



**INTERNATIONAL CONFERENCE AND POLICY**

**DEBATE ON BIOENERGY SUSTAINABILITY SCHEMES**

**An African Perspective- Arusha Tanzania 16-18 june 2008**

**SESSION 4: Investment, regulation and good practice reward.**

**UEMOA STEPS ON PROMOTING LIQUID BIOFUELS MARKETS**

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**UEMOA**

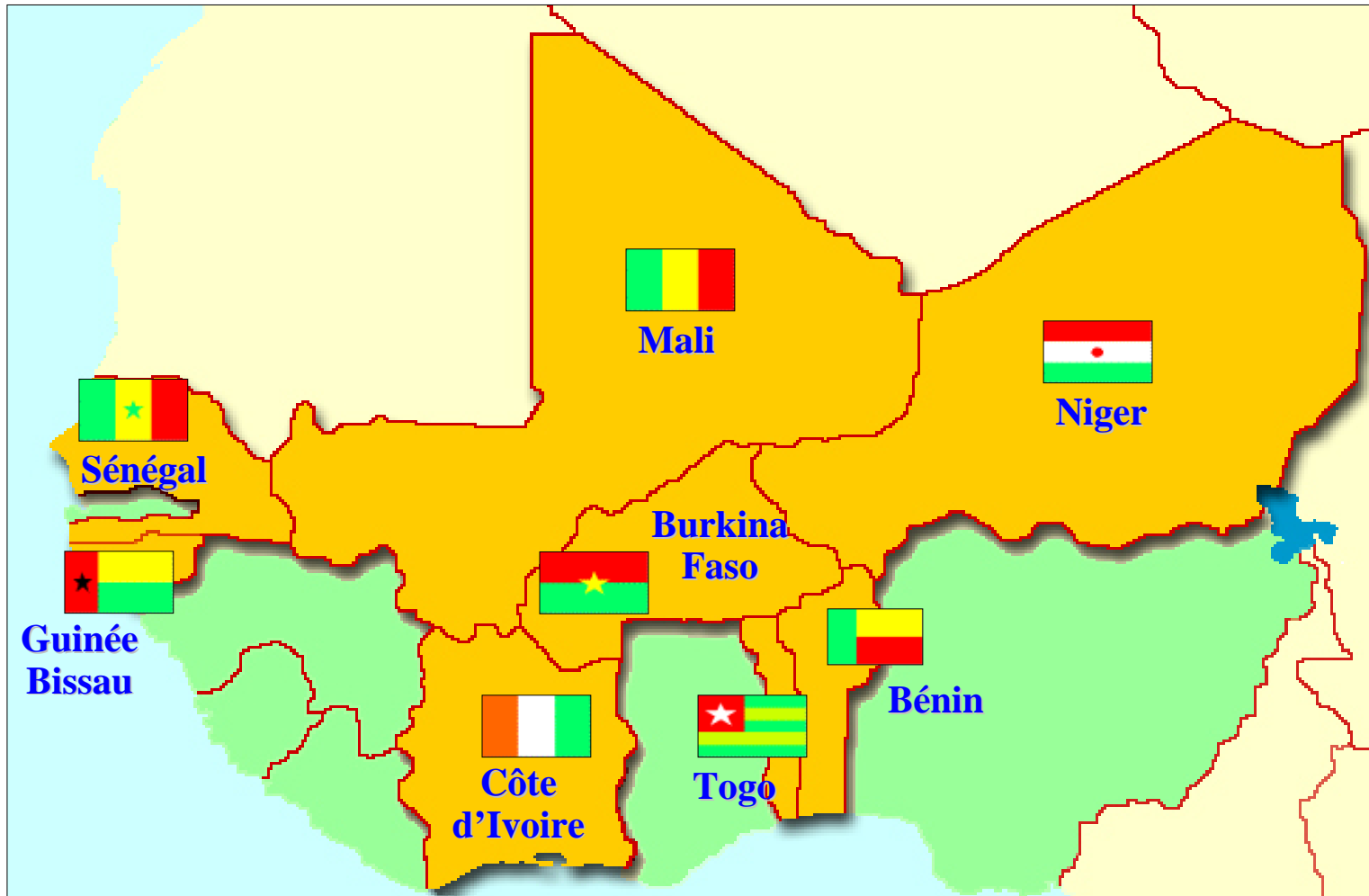
# OUTLINE

- **UEMOA SPACE**
- **ENERGY SITUATION**
- **AGENDA VISION & STRATEGY**
- **UEMOA INVESTGATIONS ON LIQUID BIOFUELS**
- **WAY FORWARD**
- **CONCLUSIONS: PRIORITY ACTIONS**



# UEMOA SPACE

- 3,5 millions d Km<sup>2</sup>
- 72 millions inabitants
- 33% of GDP of West Africa
- Young population (60% < 25 yrs)

