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## ***The Milk Value Chain:***

***Generating employment and income and creating wealth  
while improving nutrition***

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## Key Discussion Points

- Why USAID invests in improving smallholder dairy value chain performance
- Characteristics of milk production and marketing in our target countries
- Where we invest to “transform” dairy value chains
- Often overlooked investment and employment opportunities in transformed systems
- Cross-cutting issues
- Lessons learned



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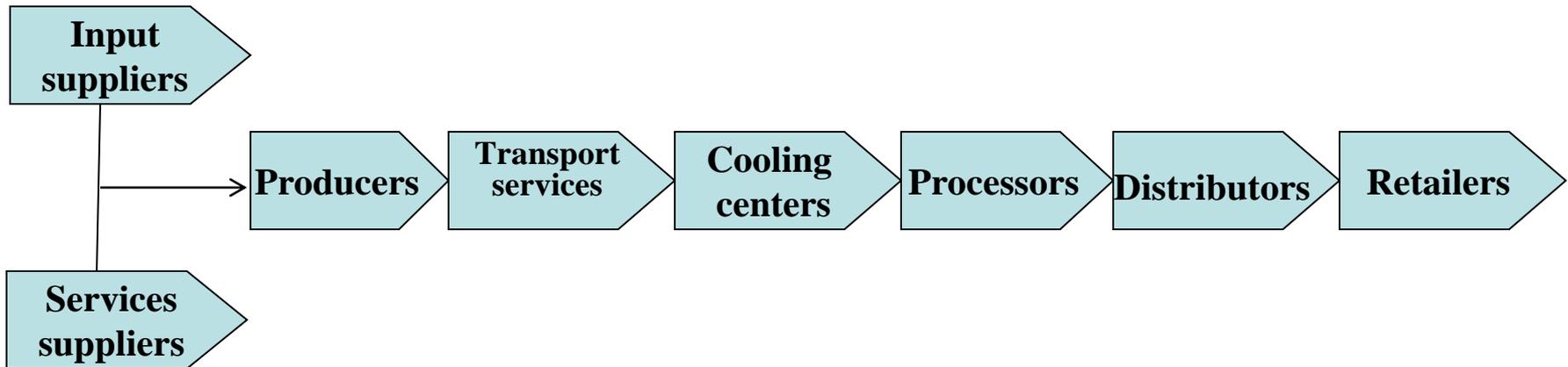
## Why Does USAID invest in Smallholder Dairy Development?

- **Proven pathway out of poverty**
- Families **familiar with cows** and **value cow ownership** and productivity.
- Even in the most conservative of societies, **cows and milk often managed by women** and income from milk is managed by women.
- **Milk is a familiar food.** The market for milk (and meat) already exists.
- **Demand for milk** and dairy foods go up with urbanization and increased incomes.
- Milk makes **positive contributions to the diet** of children, pregnant and nursing mothers, the elderly and persons with health challenges.
- **Cows are ruminants:** milk can be produced wherever there is a forage base.
- The milking enterprise **complements other agricultural enterprises** within a farming system.
- **Attracts private investment:** Processing is a lucrative agribusiness and can be complementary to other food processing enterprises.



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# The Dairy Value Chain





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## End Markets for Milk

### Processed (“chilled”) milk and dairy products

Milk is “standardized” as to fat level (3% down to skim)

**Pasteurization destroys pathogens and extends shelf-life**

Processing, distribution and retailing represents huge **capital investment and marketing costs**

Brand and regulations build **consumer trust**

**Product innovation** an important business strategy – **availability and convenience**

**Prices are higher** – Generally sold to families with higher levels of income – **economies of scale need consideration**

### Un-pasteurized (“warm”) milk sold direct to consumers

**Households buy milk un-pasteurized**, sometimes chilled, from kiosks or receive it from traders direct at their front door

