

# Implementing the Development of LP Gas in Bottles.

---

A.R. BOUM - Totalgaz

# LP Gas Origin and Advantages

- ▶ **LP Gas is propane or butane or a mixture of both. It is always present as a product of oil refining and also present naturally in natural gas (methane) field and crude oil fields.**
- ▶ **The main advantages of LP Gas:**
  - **Easily Portable and storable,**
  - **Clean (Low CO2 emission),**
  - **Efficient,**
  - **Convenient.**
- ▶ **It can be distributed in relatively cheap, small containers and can be used for cooking, water and space heating, lighting and commercial / industrial activities**
- ▶ **LP Gas has significant health, safety and environmental benefits compared to the traditional solid fuels, such as wood/biomass and coal, or other refined fuels such as kerosene/paraffin.**

# Global LP Gas Production and Consumption

# WORLD LP Gas Production

- ▶ LP Gas production is growing faster than other hydrocarbons.
- ▶ 242 million tonnes supplied in 2008 :
  - 126 Mt from natural gas source sources.
  - 116 Mt from refinery.

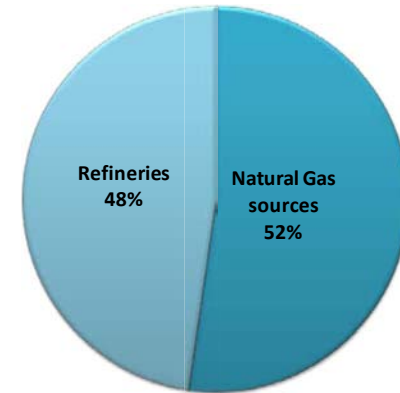
Source: World LP Gas Association 2009

- ▶ With the commissioning of several LNG projects worldwide and the increase of refinery throughput, world LP Gas supplies are expected to reach 340 million tonnes in 2025, growing at a rate of 2,1% per year.

Source : Purvin & Gertz: World LPG Market Outlook 2008

WORLD LPG PRODUCTION BY SOURCE (2008)

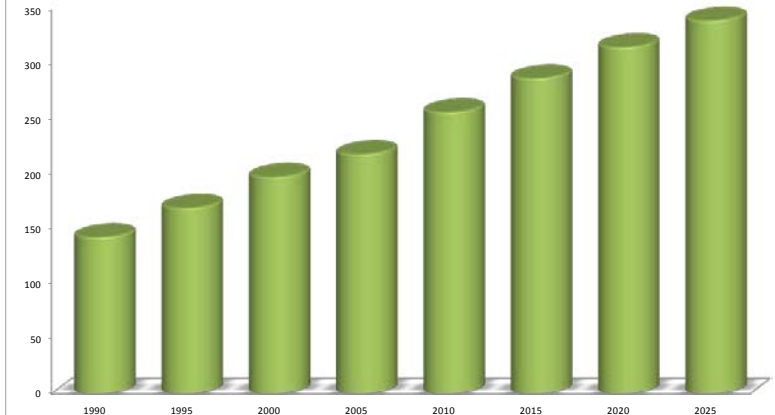
Source : World LP Gas Association 2009



WORLD LPG PRODUCTION 1995/2025

million tons per year

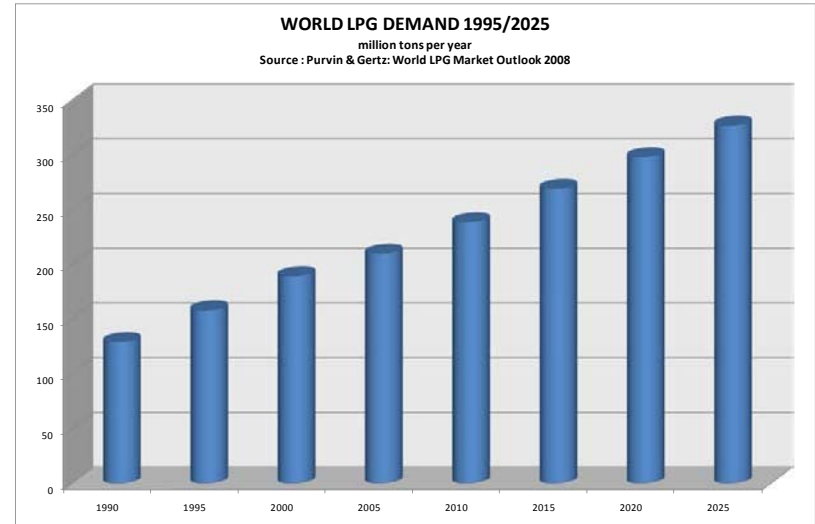
Source : Purvin & Gertz: World LPG Market Outlook 2008