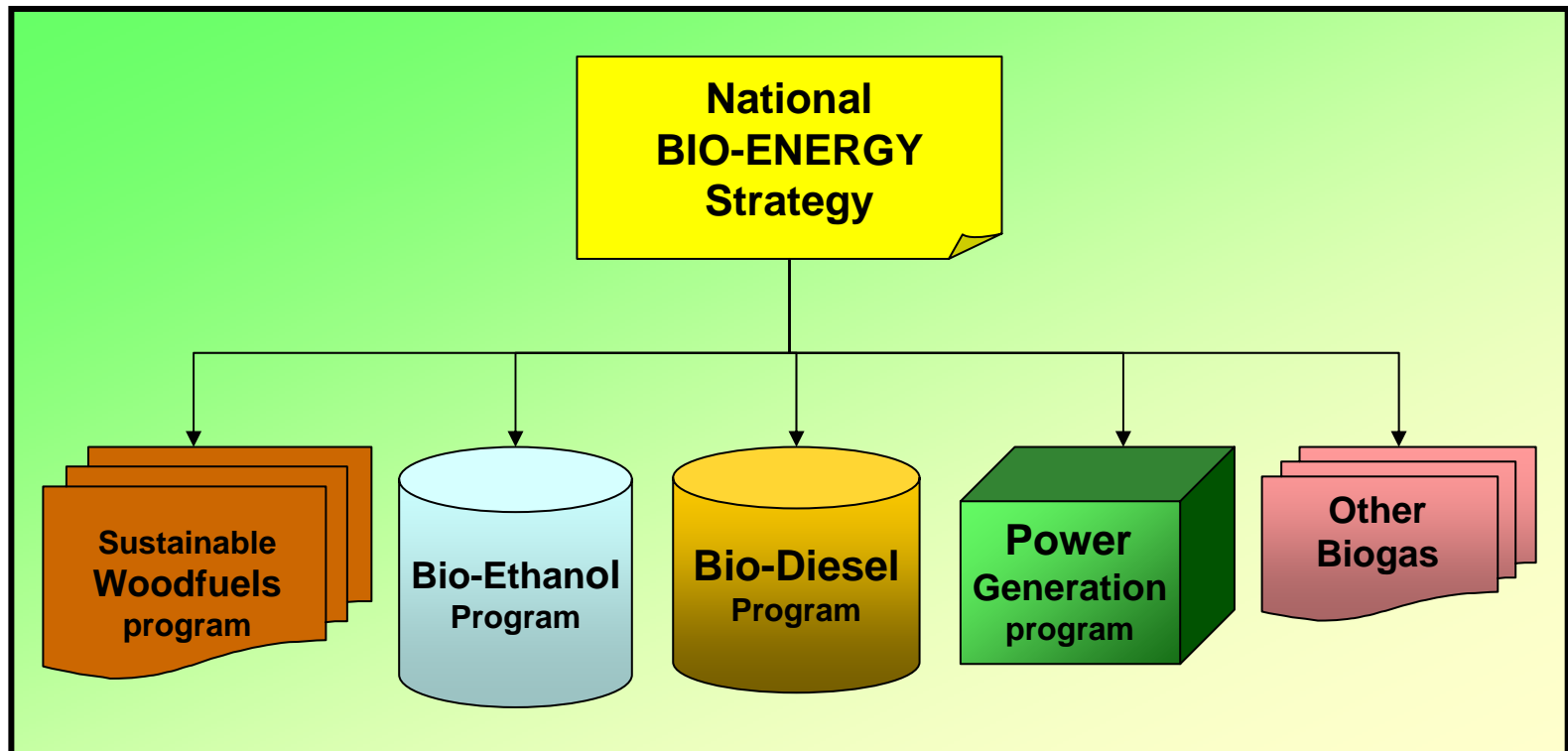


# ENERGY SITUATION

- **ENERGY BALANCE DOMINATED BY BIOMASS FOR 80% USED MAINLY FOR HOUSEHOLDS COOKING**
- **DEPENDANCY ON PETRLEUM PRODUCTS: 15%**
- **ELECTRICITY REPRESENTS 5%**
- **WEAK UTILISATION OF R.E DESPITE BIG POTENTIAL**
- **HIGH COSTS &PRICES FOR CONVENTIONAL SOURCES OF ENERGY**
- **REGIONAL COOPERATION IS WEAK INSOME CASES**

# UEMOA/AFRICA: Moving Towards an Integrated “Biomass Energy” Agenda

**Vision:** Contribute to **Poverty Reduction** and **Sustainable Development** in the Region through the development of Comprehensive, Sustainable and “Efficient” biomass energy sector policies, strategies and investment programs and projects.