**Milk is not standardized** nor certified

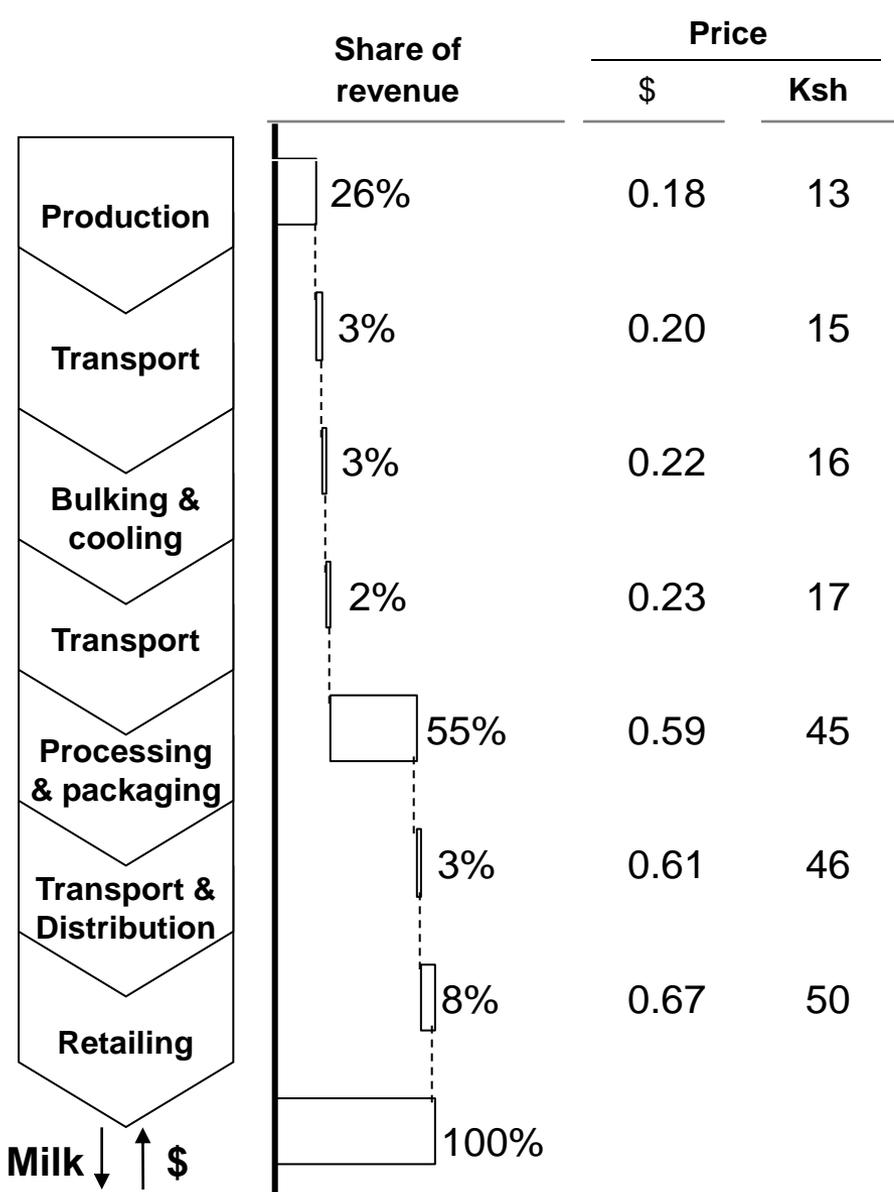
**Low-investment distribution system** – pick-ups, bicycles, used soda bottles, a cooling tank (sometimes)