# WORLD LP Gas Consumption

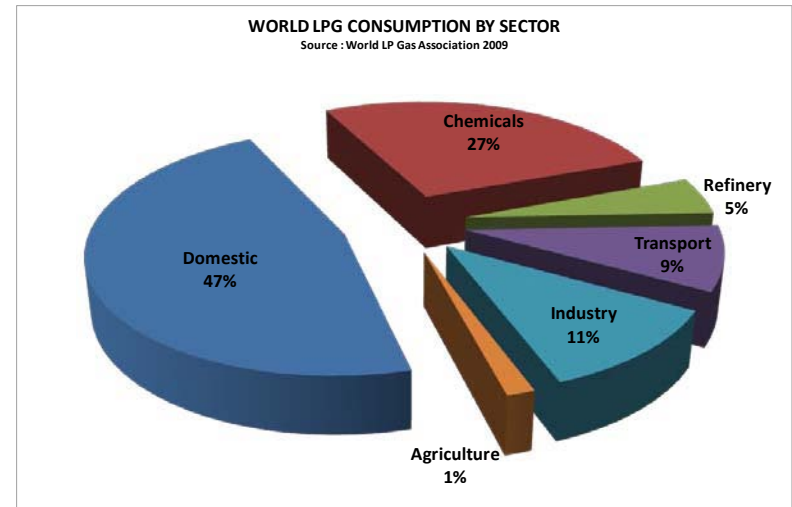
- World LP Gas Demand increase from about 189 million tonnes in 2000 to 217 millions tonnes in 2007. This represent a growth of 2% per year over this period. LPG demand is forecasted to reach about 298 millions tonnes in 2020 with an average growth 2,5% per year over this period.

Source : Purvin & Gertz: World LPG Market Outlook 2008



- The Domestic sector represents 47% of the total world demand. Its projected to grow at an average about 2.5% per year till 2020.

Source : Purvin & Gertz: World LPG Market Outlook 2008

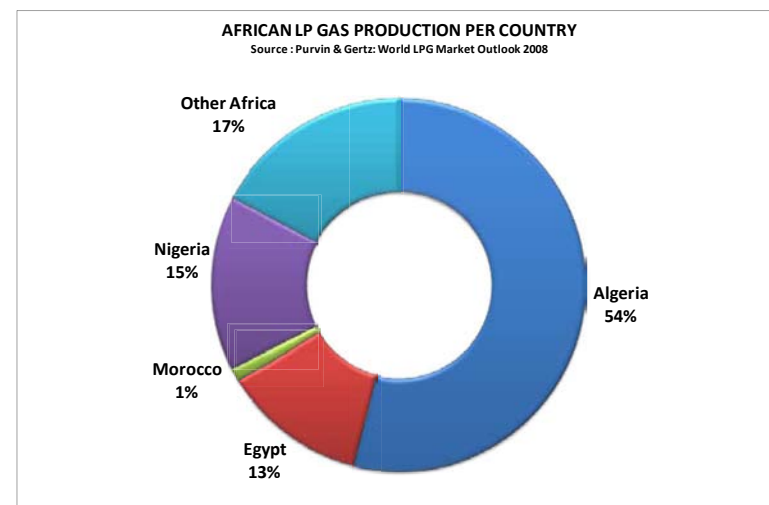
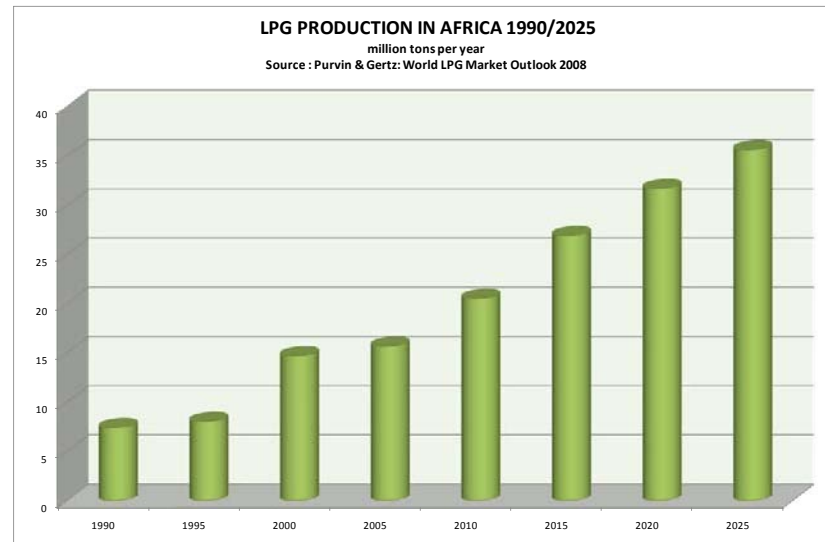


