Prior to 1991, during a state controlled economy, there was only one dairy processing plant in the country namely the Dairy Produce Board of Zambia (DBZ). After 1991, when the economy was liberalized, the dairy subsector experienced some transformation that brought about the emergence of more milk processing plants from one (1) before 1991 to about twenty (20) plants now. These processing plants range from small, medium to large commercial plants. Most of these processing plants are currently marketing milk through commercial channels and comparatively a little in the informal channel. About 81 to 83% of the milk, produced by smallholder farmers, is sold through the informal market. This milk is either produced and consumed at household level or sold to consumers in the community at the farm gate prices. In terms of quality of milk and milk products, it can also be argued that the post privatization era witnessed improvements. This is due to competition that exists amongst the dairy players over the market shares that each player wants to control. This in itself speaks volumes as it has increased employment at all levels of the dairy value-chain starting from the input suppliers, the dairy farmers, the milk collection centres, the processors to the traders/retailers.

At the moment an estimated 108,000 farmers are involved in milk production in both formal and informal channels contributing an estimated 27,500 jobs in the dairy sub-sector including in its trading. High production areas of dairy products include Southern, Lusaka, Central and Copperbelt provinces.

One of the setbacks that have been affecting this important subsector is the existence of information gaps especially in profit margins, supply levels and production levels in the industry. This information gap has made it difficult for the Ministry of Agriculture and Livestock (MAL) to plan and implement policies based on verified facts and figures. This is the reason why the MAL and agricultural stakeholders requested the Agricultural Consultative Forum (ACF) to facilitate a study to look at the issues that are affecting growth of the subsector, the potential of the dairy subsector and its contribution to the economy. ACF therefore commissioned a study which was undertaken by Strategic Visions Limited on which larger part of this Policy Brief is based.
Zambia has the potential to be a milk exporting country considering that the country has abundant water, suitable land and favourable climatic conditions for the dairy industry to flourish. The dairy study commissioned by ACF estimated that Zambia produces between 214 and 254 million litres of milk annually. These figures are comparable to the estimates by the Golden Valley Agricultural Research Trust (GART) and the Ministry of Agriculture and Livestock, who estimated national annual production of milk at 215 million litres and 240 million litres, respectively.

The study revealed that about 39 to 41 million litres of milk passed through the formal marketing channels in 2010 which is comparable to the figure that the Dairy Association of Zambia (DAZ) estimated in June 2011 of about 44 million litres passing through the formal marketing channels. The contribution of shares for milk supply in the formal market were represented as follows: commercial farmers, (with 51 and above milking animals contributed 70.9%); Large Emergent Farmers with 21 to 50 milking animals contributed 7.5%; Small Emergent farmers, with 11 to 20 milking animals contributed 9.6 % and smallholders, with 1 to 10 milking animals contributed 12%. The study further revealed that the number of smallholder farmers participating in dairy business through the formal marketing channels has doubled from less than 6% in 2007 to about 12 % in 2010. This increase was attributed to the establishment of Milk Collection Centres (MCCs) by stakeholders in the subsector and positive emergence of raw milk buyers.

However, it was established from the study that Zambia is a net importer of milk and milk products by between 2.5 million and 3 million Kgs annually. It is estimated that currently, the per capita consumption of milk is 19.5 litres which is 10 times lower than the recommended per capita consumption of 200 litres / annum by the World Heath Organisation (WHO) and Food and Agriculture Organisation (FAO). Per capita consumption requires more stimulation to facilitate sector growth and enhance the contribution of the dairy sector’s role in the economy (Theron, 2011).

Policy and Legal Environment for the Growth of the Dairy Sub-sector

The current scenario of importing milk is worrying to government since the dairy subsector has the potential to create employment, reduce poverty, insure nutritional household food security and earn forex for the country. Having realized this prospective, the government enacted a number of bills into law with the view to create a favorable environment for sustainable growth of the dairy subsector. Notable pieces of legislation include the Dairy Industry Development Act of 2010, Animal Health Act of 2010, Animal Identification Act of 2010 and the Veterinary and Veterinary Para-professionals Act of 2010. The Dairy Industry Development Act which is the principal Act for the dairy subsector appears to be comprehensive and provides useful guidelines for the development of the dairy subsector.

Contribution of the Dairy Industry to Incomes of Smallholder Farmers

Currently, the production of milk from indigenous cattle, per smallholder farmer lies between 1-3 litres of milk per cow per day (ACF 2012), translating to ZMK 2500 - 7500 (US$ 0.50 - 1.50) income per day at the price of ZMK 2500 per litre. This low productivity and consequent low incomes can mostly be attributed to the use of poor breeds by smallholder farmers. However, with good management practices such as improved feeding regimes with pasture, forage management, better breeding strategies with improved cattle breeds, scheduled veterinary care, hygienic measures and facilitation of water access among others, milk production can be increased to 12 - 15 litres per cow per day for smallholder and emergent farmers and above 20 litres per cow per day for commercial farmers. This can translate into a proportional increase in their incomes. However, the study found that the most competitive production level in the dairy value-chain was found to be at the smallholder farmer level, mainly due to non-monetary costs incurred at this level such as un-costed family labour and less expenditure on purchased feed (ACF 2012).

Prices & Margins in the Milk Value-Chain

Different prices and margins obtain at different stages of the milk value-chain. Production costs per liter were ZMK1, 337 (US$0.27), ZMK1, 622 (US$ 0.33) and ZMK1, 472 (US $ 0.30) respectively, for a smallholder, emergent and commercial farmer enterprises.