**Personal relationships underpin trust**

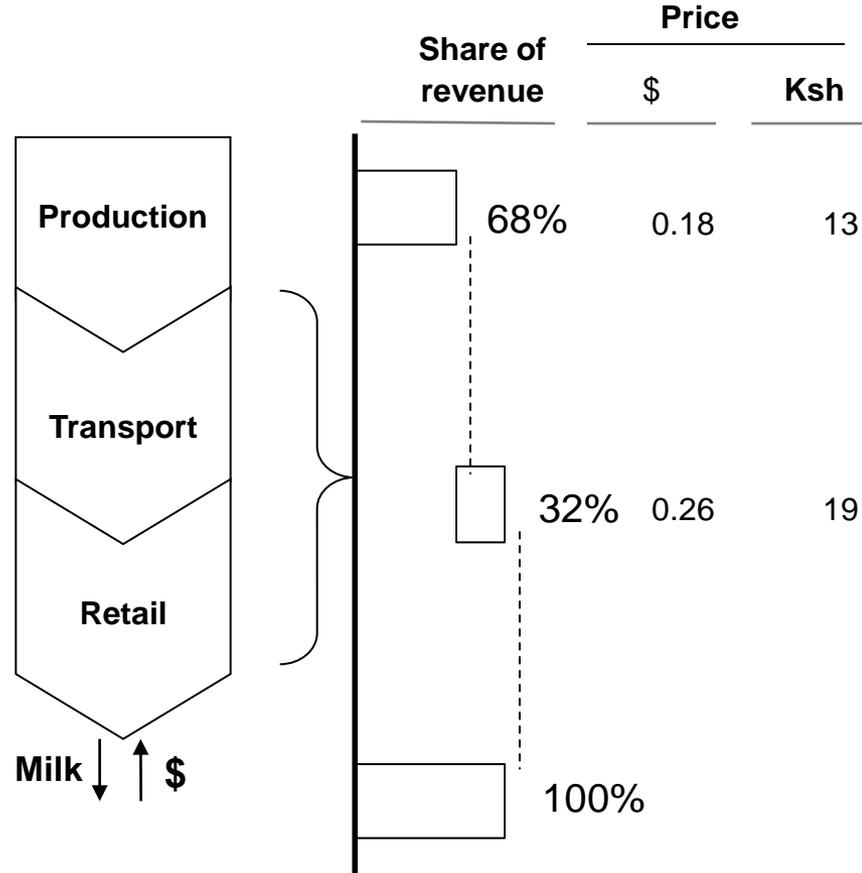
**Prices are lower** – Sold to families with lower levels of income but also those where food “tradition” is important

**Food safety and public health risk** through consumer discretion and “distributed” pasteurization system

## Processed milk chain



## Warm chain



**Prices and revenue shares, Kenya dairy value chain, 2004**



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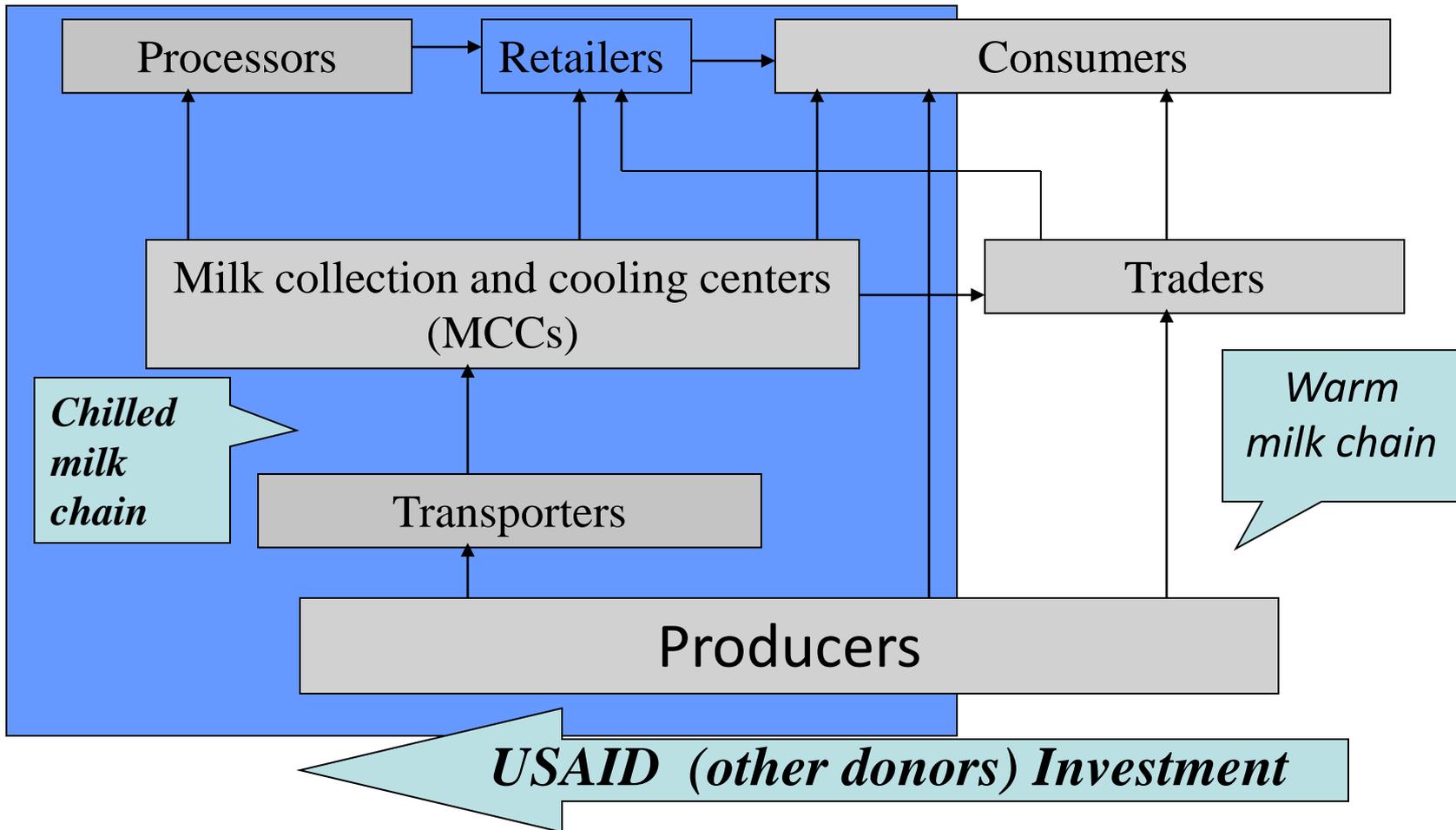
## Where Does USAID Invest?