# LP Gas Production and Consumption in Africa

# LP Gas Production in Africa

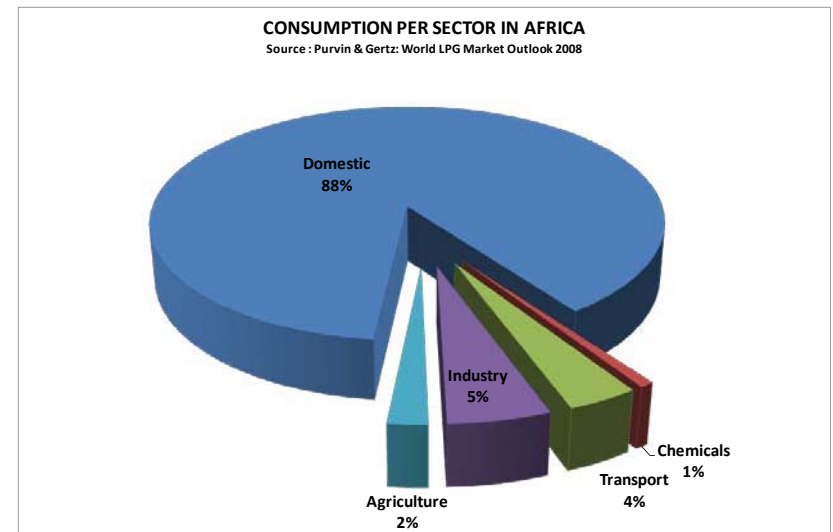
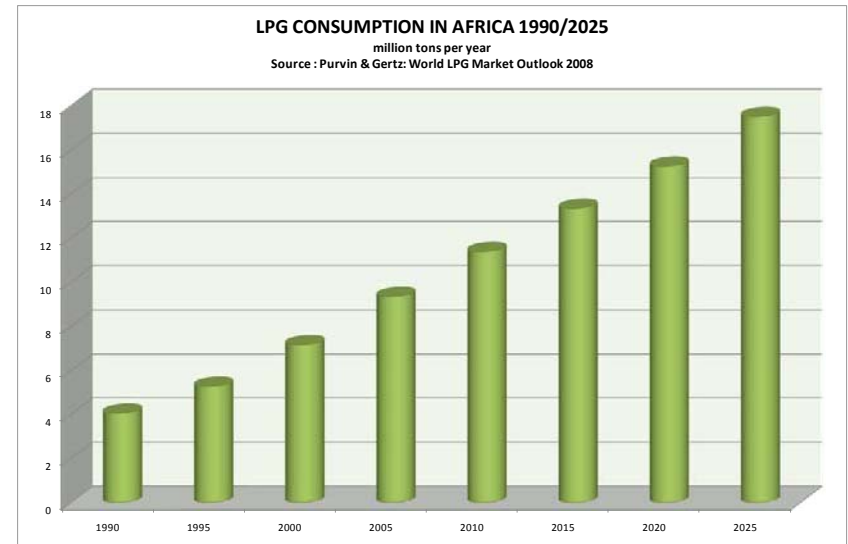
- ▶ Total LP Gas supplies in Africa rose from about 8 million tonnes in 1995 to 17.2 million tonnes in 2008. Production from both refinery and gas processing increased, but most of the increase was from higher LP Gas production from gas processing.
- ▶ LPG supplies in Africa are expected to increase to 20.5 million tonnes in 2010 and 31.7 million tonnes per year in 2020.

- ▶ 4 countries account for 83% of the African production.
- ▶ Algeria is the second largest exporter in the world, other producer are Nigeria, Egypt, Angola.



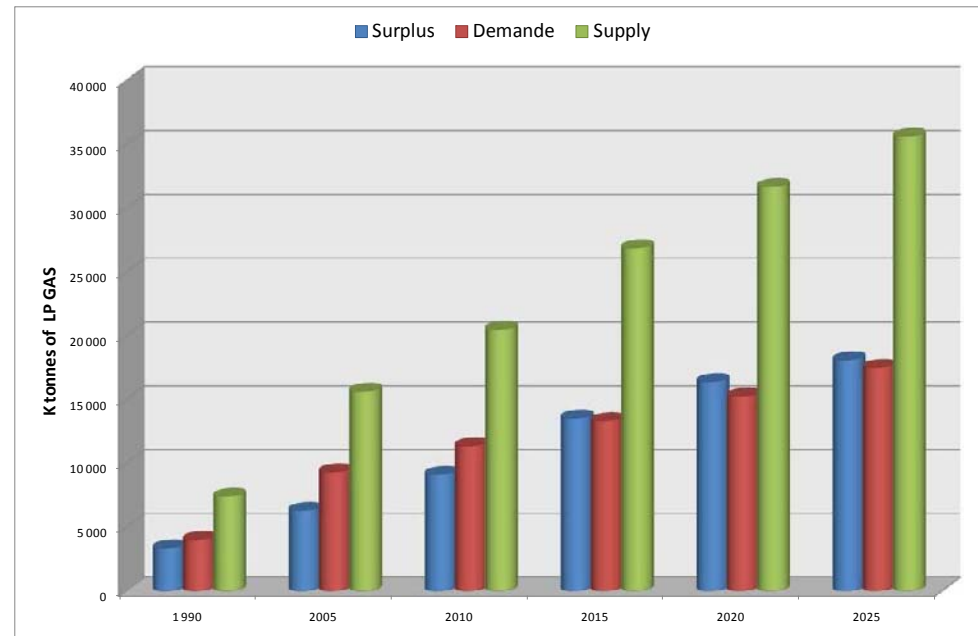
# LP Gas Consumption in Africa

- LP Gas demand rose from about 5.3 million tonnes in 1995 to 10.5 million tonnes in 2008. Residential and commercial use continues to account for 88% of total LP Gas consumption.
- LP Gas consumption in Africa is projected to increase to 11.3 million tonnes per year in 2010 and 15 million tonnes per year in 2020.
- Most of the growth will continue to occur in residential and commercial markets. However, the use of LP Gas in industrial and engine fuel applications will also increase.



