

Quick Scan Dairy Sector Tanzania

Annexes

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Currency conversion:

1 € = 2128 Tsh	1,000 Tsh = 0.44 €
1 US\$ = 1552 Tsh	1,000 Tsh = 0.61 US\$
1 € = 1.37 US\$	1 US\$ = 0.73 €

Term / abbreviation	Explanation
Agro-ecological zone	Zone of a country, state, province or district with similar potential for agriculture; on country scale often based on modality of the annual rain (mono- or bimodal seasons) and the number of dry months. On smaller scale it consider soil type and elevation
Agro-pastoralists	Cattle keepers who graze their cattle on communal grazing land during the wet season and on crop land after harvest when crop residues are available,
Anand model	Smallholder dairy coops in India developed under Operation Flood
Arusha declaration	Political statement of 1967 on African Socialism of ‘Brotherhood’ or Ujamaa
BO	Butter Oil
CAHW	Community Animal Health Worker
CBPP	Contagious Bovine Pleuropneumonia
DAFCO	Dairy Farming Company (dissolved around 1990)
DLDO	District Livestock development Office(r)
DRT	Department of Research and Training of MAFC
DRTE	Department of Research, Training and Extension of MLFD
DSM	Dar es Salaam
EAC	East Africa Community: Tanzania, Kenya, Uganda, Rwanda, Burundi.
EADD2	East Africa Dairy Development no2
ECF	East Coast Fever or Theileriosis
EU	European Union
FAO	Food and Agriculture Organization
FMD	Foot and Mouth Disease
GDP	Gross Domestic Product
GHG	Greenhouse Gases
GIT	Goat in Trust (credit for goats in kind and repayment in kind with offspring)
Grade cattle	Crossbred dairy cattle (exotic breeds, Bos Taurus)
HBU	Heifer Breeding Unit (production of F1 Bos Taurus heifers)
HIT	Heifer in Trust (credit for heifers in kind and repayment in kind with offspring)
HPI	Heifer Project International (NGO), presently named: Heifer
Kilimo Kwanza	Agriculture First – Government policy plan
LGA	Local Government Authority
LIDA	Livestock Development Authority (dissolved)
LITA	Livestock Training Agency of MLFD
LITI	Livestock Training Institute
MAFC	Ministry of Agriculture Food Security and Cooperatives

Term / abbreviation	Explanation
MCC	Milk Collecting Centres
MDG	Millennium Development Goals
Milk density	Quantity of milk (kg) produced per km ² per year
MLFD	Ministry of Livestock and Fisheries Development
Mpwapwa cattle	Dairy breed developed in the 1930s in Tanzania consisting of local zebu cattle, Red Sindhi, Sahiwal and Bos Taurus (mainly Ayrshire)
Mtindi	Fermented milk
NAIC	National Artificial Insemination Centre
NBS	National Bureau of Statistics
NGO	Non-Government Organization
NMB	National Microfinance Bank , Tanzania
Parastatals	Government enterprises
PPP	People Planet Profit
RLDC	Rural Livelihood Development Company
RLDO	Regional Livestock Development Office(r)
RPF	Resource Poor Farmers
RRF	Resource Rich Farmers
SDSP	Smallholder Dairy Support Programme, the final phase of the Dutch involvement in the dairy sector in Tanzania
SMP	Skim Milk Powder
SUA	Sokoine University of Agriculture
TAD	Trans-boundary Animal Diseases
TAMPA	Tanzania Milk Processors Association
TAMPRODA	Tanzania Milk Producers Association
TBD	Tick Borne Diseases
TBS	Tanzania Bureau of Standards
TDB	Tanzania Dairy Board
TDCU	Tanga Dairy Cooperative Union
TDL	Tanzania Dairies Ltd (dissolved around 1990)
Transect	a diagram to show how a farm, village or larger geographical region changes from one side to another, e.g. from north to south or from higher to lower altitudes. Transects can be done in space (geographically) as well as in time (historical transects)
TSZ (or TSHZ)	Tanzania Shorthorn Zebu
TVLA	Tanzania Veterinary Laboratory Agency
UHT	Ultra High Temperature treatment of milk (or long life milk)
Ujamaa	Ujamaa or 'Brotherhood' was the concept that formed the basis for the economic development policies (around 1965 – 1985)
UNDP	United Nations Development Programme
VAT	Value Added Tax
WFP	World Food Programme

Annex 3 List of references and other interesting documents

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Annex 4 Websites of Netherlands' and Tanzanian Agri-business

African Agribusiness Academy: <http://www.aa-academy.org/>

Agriterra, Kuungana Foundation.ZLTO project: <http://www.agriterra.org/nl/stories/57890/stapje-terug-maar-langzaam-aan-groeien-voor-zuivelfabriek-in-tanzania>