- **Stakeholder organization** and strengthening– Policy research and reform, public-private partnerships, building common interest groups to have a voice, driving country ownership
- **Input supply and services**
  - Market-sustained access to veterinary services, improved genetics
  - Embed training and advise with input supply or cooling services
  - Focus more on private sector than public sector
  - Integrate ICT into services businesses
- **Training smallholders in “dairy as a business”**
- **Training and financing for milk transporters to upgrade their services**
- **Producer organization development** – Support member-owners with milk cooling and marketing services and access to training, services and input supply



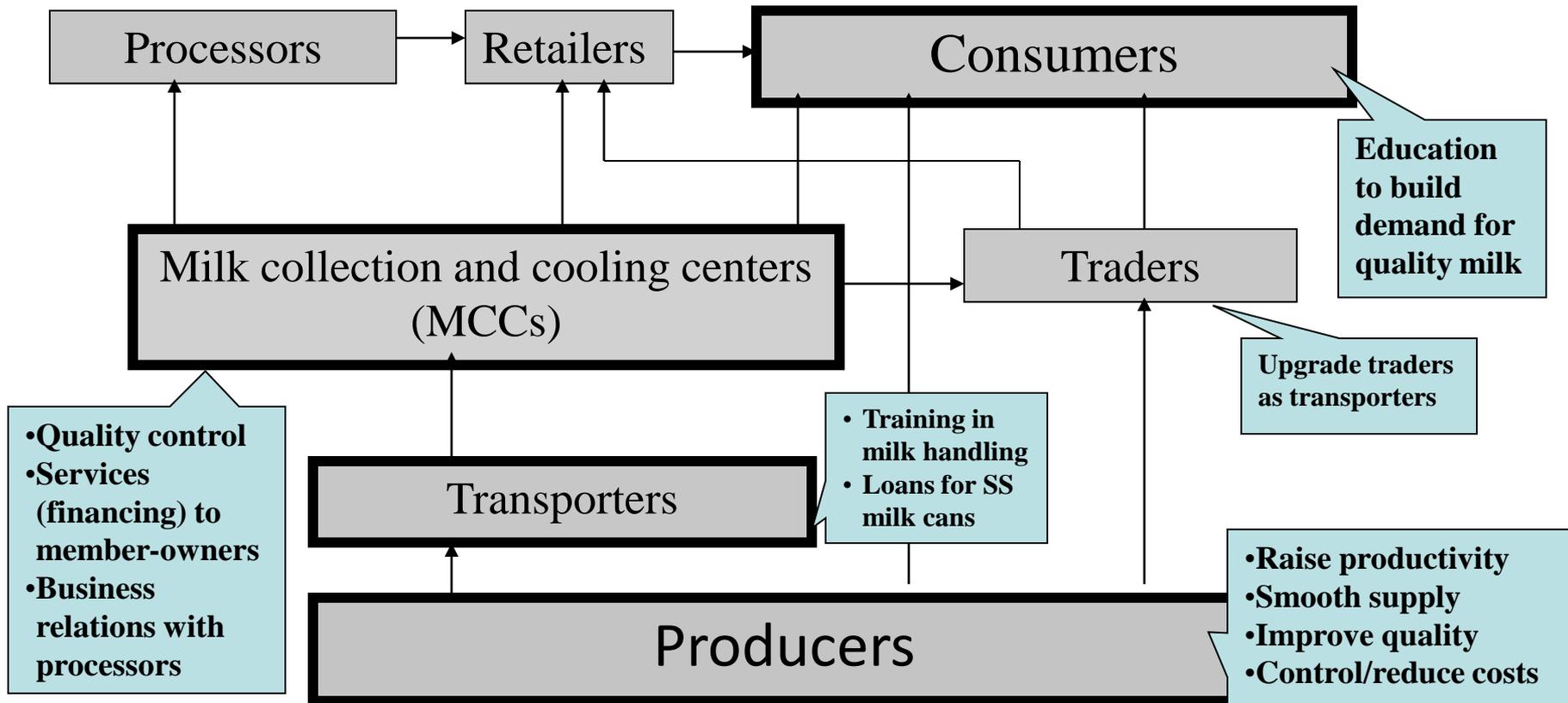
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## Collection, Cooling and Marketing of Raw Milk