# Production / Consumption balance

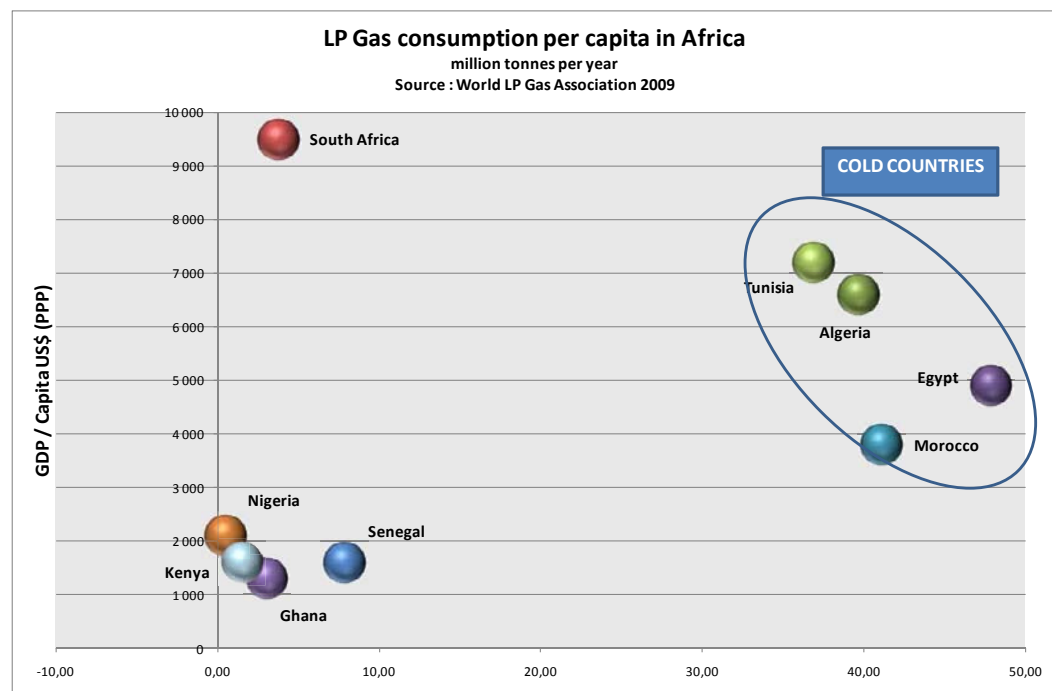
- ▶ Africa has historically been a net export of LP Gas due to the intensive gas processing facilities in Algeria and West Africa, despite the imports from Morocco and Egypt.
- ▶ Major increase in LP Gas supplies from Algeria and West Africa are expected to more than offset the expected rise in regional LP Gas demand into the next decade.
- ▶ Net LP Gas exports are expected to significantly increase in the future.



**► Government in many countries are encouraging the use of LP Gas as a means of enhancing the standard of living of its people as well as curbing deforestation and pollution.**