# STUDY: DEVELOPPING LIQUID BIOFUELS CHAIN FOR COOKING IN UEMOA SPACE

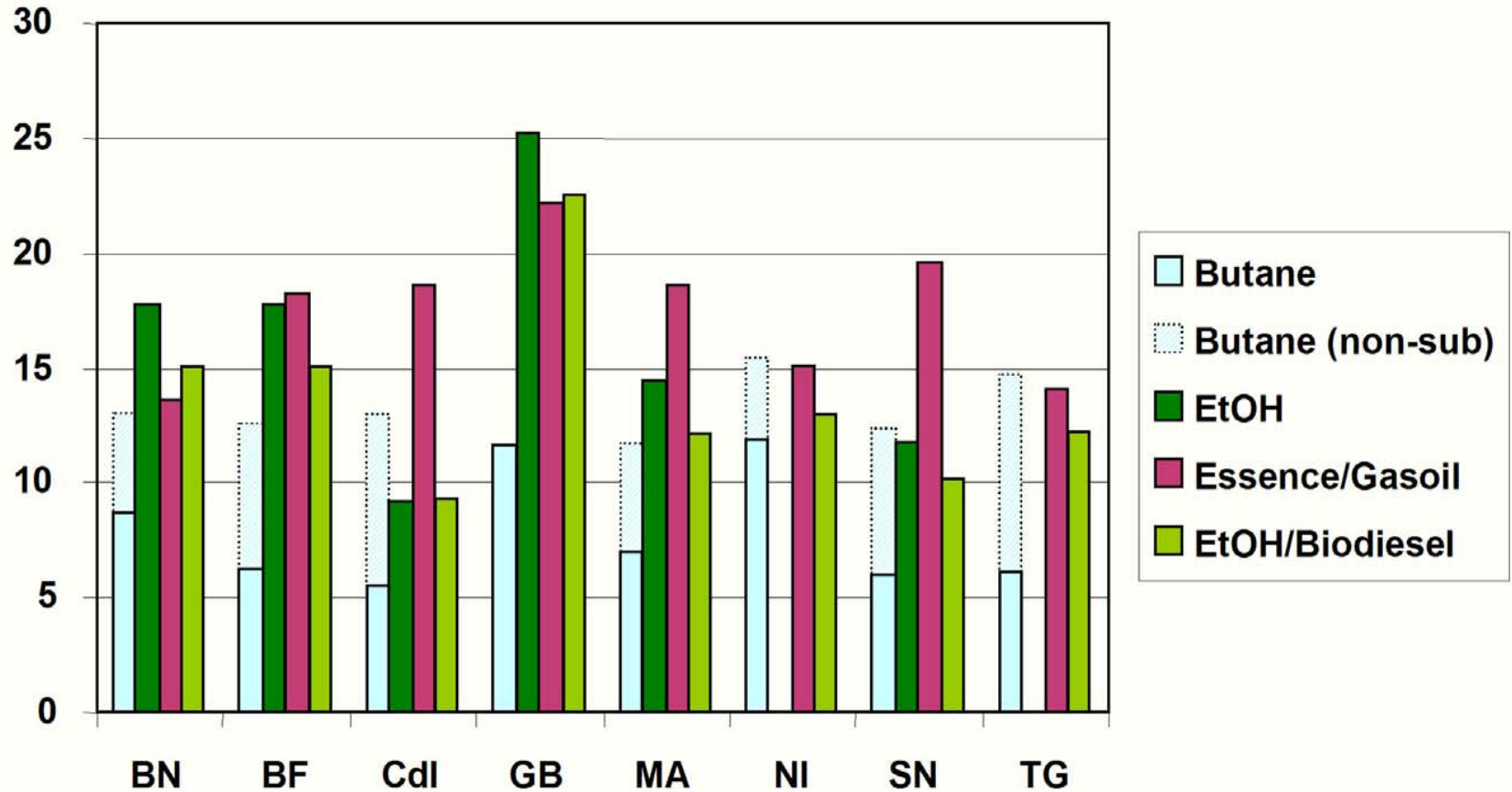


**BTG Biomass Technology Group & EPM Consulting**

**Dakar, november, 2006**

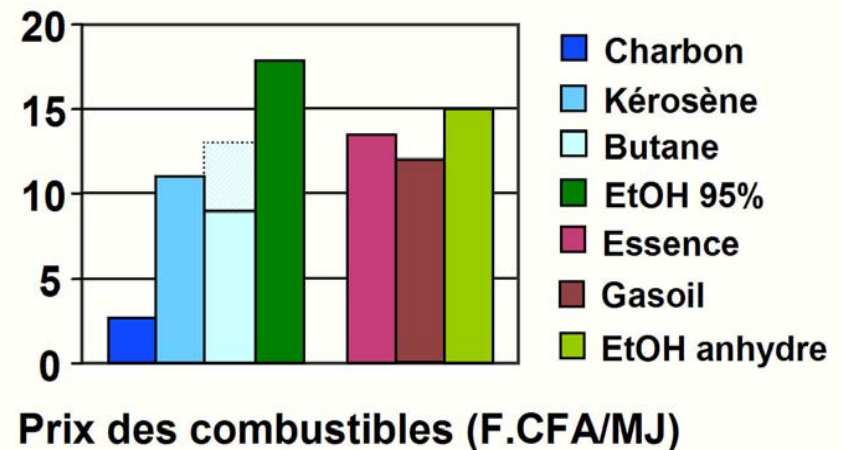
# Overview (1)

Referenced fuels (LPG, gasoline/diesel) and costs prices of liquid biofuels (ethanol anhydrous / biodiesel) in UEMOA Member states (F.CFA/MJ)



# Bénin

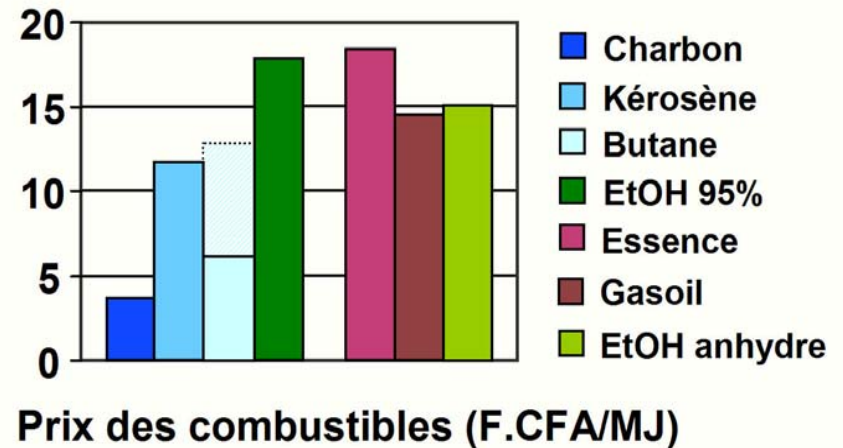
- Low prices of fossil fuels (due to proximity of Nigeria)
- Availability of raw materials: molasses(very limited), cassava (high quantities)
- Production from cassava: small scale (~1000 m<sup>3</sup>/yr), investments ~337 mio F.CFA
