth dynamics

Makala project: *Actions focused on the wood resource:*



- ✓ Knowledge of supply chain
- ✓ Degraded forest rehabilitation and restoration
- ✓ Dedicated wood resource creation
- ✓ Communities landscape organization and management
- ✓ Training
- ✓ Imagine the future

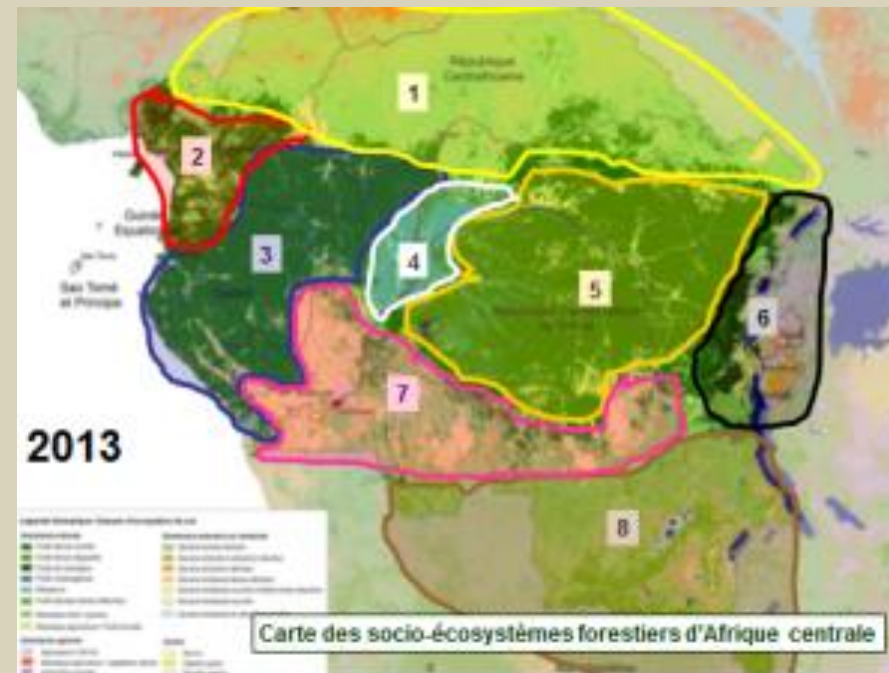


Innovative results:

- Supply chains described and quantified
- Institutional et socioeconomic environment analysed
- Agroforestry plantations made by and for the farmers
- Degraded forests regeneration techniques tested and available
- Communities landscape organized with participative management plans
- Improved charcoal production
- Targeted technical and university levels training courses
- Prospective analysis
- New knowledges

New perspectives:

- ▶ Anticipate the future changes, identify priority areas and plan specific activities
- ▶ Adapt the solutions to the local environment
- ▶ Include the various land uses in community landscape planning
- ▶ Enhance the development of an economically viable resource
- ▶ Develop a more sustainable agriculture
- ▶ Quantify the non monetary values of a sustainable wood-energy resource



Main conclusions

- **Wood is the most important domestic energy** source in most African countries, urban as rural.
- This is a **long term trend**, with an **important informal economy** component
- **Negative impacts** on natural ecosystems are very important, with a large deforestation and forest degradation
- Even when available, **few examples of large scale energy source substitution for domestic uses**
- **National policies and regulations** are often unable to efficiently answer the problem

Our vision

Given that urban population growth will in many cases lead to an increase in household energy requirements which will surpass what can be provided by tree formations,

We argue that planners should consider the development of energy mixes that combine the sustainable production of wood-energy with a partial transition to other energy sources (fossil, hydro-electricity, solar or biomass).

The importance of the carbon economy has to be examined through some international processes as REDD initiative or Green Fund for the Climate (UN).

Thank you for your attention