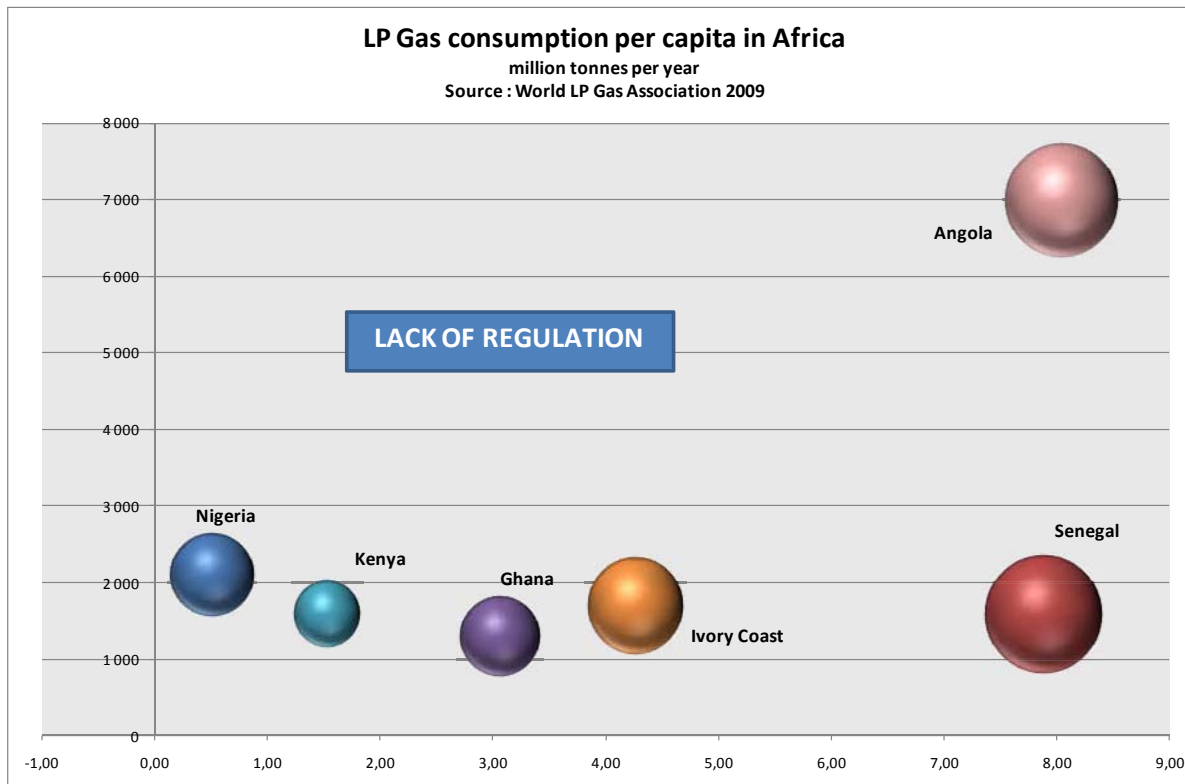
# Benchmarking on Consumption

- ▶ The average consumption in Africa is around 10 kg per capita, however, there are significant variations in consumption level from countries to countries.
- ▶ For countries like Algeria (44.5 kg/cap), Morocco (50.1 kg/cap), Egypt (51.6 kg/cap)... the higher consumption are mainly due to space heating (not only cooking).



# The typical Consumption to target

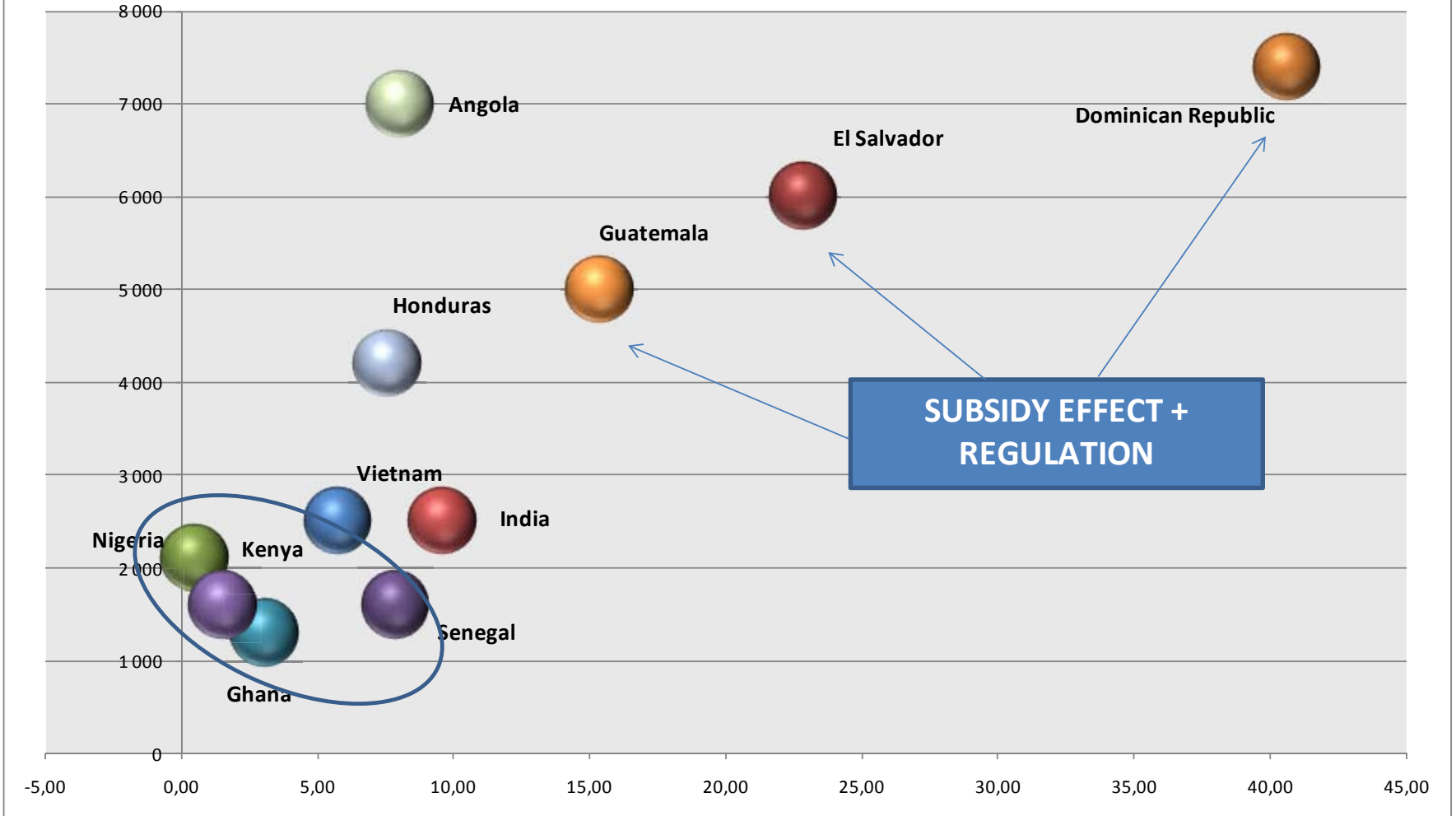
- ▶ Average consumption in sub – tropical african countries is around 3.8 kg/cap.
- ▶ Some other tropical countries have a higher consumption due to many other factors