- Ethanol cost price (95%vol) is 103% higher than actual price of LPG; but 37% higher than LPG price without subside
- Cost price of ethanol (anhydrous) is 11% higher than gasoline price





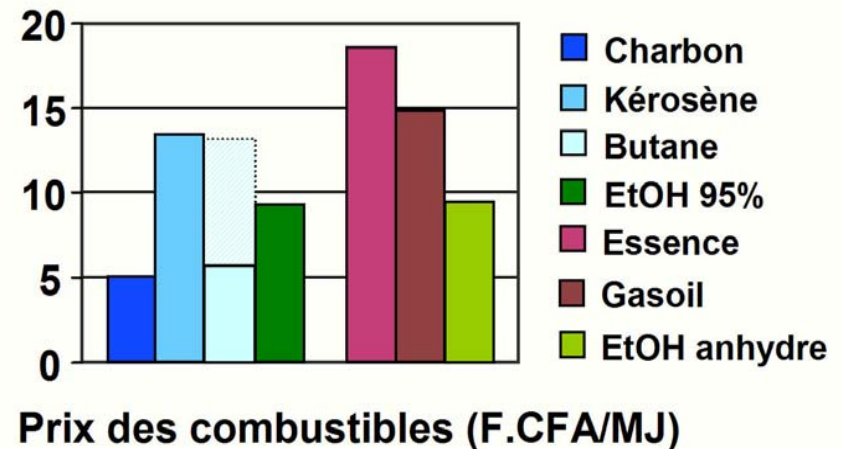
# Burkina Faso

- Actually, ethanol production from molasse is limited ( SOSUCO-SOPAL); capacity  $\sim 1500 \text{ m}^3/\text{yr}$
- Possibility of extension sugarcane farming (5 000 ha) for ethanol production; capacity  $\sim 20\,000 \text{ m}^3/\text{a}$ , investment  $\sim 5,3 \text{ mld F.CFA}$
- Cost price of ethanol (95%vol) is 183% higher than actual price of LPG; 39% higher than LPG price without subsidy
- Cost price of ethanol (anhydrous) is 17% lower than gasoline price



