

Regional Workshop On The Use Of The Cold Chain To Promote Agricultural And Agro-industry Development In Sub-saharan Africa



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Uganda population 2012	34 million
Urban population	15%
Population in secondary cities outside Kampala	17 million
Per capita consumption in urban areas	\$1,533
Per capita consumption in rural areas	\$ 344
Annual growth of per capita consumption urban	4.9%
Annual growth of per capita consumption rural	3%
Kampala City population by night	1.5 million
Kampala city population by day	2.5 million
Uganda population 2035	68 million
Estimated oil reserves	1 bn barrels

- Large and growing market for cold chain products
- Purchasing power likely to be high

MARKETS

1. 83% of population are net buyers of food
2. East African Community
 - population 132 million, GDP per capita of US\$685 (2012).
3. Democratic Republic of Congo
 - population 71 million, per capita GDP of US\$ 2210
4. Republic of South Sudan
 - population 8.2 million, per capita GDP of US\$ 1,546 (2011)
5. COMESA
6. EU-EPA EBA, tax free, quota free
7. China 450 products, tax free, quota free
8. India all Products, tax free, quota free
9. AGOA 6500 products, tax free, quota free

ONGOING INVESTMENTS IN PUBLIC USE COLD STORAGE

- In 2009 USD 60 million invested to develop markets
 - in all regions of the country
 - 90 cold rooms

COLD STORAGE AT EXPORT TERMINALS

- All storage facilities at Entebbe International Airport operated and developed by private investors
- Cold facility no. 1 - 5,000 tonnes of flowers (Fresh Handling Services Ltd)
- Cold facility No. 2 - 120 tonnes of fish (Entebbe Handling Services (ENHAS))
- Cold Store Facility No. 3 - 100 tonnes of general fresh produce (Roka Bonds Ltd)
- More is needed to cater for increasing fish exports
- No cold storage at border crossings

REGULATIONS ON OZONE POLUTANTS

- **Uganda signed the Vienna Convention and the Montreal Protocol**
- **The National Environment (Management of Ozone Depleting Substances and Products) Regulations 2001**
 - Refrigerants
 - insulations boards, insulation panels, pipe covers
 - pre-polymers.
- **The Finance (Amendment) Bill of 2010**
 - Illegal to import used refrigerators
 - attracts eight years in jail or a fine.

Solar Systems

- **Uganda solar radiation is 4-5 kWh/m²/day**
 - **enables solar photovoltaic (PV) cells, solar water heaters, solar cooling systems**
- **Solar systems NOT developed except for public health applications**

FRUIT AND VEGETABLES

Fruit and Vegetable storage opportunities

- Storage of fresh produce is limited yet has unlimited commercialization potential
 - E.g. passion fruit prices rise by 211% with a drop in supply of 67% within 3-5 weeks
 - Cabbage and tomato prices fluctuate by 300%
 - 1.2 mill mt fresh cassava consumption
 - 30% damage of FFV in supply chain
- Fruit pulp and juices

Fruit and Vegetable cold chain challenges

- Rural population not equipped with fridges
 - Salad consumption not widespread in rural areas
- Regulation in food safety not enforced
 - Salad vendors on foot and in offices not hygienic
- Storage crates too costly \$7 a piece

MILK AND DAIRY PRODUCTS

Potential for milk Cold Chain

- About 90% milk production comes from 2.5 million small holders under tradition production system
- Microbial contamination high under traditional milk production system
- Hard boiling milk is the main means of microbial control – limited shelf life, limited commercialization
- 80% of the milk goes outside industrial processors

Per capita consumption and national production of milk

	Per capita consumption	Production
Uganda	50 litres (2009)	1.6 billion (2011)
Burundi	3.8 litres (2009)	44 million
Kenya	76 litres (2009)	5 billion (2011)
Rwanda	12 litres (2008)	176 mill (2009)
DRC	1.2 litres (2004)	5 mill (2002)
Sudan	181 litres (2007)	7.5 mill (2009)
Tanzania	26 litres (2009)	1.7 billion (2009)
FAO	90 litres	(recommendation)
WHO	200 litres	(recommendation)

- 1. Regional production is very low and demand is increasing with incomes**
- 2. Distribution logistics is potentially lucrative for Uganda being in the central location**

Milk coolers

- There are 170 milk coolers countrywide
- 80% of operational coolers in SW of the country which supplies only 60-70% of the milk
- Only one company supplies parts and the services coolers
- Technical support comes from free lance technicians

FISH

- There are 12 functional fish processing factories, all around Lake Victoria
- GoU targets export quota of 60 000 metric tonnes per annum
- Incentives for the sector include 100% capital allowances for RD and training
- One factory alone has a 300-ton capacity cold store for frozen products and 100-ton capacity chill room for fresh products