# LP Gas consumption per capita in Africa

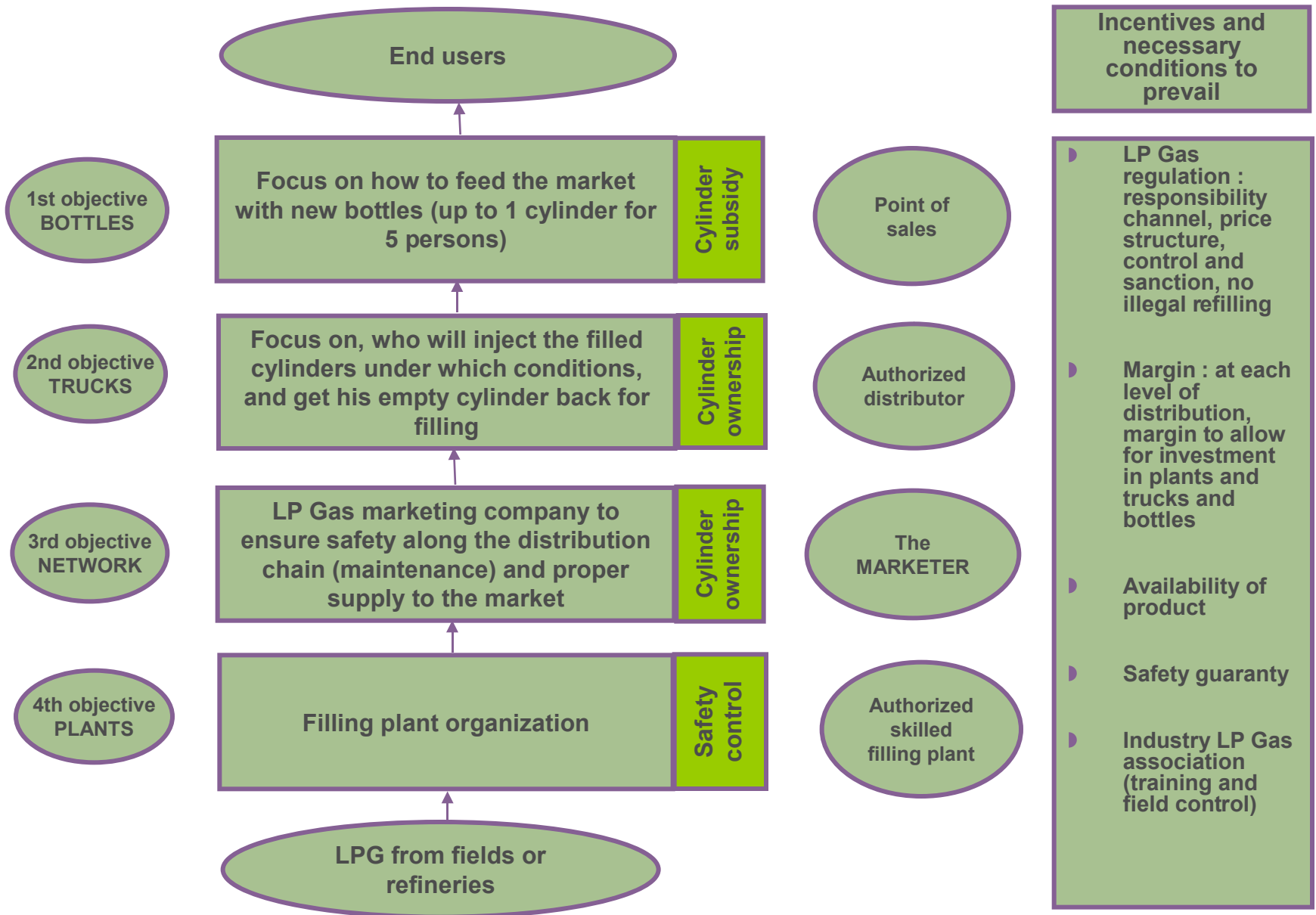
million tons per year

Source : World LP Gas Association 2009



# Create a viable domestic gas sector

- ▶ **Injecting a large number of cylinders and cookers in the market : 200 000 Bottles (10 – 12 kg) / million population, by an efficient distribution network.**
- ▶ **Establishing an effective and efficient distribution network capable and interested in distributing cylinders in small villages or districts, through many retail outlets:**
  - **Description of the distribution channel: how fast ?**
  - **Regulation to be put in place: “1<sup>st</sup> step”**
- ▶ **Working price structure through duty and taxes or subsidy to make gas price and cylinders attractive: which level, for how long ?**