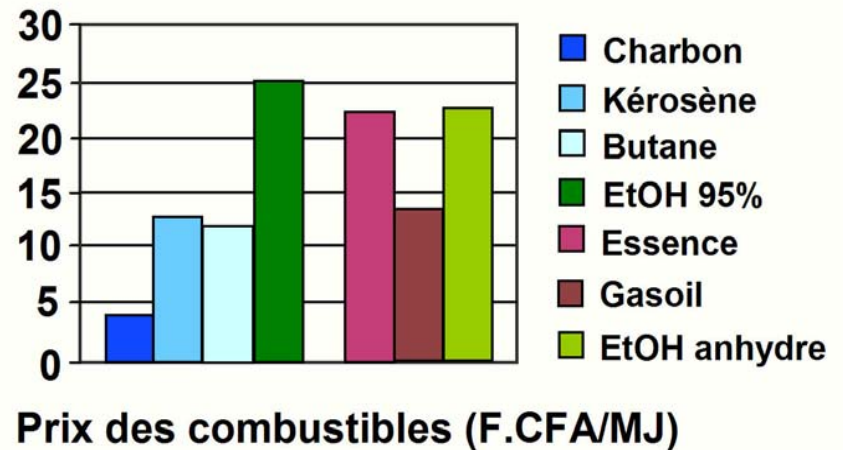
# Côte d'Ivoire

- The country has two large scale sugar companies
- Availability of molass with low cost; total production of ethanol ~19 000 m<sup>3</sup>/yr, investissements ~4,3 mld F.CFA
- Cost price of ethanol (95%vol) is 67% higher than actual price of LPG pricectuel but 30% lower than LPG price without subside
- Cost price of ethanol (anhydrous) is 50% lower than gasoline price



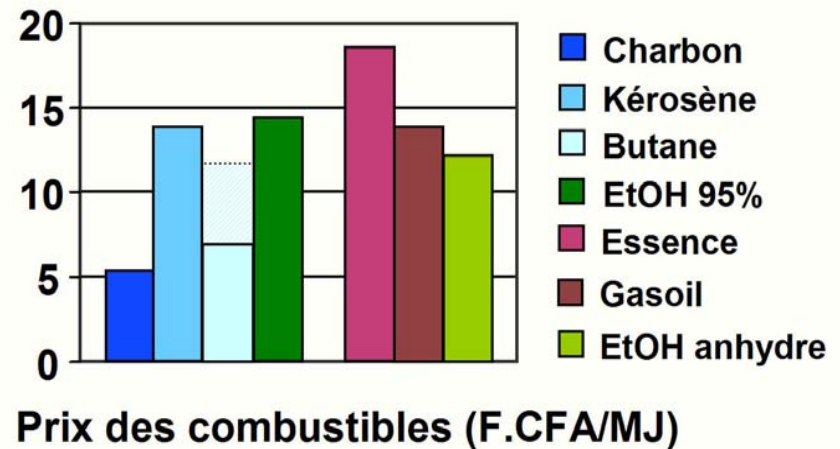
## Country results: Guinea Bissau

- Fuels price (gasoline, LPG) relatively high; LPG is not subsidized
- Raw material available : cashew fruit
- Low capacity: ( $\sim 1000 \text{ m}^3/\text{yr}$ ), investments  $\sim$ F.CFA 652 mio
- Cost price of ethanol is relatively high (large quantity of cashew fruit is needed)
- Cost price of ethanol (95%) is 117% higher than LPG; ethanol anhydro is 2% higher than gasoline price



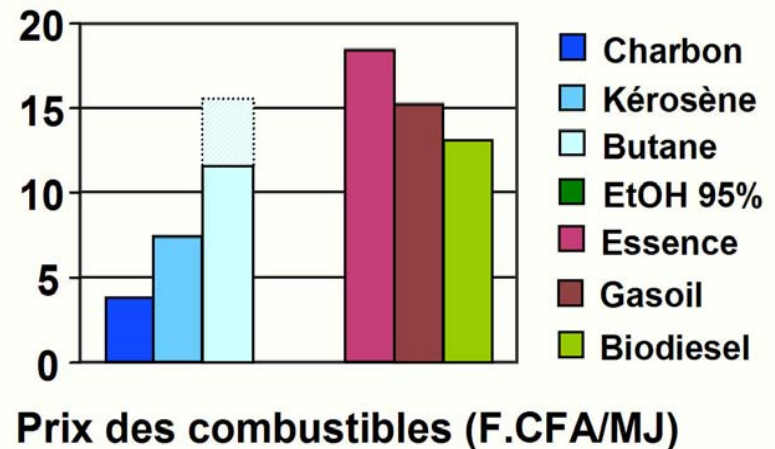
## Country results: Mali

- Actually, ethanol production is from molasses (SUKALA sugar factory); capacity ~2300 m<sup>3</sup>/yr
- MARKALA sugar factory with possibility of ethanol production from molasses (~18 000 m<sup>3</sup>/yr)
- Ethanol cost price (95%) is 106% higher than LPG; 20% higher than LPG without subsidy
- Cost price of ethanol anhydrous is 34% lower than gasoline price