MEAT

- Between 1991 and 2000 the cattle population in Uganda increased from 5.1 to 6.1 millions
- In 2008 cattle population was found to be 11.4 million
- Cattle are the main source of meat in Uganda
- Consumption is only 6kg per capita compared to 50kg per capital recommended by FAO
- National chicken flock is about 23.5 million
- In 2006, Uganda produced 44,000 tonnes of broiler meat
- From 2003-2005, poultry meat production increased by 22.9%
- Per capita consumption of poultry meat increased from 1 kg in 1996 to an estimated 2.5kgs in 2011

TECHNOLOGY

ENERGY

- Uganda is a net exporter of electric energy and a major producer in the region.
- Its capacity to generate electricity stood at 320MW in 2009, compared to 450MW demand
- Boosted April 2012 to 570MW with new dam
- Uganda's energy consumption
 - 93% biomass
 - 5% petroleum products
 - 2% of electricity
- Only 6% of population has access to electricity of 1% comprises rural population.

ELECTRIC POWER

- Electric power costs too high
- \$623 million spent on electricity subsidies to power generators and distributors since 2005
- Since February 12, 2012
 - Domestic 36% increase to Shs524.5
 - Commercial Shs487.6 up from Shs358.6 per unit
 - Medium industries Shs458.9 from Shs333.2 per unit
 - Large industries will pay Shs312.8 from Shs184.8
- Load shedding too frequent
- Power surges damage equipment

EQUIPMENT AND CONSUMABLES

- There is a thriving trade in used domestic refrigeration equipment
- >50% of the refrigeration and air-condition equipment imported into Uganda is faulty - leakage of refrigerants
- NEMA wants incentives for importing ozone-friendly technologies and high taxes to discourage obsolete technologies
- New refrigerator 300 litres costs US\$458; of 400 litres cost US\$ 875
- Reconditioned ones same capacity cost US\$170 and US\$ 250 resp.
- 70% of the used fridges imported use R600a refrigerant
- No established dealer for used cold store equipment
- Local manufacturer of insulation panels, sells at USD 80 Per m² of 150 mm thickness
- No local production of refrigerants
- Equipment to recover gas during servicing is not readily available.

TECHNICIANS

- Technicians have skills but are too few
- Free Universal Education was extended to A-level and Business, Technical, Vocational and Education Training (BTVET) beginning in January 2012
- Small allocation of US\$24 million for 2012 for both A-levels and BTVET
- Only two institutions have dedicated course on refrigeration and air conditioning - Kyambogo University and Lira Technical Institute