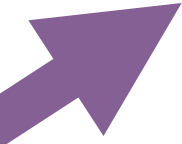
# The Chain



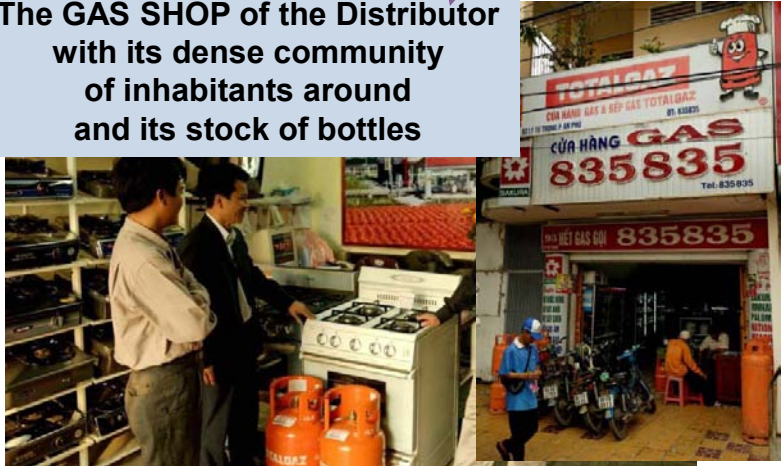
**The MARKETER**  
invests in Bottles and in filling Plants  
He is the one to inject new bottles



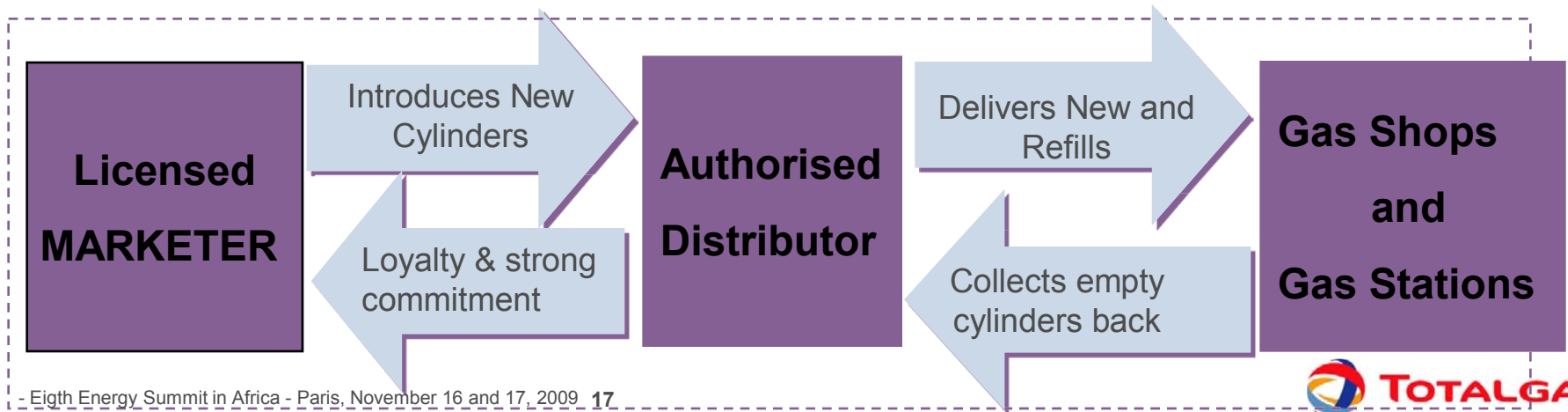
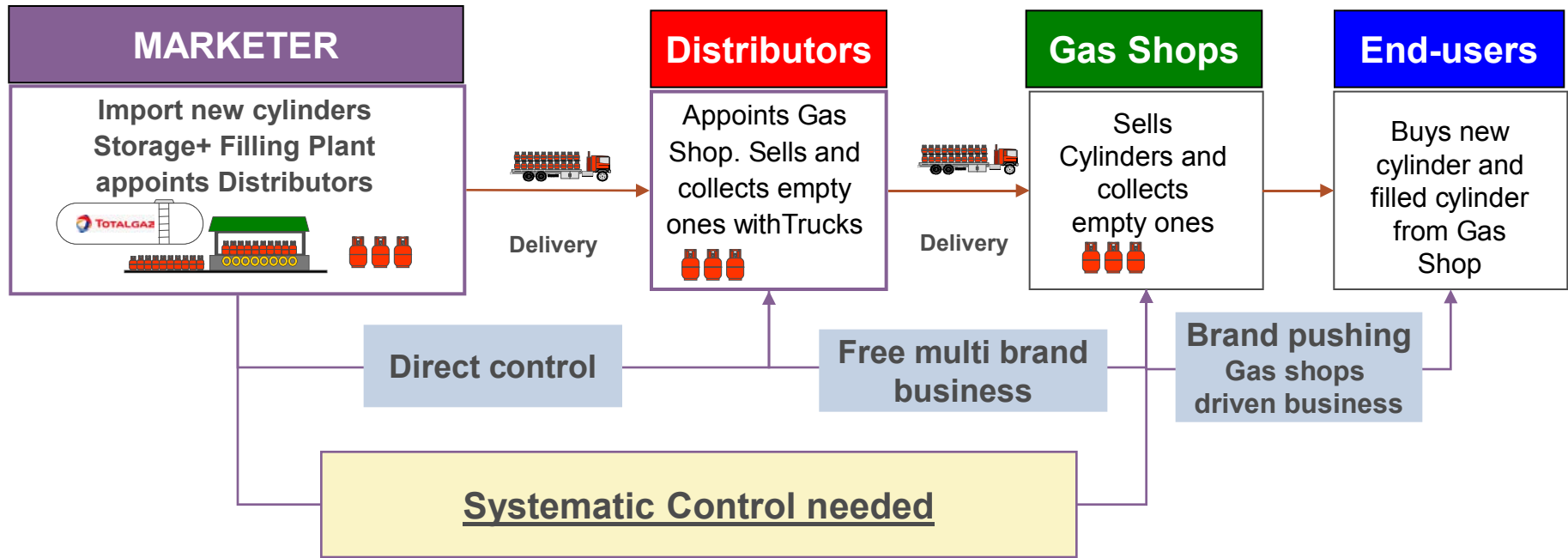
**The DISTRIBUTOR** of the Marketer  
with its delivery Trucks  
and its network of Gas Shop