Agriterra, ZLTO and Kuungana Foundation: <http://www.agriterra.org/index.php/nl/stories/57561/nederlandse-aandeelhouders-in-tanzaniaanse-zuivelfabriek?page=1>;
http://www.agriterra.org/assets/uploads/15356/jaarverslag_EN.pdf

CRV: <http://www.crv4all.com/>

d.o.b. investment fund (on Tanga Fresh): (<http://www.dobequity.nl/east-africa-fund/tanga-fresh-tanzania/>)

Dairy Training Centre: <http://www.dairytrainingcentre.com/>

East African Dairy Project (list of reports and powerpoint presentations): <http://eadd.wikispaces.com/Tanzania>

Eastern and Southern Africa Dairy Association <http://www.dairyafrika.com/>

Farm Friends (Netherlands) and Farm Friends (Tanzania): <http://www.farm-friends.nl/english/> ,
<http://www.farm-friends.nl/farm-friends-tanzania/>

KI-Samen: <http://www.ki-samen.nl/index2.php?lan=en>

Land O' Lakes USAID funded dairy programme Tanzania:
<http://www.prweb.com/releases/2011/1/prweb8098744.htm>

Ministry of Livestock and Fisheries Development: <http://www.mifugouvuvu.go.tz/>

Netherlands African Business Council (NABC) Dairy development Consortium (Kenya and Uganda):
[http://www.nabc.nl/Services/Consortia/Dairy\(KenyaUganda\).aspx](http://www.nabc.nl/Services/Consortia/Dairy(KenyaUganda).aspx)

RABO and NMB: https://www.rabobank.com/en/rabo_development/PartnerBanks/NMB_Tanzania.html .
<http://www.nmbtz.com/>

SIMGAS Tanzania Ltd: <http://www.simgas.com/contact/about-us/item25>)
Tanzania Veterinary Laboratory Agency, Temeke: <http://www.tvla-tz.org/>

The Friesian (Dairy Consulting Company): <http://www.thefriesian.nl/>

Van de Heuvel, Dairy Equipment: <http://www.heuvelzuivelmachines.nl/>

World Bank Tanzania: <http://www.worldbank.org/en/country/tanzania/overview>

World Bank, doing business in Tanzania:
<http://www.doingbusiness.org/data/exploreeconomies/tanzania/starting-a-business/>

Annex 5 Consulted persons

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Annex 6. Problems and Opportunities in Tanzanian Dairy (brainstorm sessions)

Problems	Opportunities
Genetics / reproduction/ calf rearing	
poor AI network/distribution and insemination quality, low fertility/heat detection, genetic make-up and mix Taurus x Indicus, shortage of replacement stock, calf feeding/age 1 st calving	heat synchronization, cross breeding, resistant breeds, import semen Taurus and Taurus x Indicus; AI road side points; suckling; milk replacer, milking and rearing units, heifer breeding units (F1 supply for replacement); sexed semen (expensive, delicate and poorer results); import of cattle
Milk collection / processing / seasonality of production/ Quality issues:	
unclear goals/focus on different markets, strong seasonal fluctuations in production (especially pastoral areas), many areas low quantity/km ² , shortage of collection points/cooling facilities, shortage of processing capacity in flush season (also reduced demand), long transport lines (poor roads); milk of poor hygienic quality; informal market pays high price (especially in dry season); how to unlock existing potential ('bottom of the pyramid')	solar cooling at collecting points, close collecting points in dry season; higher milk price in dry season (relate milk quantity delivered in dry and wet season); long life milk products (UHT or milk powder); central UHT plant for surplus (poor quality) milk? ; concentrate dairy in 'milk sheds'; process a few degrees higher; quality payment; tapping potential areas (southern highlands / Kagera); chain approach; reliable milk collection and payment
Animal nutrition, feed and feed conservation	
Roughage quality and availability (=cost); lack of concentrates; seasonal production; feed conservation;	cultivation of fodder; (distant) hay making; village silage making; feed resources from mixed farming
Credit facilities / availability:	
no credit facilities (due to lack of collateral – e.g. land title); poor repayment discipline;	credit via milk plant / collecting centre; cooperative saving society; HIT scheme operated by Cooperative?
Farmers organizations / lobbying power:	
farmers society difficult to establish + make operational; overhead cost	legislation, lining up with support groups (AgriProFocus)
Animal health	
Tick borne diseases (ECF); poor or non-existent veterinary service	regular spraying; zero-grazing; CAHW; village veterinarians; ITK
Government policy / economics:	
free imports from Kenya (EAC)	selling fresh milk to Kenya, 60 % duty on imports from outside EAC
Areas with improved dairy animals and no developed markets:	
from past projects many crossbred animals in Kagera and southern Highlands and no milk collection	reviving farmers groups and farmers associations and establishing collecting centres;
Resource-poor / Resource-rich:	
easier to trade with those few larger farmers in the country, will that widen the gap between RPF and RRF?; How do they get access to AI, vaccines, feed etc?; possibilities to start a medium sized company?	support NGO's and private initiatives legislation; RPF is efficient and RRF effective
Areas with investment opportunities (government)	
land titles, infrastructure, reliable market outlet?	medium to large scale dairy farming , fodder and hay production for sale; milk processing, feed plants;
Demand:	
milk demand grow only in urban areas, or also in rural areas?; milk is a goal in itself	stimulate rural demand; teaching etc. on holistic approach with multifunctional dairy
Infrastructure:	
expansive transportation	use milk vans to bring inputs to producers
other Problems and Opportunities	
much attention to 'hard' technology breeding and loss of 'local' genetic materials	use of scenario's industry economic and farmer perceptions; innovative breeding schemes; rediscover value local resources; local processing