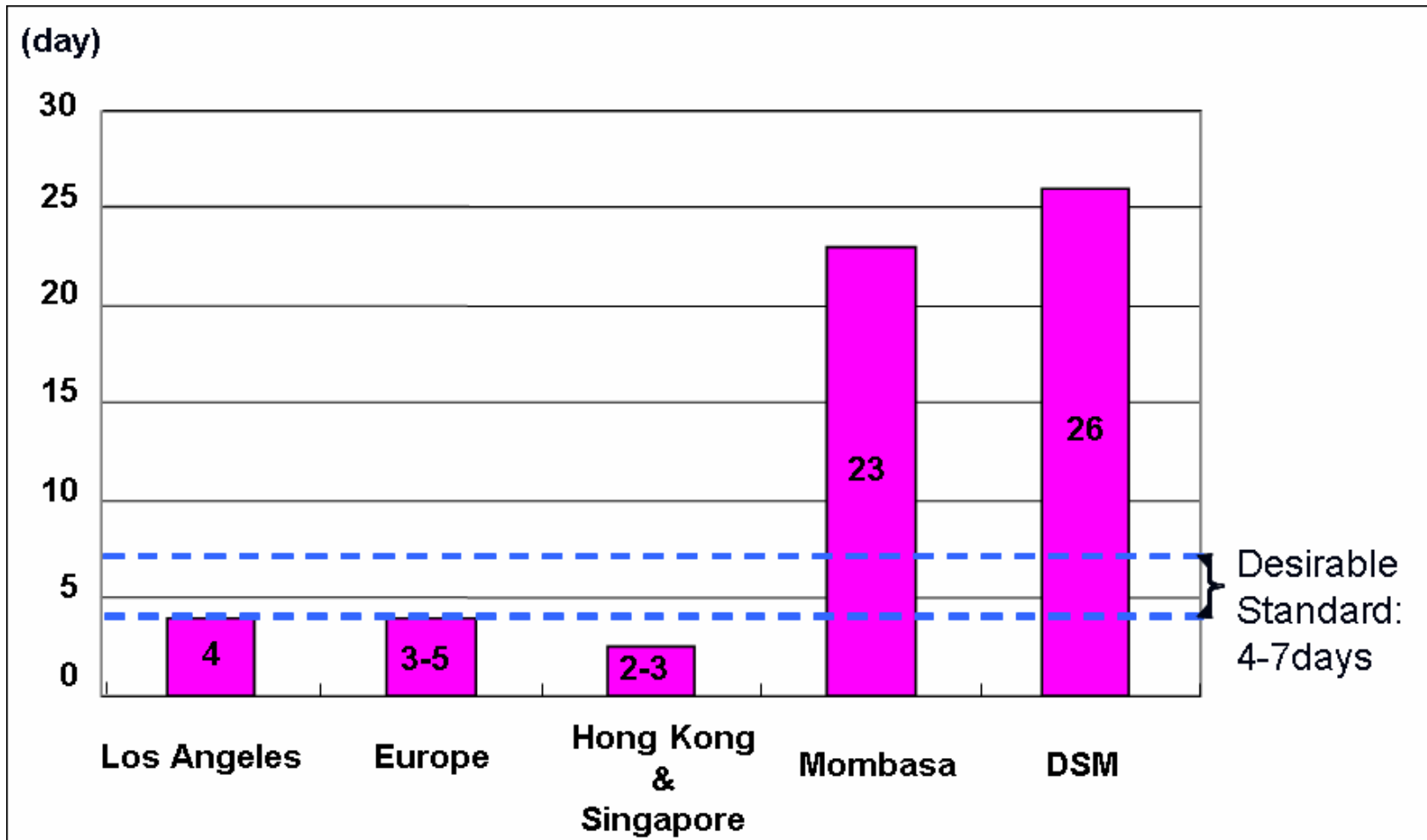
INDUSTRY STRUCTURE

- Temperature range is wide across all sub-sectors
 - But this advantage not fully exploited
 - Cold chain mostly dedicated to the use of one enterprise, not commercial contract operation
- Entebbe international airport limited temperature range
- Blast freezers are not widely spread
 - quick frozen goods not covered
- Air tariff to most destinations hovers around \$1.45-2.50 per Kg

Transport

- To transport a container from Mombasa to Kampala costs between US\$2,900-\$3,500.
- In addition importers are charged a daily fee of \$40 fifteen days from the time their goods reach the country, which is on top of the \$1,000-\$2,000 deposit paid to the shipping line. This is forfeited if cargo is not cleared within the specified time.

Port Delays



INVESTMENT CLIMATE

CREDIT

- Agricultural Credit Facility for a third year running (since 2009)
 - GoU contributing US\$ 12.5 annually
 - Equal matching by participating Commercial Banks
 - Interest rate of 10% per annum, maximum 8 years
 - US\$ 833,000 for construction of storage facilities at rural centres country-wide, may be appropriated for the cold chain

TAXES

1. Transfer Pricing Regulations – aligned in 2012 with ‘the arm’s length principle’
2. Value Added Tax – VAT applicable as long as Ugandan recipient is VAT registered (e.g. most cold chain companies)
3. Supply of Solar Energy is VAT exempt
4. No import duty on solar power equipment
5. No import duty on cold trucks
6. Stamps Duty on securities in procurement of loans above US\$ 1,250 are still in force at 0.5%.
7. Duty on items required for assembly of refrigerators and freezers remitted from 25% to 10% in the 2011 budget
8. Excise Duty on Kerosene was removed in 2012 - kerosene refrigeration cheaper
9. Investment Trader Facility was repealed in 2012 – reduced the benefits of pioneer status previously accorded an investor
 - May be able to go around this if serious investment is

CONCLUSIONS AND RECOMMENDATIONS

CONCLUSIONS

1. Commercialisation of cold logistics high potential for Uganda
2. Tax regime is favourable to the cold chain
3. Owner operators not very knowledgeable about refrigeration or business skills in cold chain
4. Technical backup limited
5. Equipment and consumables still cost too much
6. No clear program to migrate to new refrigerants
7. No supply chain for parts and consumables
8. Service providers not organised
9. Energy costs too high
10. No enforcement of the food safety regulations

PRIORITIZED RECOMMENDATIONS

1. Enforce Public Health Regulations
 - Sensitize public
 - Strengthen PH and standards institutions
2. Organise actors – material suppliers/stockists, technicians and operators
3. Reduce non tariff barriers (NTBs)
 - Delays at borders, ports and excessive number of checkpoints
4. Train owner operators
 - Study tours
 - Mentoring program
5. Train technicians
 - Young technicians
 - In-service training
 - Certify technicians