# Upgrading Strategies at Key Value Chain Points





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## Often Overlooked: Opportunities for the Poor in Input Markets

- **Forage seed:** High demand, more expensive than food staple seed, uses a lot of hand labor, high returns to skilled household labor, global market
- **Dairy heifers:** In East Africa, F1 HF heifers worth \$1200 to \$1500 CIF.
- **Dairy beef:** F1 HF and Jersey crosses grow fast and produce quality beef
- **Forage:** Larger farms can't produce sufficient forage. An excellent "crop" for households remote from MCCs. Includes stovers and straws.
- **Transport services:** Moving milk often pays higher returns to labor than producing and marketing it.

*THINK MILK SHED PLANNING!*



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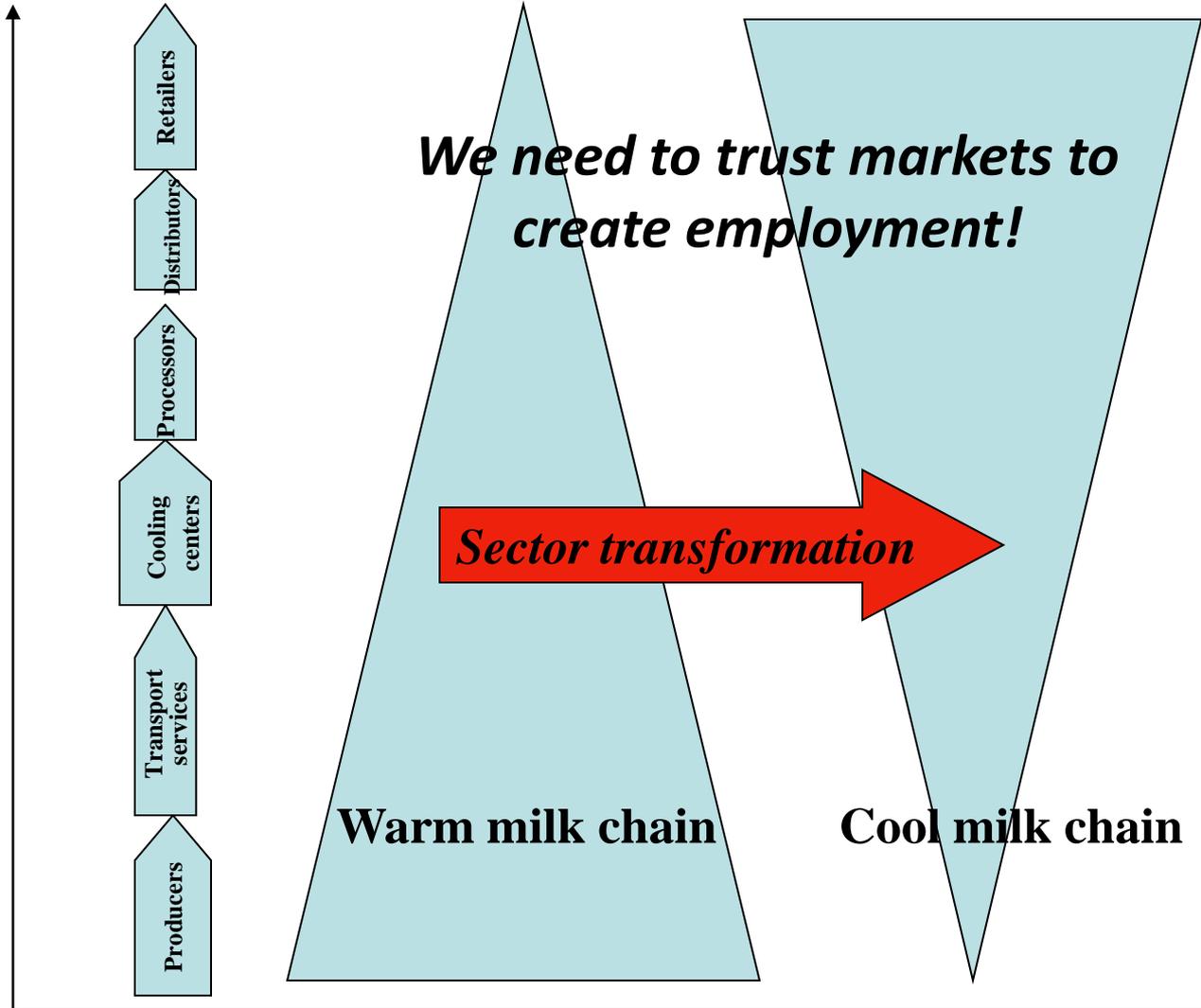
## Inputs and Services