**The GAS SHOP** of the Distributor  
with its dense community  
of inhabitants around  
and its stock of bottles



# Specially based on a strong business model



# Point of Sale : Gas Shop



# Point of Sale : Service-stations



# Ensure Safety with good dedicated trucks



*the capacity of transportation of this truck is about 4-5T of LPG, one shift i.e. 245 bottles of 13Kg and 12 bottles of 39 Kg*



# Ensure Safety with good dedicated trucks



## ABSENCE OF LPG REGULATION

Absence of ownership of cylinders by the marketer.

Absence of license for a new entering marketer.

Absence of prohibition to collect and divert cylinders of others competitors.

Absence of prohibition to refill cylinders belonging to others.

Absence of cylinders deposit scheme: cylinders can be removed, scrapped, sold or smuggled.

Absence of obligations on norm on cylinders: no control on imported cylinders, importation of used cylinders permitted.

## CONSEQUENCES FOR THE INDUSTRY

Unfair and illegal competition: pop up of mushroom-small-refillers.

Encouragement of bad practices : cylinders diversion, under filling of cylinders, illegal refilling.

Discouragement to enhance high standards of operations including maintenance on cylinders, transportation and plants.

No incentive to develop a distribution network : scarcity increases.

Claims or litigations not possible for absence of responsibility.

## CONSEQUENCE FOR THE END USER

No control of the LP Gas quantity and dissatisfied customer.

Cylinders not maintained : No valve replacement, no pressure testing, bad cylinders not scrapped,

Increase risk of product leakage and injury.

Market not well supplied, scarcity and rise of black market.

Less new cylinders and less availability of LP Gas.

**BACK TO BEFORE  
SITUATION.**

# WHY LPG is a Business only for a skilled organisation



# Hungary : an accident in transporting cylinders



# Benchmark of Types of Development in LPG

Level of Development		Very Good	Good	Poor
Country in Example		Morocco	El Salvador	Haiti
1	Population, million	31	7	7
2	Cylinder LPG market (KT)	1 440	160	8
4	Consumption / cap (kg/pers)	57	32	1
5	Number of authorised MARKETERS	11	4	2
6	Number of Cylinders in use (million)	30	1,8	0,15
7	Number of Authorised Distributors	400	100	2
8	Number of trucks (3.5T - 5T)	1 700	190	5
9	Number of point of sales	60 000	5 500	50
10	Range of Subsidy percentage	50-60%	60-70%	0
11	Main Bottle size	3 kg - 12 kg	12 kg - 17 kg	12 kg
12	Number of filling Plants	33	9	2
13	Number of micro filling station	forbidden	forbidden	25
14	Product	Butane commercial	Bupro (40/60)	Bupro
15	Number of brandnames of Cylinders	18	4	2
16	Type of valves (number)	1	2	1
17	Bottle specifications or norms	EU	US DOT	No norm
18	LPG law, Standards of Installations Norms on Cylinders, Safety regulations	on Filling and transport	Complete law	No law

## **As a reminder :**

**To succeed in making people use LPG  
is to get the LPG Operator to invest in LPG Bottles  
provided the Operator sees the necessary Regulation**

- ▶ **To ensure protection for the Investment Chain :  
ownership on assets to be defined, prohibition of illegal refilling**
- ▶ **To ensure where the liabilities are : obligations and sanctions**
- ▶ **To ensure the risk is minimized :  
enforcement of Norms and Standards, from the cylinder to the  
trucks, including the Plants and Depots**
- ▶ **The Margins Policy will encourage the Investments**
- ▶ **Make sure that only skilled person are involved in the operations  
avoid unnecessary unfair competition**

**Because children need to gather knowledge  
not collect firewood**