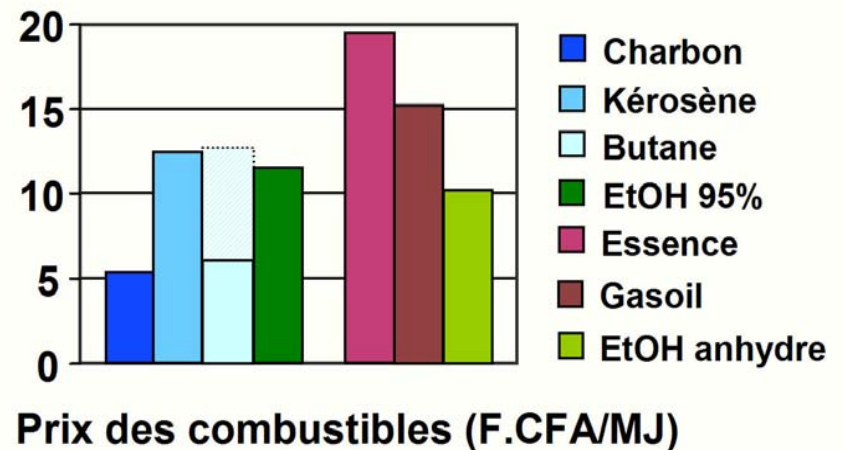
## Country results: Niger

- Actually ethanol production does not exist: no sugar factory rainfall is low
- Interest on biodiesel production from jathropha oil
- Production scenario: ~10 000 m<sup>3</sup>/yr of capacity
- Biodiesel cost price would be 11% lower than diesel
- Biodiesel cost price is very sensitive comparing to raw material cost price (jathropha seeds)



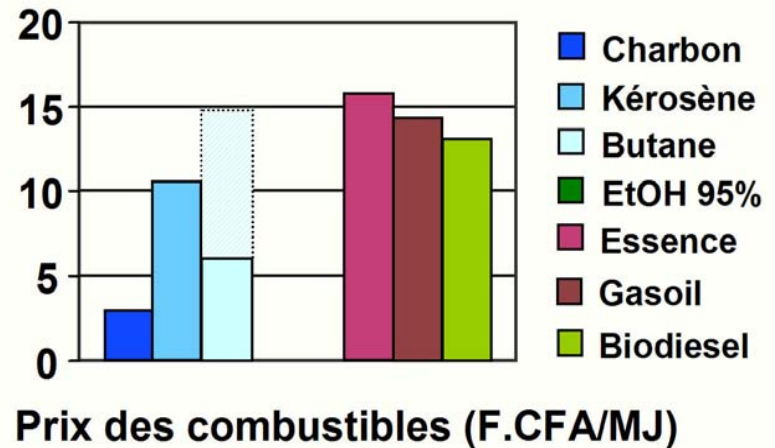
## Country result: Senegal

- Actually, ethanol production from molasses is underway by CSS; capacity ~15 000 m<sup>3</sup>/yr, for industrial market and liquid biofuels; investments ~3,2 mld F.CFA
- Ethanol cost price (95%) is 94% higher than LPG; 7% lower than LPG price without subside
- Ethanol (anhydrous) cost price is 48% lower than gasoline price
- Ethanol value as liquid biofuel is economically more interesting than replacing households fuels



## Country results: Togo

- Actually, ANIE sugar factory produces a small amount of ethanol ~800 m<sup>3</sup>/yr
- Possibilities of extension are very weak (lands & water availability)
- Interest of biodiesel production de biodiesel from jathropha oil
- Production scenario: size ~10 000 m<sup>3</sup>/a
- Biodiesel cost price is 5% lower than diesel
- Biodiesel cost price is very sensitive comparing to raw materials cost prices(jathropha seeds)



## Results: general view (2)

Country	Projet type/ potential	Production range	Investment	Investors
Bénin	Ethanol (20 000 m <sup>3</sup> /y; cassava)	1 000 - 10 000 m <sup>3</sup> /y	CFA 337 mio (pt) CFA 2,6 mld	CICAF; ADB; SOTABE; Benin Bio-En.
Burkina Faso	Ethanol (20 000 m <sup>3</sup> /y; sugar canne)	20 000 m <sup>3</sup> /y	CFA 5,3 mld	SOSUCO; SN CITEC
Côte d'Ivoire	Ethanol (19 000 m <sup>3</sup> /y; mélasse)	10 000 + 5 000 + 4 000 m <sup>3</sup> /y	CFA 2,1 + 1,2 + 0,97 mld	SUCAFI-CI; SUCRIVOIRE
Guinée Bissau	Ethanol (10 000 m <sup>3</sup> /an; cashew apples)	1 000 m <sup>3</sup> /y	CFA 652 mio	CAPE; ANAG; Barros & Filhos
Mali	Ethanol (18 000 m <sup>3</sup> /y; mélasse)	18 000 m <sup>3</sup> /y	CFA 4,8 mld	MARKALA; NTEE