- **Competitive dairy value chains require best, cutting edge technology and services**
- **Public sector services critical** – Extension training, food safety monitoring and control, disease monitoring and control, infrastructure (roads, power, water\sanitation)
- **Processors often finance services** and inputs to capture supply
- **Dairy farms are markets for technology** – Cattle genetics, veterinary pharmaceuticals, forage and fodder seed, milk handling equipment
- **Training and support often embedded** in input sales
- Dairy producers ideal candidates for **ICT-based services** (call for vet or AI tech, feedback on quality of delivered milk, order feed, etc.)



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**Employment (jobs\1000 liters)**





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## What We Often Don't Think About (But NEED TO!)

- On very good forage, “improved” cows can produce about 10 liters of milk per day. To reach economical levels, **supplementary feed required**.
- **Improper cow management** has negative impact on productivity but also milk quality.
- IMPOSSIBLE to produce quality milk without **potable water at cowside**.
- **Milk is highly perishable**. Quality starts deteriorating once it leaves the cow's udder.
- **Milk quality begins** with what cows eat and what happens **INSIDE** the cow **BEFORE milking**.
- “Growing” a herd from **one donated cow** is expensive and requires a long time horizon.
- **Milk is 88% WATER!** Cooling, storing, moving water is very expensive.
- Milk can be converted to **powder** that has long shelf life **AND** can be **transported long distances** and can be “reconstituted”.



## What We Don't (Need to) Think About (continued)

- ***Climate Smart Dairy Development***: Reducing CH<sub>4</sub> and C per liter of milk marketed.
- Pathway to **lower processed milk prices** lies in greater efficiencies all along the value chain.
- **Food safety**: Milk is an ideal medium for growing bacteria and viruses, including zoonotic species, and for “masking” contaminants (e.g. water, Melamine).
- **Quality standards and price competition drives upgrading** in milk value chains in the US, Europe, ANZ. Producers in LDCs have not had that experience.
- **A competitive, sustainable dairy value chain** requires consistent, quality, market-based input supply and services, public as well as private services.



## Lessons Learned

- Producing and marketing milk is very high on the list of **successful pathways out of poverty** for rural households.
- Smallholder milk production has very high **impact on household health and nutrition, education, resiliency** – **Mostly unmeasured.**
- **Input markets** (forage, forage seed, heifers) may offer higher returns for poor households than producing milk.
- “**Warm milk**” value chains may offer households access to low-cost milk but at an **unknown cost in terms of health risks.**
- The **warm milk value chain may actually retard overall value chain development and competitiveness** and the benefits it brings to the rural poor.
- Building **sustainable, competitive dairy value chains** that convey safe, low-cost products to consumers **takes time and strategic thinking.**



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*Thanks for your attention!!*