The study revealed that MCCs purchased milk from smallholder farmers and Small Emergent farmers at an average price of about ZMK 1900 (US $ 0.39). Commercial and Large Emergent Farmers sold milk to processors at the farm gate prices of between K2, 400 and K2, 500 (or US $ 0.49 to 0.51) per litre. On the overall, the gross margins for farmers were between US$ 0.12 and US$ 0.20 per litre (or between 44 % and 63 % over production costs).
The gross margins at MCC level differed depending on the location and the production levels of farmers. The MCCs in far flung areas like Chipata, Mongu, Mbala and Mpika have lower margins due to low prices of milk in their localities. In Lusaka province for instance, MCCs sell milk with a gross margin of K400 per litre after buying at K2500, which is about US $0.08 per litre. For a MCC to make profit there is need to increase the production levels of milk in their localities to cover fixed costs (depending on the overhead costs of salaries, electricity, water and rentals for facilities, among others).

### Competitiveness of the Dairy Subsector in Zambia

Currently, the Zambian milk is uncompetitive by price, compared to other countries such as Kenya. Kenya can land its milk in Zambia at K2500/litre which is the same price at the farm gate price sold to MCCs, before processing and packaging. Zimbabwean prices and those obtaining in South Africa indicated that Zambia’s milk is fewer prices competitive in the region.

However, Zambia’s milk is more competitive on quality considering the low bacterial count per ml of milk. However, the main basis of consumer buying decision of milk is price. See table 1 below.

### Table 1: Comparison of Hygienic Milk Standards between Zambia and East African Countries Standards (Colony Forming Units per ml or viable bacteria / ml of milk)

<table>
<thead>
<tr>
<th>Milk Grade</th>
<th>Zambia (CFU / ml of milk)</th>
<th>Milk Grade</th>
<th>East Africa* (CFU / ml of milk)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>&lt; 50,000</td>
<td>A or I</td>
<td>&lt; 200,000</td>
</tr>
<tr>
<td>B</td>
<td>50,001-200,000</td>
<td>B or II</td>
<td>200,001-1,000,000</td>
</tr>
<tr>
<td>C</td>
<td>200,001 and above</td>
<td>C or III</td>
<td>1,000,000-2,000,000</td>
</tr>
</tbody>
</table>

Source: *COMESA East African Standard 2009

Zambia’s low price competitiveness of milk can be explained by various factors. One of the main reasons is the high cost of feed, which accounts for more than 50% of the total production cost of milk. See figure 1 below comparing the price of maize, a major component of the livestock stock feed, offered by FRA and SAFEX. The high price of maize offered by FRA compared to SAFEX may have a bearing on the cost of stock feed for the dairy sub-sector in Zambia compared to South Africa. Other factors include the breeds of milking animals, farmers’ access to water for their animals throughout the year; high transport costs as explained by a multiplicity of fuel levies and taxes, and limited access to electricity for most small scale farmers (which could facilitate bulking of milk collected at different times, through chillers).

### Source: Zambia National Farmers’ Union, July 2010, quoting the SAFEX, (South Africa)

### Figure 1: Regional Maize Price Comparison (Price/MT) in US$ per tonne

### RECOMMENDATIONS

(I) Promotion of milk consumption
Induce increased demand for milk and create culture of milk consumption through initiatives such as the school milk feeding programmes, introduction in the rations with milk to government institutions such as the police and other service organs.

(II) TAX Relief
Removal of taxes such as VAT on molasses and on the importation of dairy equipment and other dairy related inputs in order to make the dairy subsector competitive in the region.

(III) Establish Milk Collection Centres in other Potential Milk Shed Areas:
New MCCs should be opened in places which have growing cattle population and concentrations in Zambia and potential for market access. This can be achieved through collaboration among sector players such as HPI, Land O lakes, DAZ, GART, WVI, MBT (for loans), ZATAC and LDT, among others.

(IV) Facilitate Availability of Water in Milk Shed Areas:
The Government should facilitate and provide boreholes, dams and other water sources in milk shed areas to ensure that milk shortages in the dry-season are mitigated among smallholder farmers.

(V) Regulate the export of Maize Bran
The Government should regulate the export of maize bran through export tax as it is one of the key ingredients in feed formulation for dairy animals.

(VI) Adopt and implement the Dairy Policy
The government should develop a policy framework in order to expeditiously address issues that affect the subsector such as provision of ministerial advice on decisions pertaining to import duties, levies, export of feed ingredients and so on.
(VII) The government should encourage use of mini-chillers at farm level. This will encourage bulking, avoid post harvest loss of milk, reduce transportation costs, and improve quality of milk which would translate into lower prices for Zambian milk. Chillers should be provided with some subsidy programme or at duty free. The DIB and DAZ should consider lobbying for electrifying smallholder farmers in the dairy clusters. The farmers can pay for electricity through the MCC stop order system.

(VIII) Provide Support to women farmers
This will increase their participation in emergent to commercial farmers’ categories. When credit and other support facilities are available from government and other development partners, women should be given a quota of say 50% in line with the SADC protocol on gender equity.

(XI) Government should develop Categories of Dairy Farmers
The MAL should come up with a categorization system of dairy farmers. The number of milking animals, in tandem with the amount of milk produced could form the basis for the categorization.

REFERENCES