## Results: general view (2)

Country	Projet type/ potential	Production range	Investment	Investors
Niger	Biodiesel (Jatropha)	10 000 m <sup>3</sup> /y	CFA 500 mio (usine) CFA 3,5 mld (plantation)	IBS; SONIHY
Sénégal	Ethanol (15 000 m <sup>3</sup> /y; mélasse)	15 000 m <sup>3</sup> / y	CFA 3,2 mld	CSS; GMS- C3E;
Togo	Biodiesel (pourghère)	10 000 m <sup>3</sup> / Y	CFA 500 mio (usine) CFA 3,5 mld (plantation)	NYKOMB CREPER
<b>Total Général</b>	Ethanol (93 000 m <sup>3</sup> / Y); Biodiesel (20 000 m <sup>3</sup> / Y)	Ethanol: 1000– 10 000 m <sup>3</sup> /y); Biodiesel: 10 000 m <sup>3</sup> /y	CFA 23,2 mld (éthanol) + CFA 12,2 mld (biodiesel)	

# Conclusion (1)

## 1. Household energy

- In all the UEMOA countries, the production cost of ethanol are higher than market price of butane. However, butane gas is highly subsidised in most of the case)
- In Cote d'Ivoire and Sénégal, ethanol production cost could compete with non subsidised butane gas
- Ethanol could be economically used as a source of household energy if the subsidies on the butane gas are removed or an equal subsidies to provided.
- In any case, the use of ethanol as biodiesel is more indicated in terms of price and affordability.

# Conclusion (2)

## 2. Biodiesels

- The study shows that in all the UEMOA countries besides Benin and Guinée Bissau, the cost price of biodiesel (from ethanol) can be lower than fossil oil products.
- The cost price of biodiesed from Jatropha oil can be equally lower than diesel from fossil orogin in Togo and Niger. However, the price is highly dependant on the price of the jatropha seeds.

# Conclusion (3)

## 3. Potencial impacts in l'UEMOA Region

- Reduction on the dependancy on imported fossil oil: 63 millions litres of benzine and 19 millions litres of gasoil
- 22 billions FCFA of forex: 34 millions €
- Reduction of emission of CO<sub>2</sub> will depends on the feedstocks and energy sources used with an estimation of about 100 000 t/y

# Implementation Strategy (1)

## 1. Actors

- **Strong implication of the private sector**
- **UEMOA** – regional coordination
- **Ministeries in charge of energy** – création of favorable conditions for the production and use of biodiesel
- **Ministeries in charge of agriculture** – création of favorable conditions for the cultivation of energy crops.
- **Ministries in charge of environment** – institutional support toward MDP projects.
- **Ministères of finances** – creation of favorable fiscal conditions
- **Others** – universities, banking sector...

# Implementation Strategy (2)

## 2. Identified Constraints

- **Lack of sensibilisation** and familiarisation of the private sector on the agricultural, industrial and commercial opportunities especially, the agricultural and technological informations are lacking.
- **Lack of financial instruments and mechanism** to promote the investment and trade in the sector.
- **High cost of feedstock:** – agricultural infrastructure, cost of transport and logistics.
- **Market and legislation:** underdeveloped market because of the absence of appropriated incentives and legislation in the sector.

# Implementation Strategy (3)

## 3. Recommendations

1. Adoption of common policies, directives and legislations to promote the market
2. Development of a capacity building program to disseminate the knowledge and information
3. Development of energy crops policies targetign the long term perspectives.
4. Stimulate the emergence of an organised private sector association to promote and professionalise the sector
5. Creation of a regional funds to promote the sector in association with the financial instition of the Region (BOAD, Fagace) and development of a pilot project per country.
6. Assistance to the private sector to enable the emergence of production and trade projects.