notes: RPF-resource poor farmer; RRF-resource rich farmer; EAC - East African Community;
ECF- East Coast Fever

Annex 7 Dairy development models

Dairy production models to be considered for the future

Dairy development models can be taken from what happened in Tanzania over the past century (Ch.2.1 History). They can also be taken from other countries to inspire future shapes of Tanzanian dairy. Often the different models overlap in one aspect or another. Their difference can also be caused and/or blurred by aspects such as particularly strong leadership and/or specific role of governments, etc. Major models from around the world are briefly described below with a birds' eye view. The models are summarized in Chapter 5 (Table 5.1), mixing aspects of production and value chain. A more elaborate description is given below:

- the 'cooperative' (bottom-up as well as top down), emerging from existing smallholder dairy production. Large commercial farms have generally nothing or little to gain from these 'cooperatives', unless they can well use milk from smallholders to have a greater volume (see the KCC below). Examples are, based on private leadership and later government supported, the 'Anand model' of Western Gujarat in India, some 50 years ago, where a strong local leader (dr. Kurian) managed to get the Indian dairy sector on its feet, obviously with advantages and dis-advantages. Other examples building on existing small-holder dairy are government initiated Cooperatives of Indonesia (especially on Java), government supported but privately run Brazil examples such as of Minas Gerais, and of course, those of W-Europe, the US and New Zealand.
A typical example of this model in Tanzania is the Tanga Dairy Cooperative Union.
- the 'industrial farms', with large industrial dairy farms superimposed on countries with or without existing dairy production. Cases are known from Saudi Arabia and from China since the nineties. In the latter country it are, privately owned but government supported, large dairy (processing) companies that rush to introduce industrial dairy farms, generally ecologically very unsustainable, crushing existing smallholder production on arguments of food safety (and national food security). Real reasons for the 'crushing' may also be that large players do not like the competition of cheaper milk from rural producers. In Tanzania this model is rather unknown, but an option, especially if private producers step in. In essence they are the 'commercial farms' revisited (see below) with the difference that those tended to be families immigrating rather than corporations hiring staff.
- the 'state farms' that introduce specialized dairy farms, rather irrespective of existing smallholder production systems. This model is known as 'military farm' from colonial South Asia (what used to be British India). It basically aimed to supply their military as well as colonial officers with commodities that they used to use at 'home'. Left-overs from those military farms are often used for programs such as heifer-salvaging or they survive on government or parastatal funding. In Tanzania this model will be associated mostly with the parastatals from the socialist Selfreliance era (1965-'85). They were meant to supply cities with milk and villages with heifers, based also on the Cuban and Russian models. The system is now considered outdated, outlived and undesirable. Typical cases of this model in Tanzania were the DAFCO farms in the 1970s and 80s.
- the 'commercial farms', known from colonial East Africa. There, 'white immigrants' or settlers ran commercial, often specialized dairy farms, especially in the so-called 'white highlands' of Western Kenya. These farms also helped establish the Kenyan Cooperative Creameries (KCC) where milk from small-holders was bought to increase trading volumes. The KCC originally handled mainly cream that did not easily spoil while the skimmed milk was kept at home for local use (buttermilk and calf-rearing?). The model was, perhaps, ecologically well sustainable but not in socio-cultural terms. The arrival of

white farmers from southern Africa as well as from Europe fits the same theme, and it is not unlikely to show up in Tanzania also, sooner or later. Tanzania had far less ‘settlers’ than Kenya, and rules on landownership are not favorable at this moment.

Typical current examples of this in Tanzania area a few (emerging) medium and large scale commercial farms.

- the ‘middleman’ where a dairy farmer and/or individual entrepreneur informally collects milk from (other) individual farmers, mostly smallholders and pastoralists, along and on the way to the village or urban centre. There the milk is sold, usually un-processed, sometimes adulterated depending on local ‘culture’ and quickly boiled or consumed raw in the family. Generally this system has ‘comparative advantage’ near centers with (semi-urban) populations where people live with other professions. The system is well known from South Asia but really from around the world, even from about a century ago in western Europe. In economic and ecological terms the system is quite strong. It is an informal market with hardly any transaction costs, no carbon footprint for cooling or packaging, and with much if not all its added value remaining in the community, also using cheap milk produced by smallholders. The ‘strong’ Kurian model could not beat this ‘middleman’ model on cost and organization in areas where there is a ready informal market for fresh milk. In Malaysia the considerable Indian community gets its milk from this market via private vendors (another word for middlemen) that in turn get the milk from smallholders as well as larger producers that are better connected to the urban markets). In mainstream development terms it is considered backward due to often advertised public health issues while it also competes with a politically stronger commercial sector. The latter sector can compete with the middleman only via legislation and political pressure, often leading to a more or less large ‘illegal’ informal market (see the China case above). In Tanzania this approach resembles most that of middle man in the peri-urban trade but also middleman collecting and delivering milk to collecting centres or milk plants. These middleman are called ‘hawkers’ in Tanzania where they operate in virtually every step of the milk chain;
- the ‘urban farm’ with smaller or larger dairy farms producing milk close to the market on the fringes (or sometimes in the centre) of cities, often utilizing waste products from the city. That used to be good practice in Europe too. For example, in Copenhagen of a century ago these dairy farms helped companies like Carlsberg utilize their beer-brewers ‘spent grains’, sometimes up to the point that dairies were expanded to handle more of the ‘spent grains’. ‘Milk bars’ along major roads fit the same model since they directly supply consumers with fresh and/or processed milk, even if geographically distant from cities. Such urban dairies also exist all over the Indian sub-continent, in South and Central America (in Mexico-City they were active but officially non-existent). They use urban waste, thus being ecologically very sustainable by helping to keep cities clean. problems of smell and dung-disposal eventually tend to push these dairies to (beyond) the fringes, the raison d’être of large milk colonies such as the Aarey Milk colony near Bombay. These dairies sell their produce directly, processed or unprocessed, from the farm. In Tanzania this approach resembles most that of the Dar-es-salaam urban farms, standing strong in their own kind.
- the ‘direct chain’, with modern industrial dairies having their own processing basically fulfil a similar function to large modern cities as the earlier ‘urban dairies’. These ‘models’ can have an almost direct link with consumers even if they are physically distant from the city. Economically and politically they have an edge, also in terms of public perception on modernity. Socially and ecologically they cease to have the advantage of using urban wastes, of getting more added value from ‘oil’ (with associated carbon footprint for cooling and packaging) and of not anymore keeping the added value

in the community. In Tanzania this approach resembles most that of medium and large dairy farms selling processed products. Other examples in Tanzania are the micro-processors who collect milk from peri-urban or rural farmers.

- the 'hodgepodge' where cities and villages are supplied by a mix of middlemen, peri-urban farms, imported milk and the like. A typical case in point is the Philippine dairy market with no large market for fresh milk and, as a whole, no strong comparative advantage to produce large amounts of milk. Still, systems like this have opportunities for dairy development, e.g. to expand the market for fresh milk based products. Their 'economic' advantage is that they tend to consist of a hodgepodge of farms that well suit the local ecologies and economies with most of the proceeds staying in the communities. Standardization does involve, usually social and ecological adaptations even if those make economic sense. In Tanzania this approach resembles most that of all what is happening in dairy in and around Dar es Salaam.
- the 'homestead', a very localized 'market' where milk from usually small holder farms is used directly in the family or by 'neighbours' from the same community. ***In Tanzania most small farmers and pastoralists with local cattle. They represent a significant if not the largest portion of Tanzanian dairy, thus securing local 'milk food' in a cheap and efficient way.***
- the 'import milk and milk products' model that forgets about supporting/stimulating local production, letting market forces decide everything. Such a model tends to discourage local production and not create any rural employment. In countries and/or areas with low comparative advantages for dairy this model is not necessarily bad, often leaving sufficient room for locally produced fresh dairy [products]. It can be combined with a 'balanced SMP import' model – import SMP (and butter-oil) to keep milk plants running and have a continuous supply to the consumers. In Tanzania this model might be useful for some areas but as a whole it is not a preferred approach for this country.