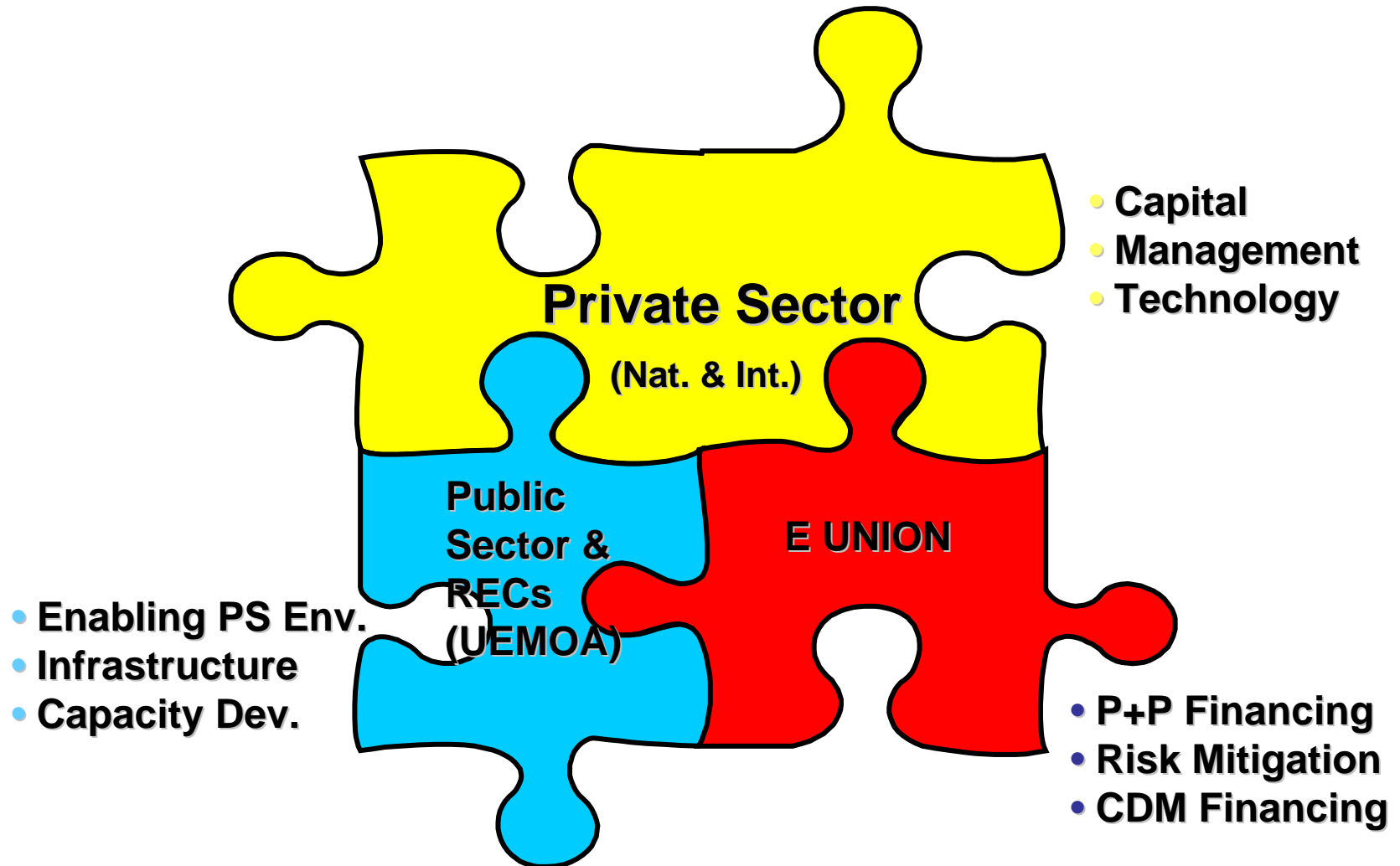
# WAY FORWARD

- **INSTITUTIONAL AND LEGAL BIOFUELS FRAMEWORK (national/regional level)**
- **PORTFOLIO OF INVESTMENT PROJECTS (small and big size)**
- **DONORS MEETING**
- **DEVELOPMENT OF NATIONAL , REGIONAL &.....INTERNATIONAL MARKETS**



# PROMOTING PARTNERSHIP

## PRIVATE – PUBLIC PARTNERSHIP (PPP) !!!!!



# Priority Actions

- Support policy-makers and parliament to develop national policy, law and regulations
  - Technical studies
  - Development of guidelines for adequate institutional, legal and regulatory frameworks
  - Best practices sharing
  - Training
  - Information sharing
  - Enhance regional cooperation

# Priority Actions

- Support regional economic communities to harmonize national policies and establish regional strategies
  - Technical studies
  - Best practices sharing
  - Training
  - Information sharing
  - Enhance regional cooperation

# Priority Actions

- Support national dialog on the opportunities and challenges of biofuel
  - Awareness raising campaign
  - National workshops
  - Rural communities meetings

A map of the United States is shown in the background, with state boundaries indicated by thin red lines. The map is rendered in a light, semi-transparent style. Overlaid on the map is a large, solid red oval with a thin black border. Inside this oval, the words "Thank you" are written in a large, bold, light blue font. The text has a subtle drop shadow effect, making it stand out against the red background of the oval.

**Thank you**



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