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The Milk Value Chain:

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

Jim Yazman, Phd
Bureau for Food Security
Country Strategies and Implementation Office
Washington, DC
202-712-5302
jyazman@usaid.gov



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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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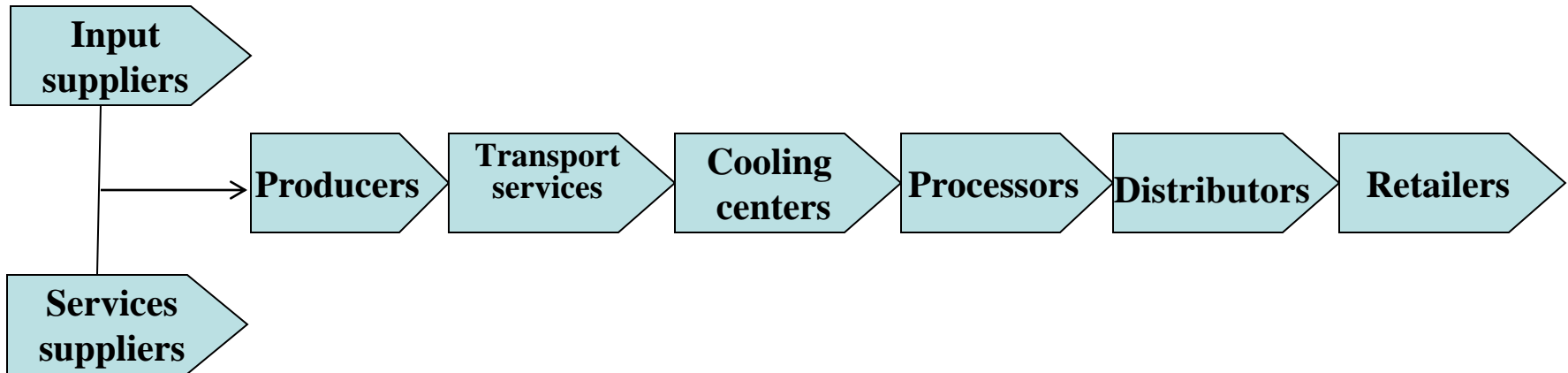
Why Does USAID invest in Smallholder Dairy Development?

- **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

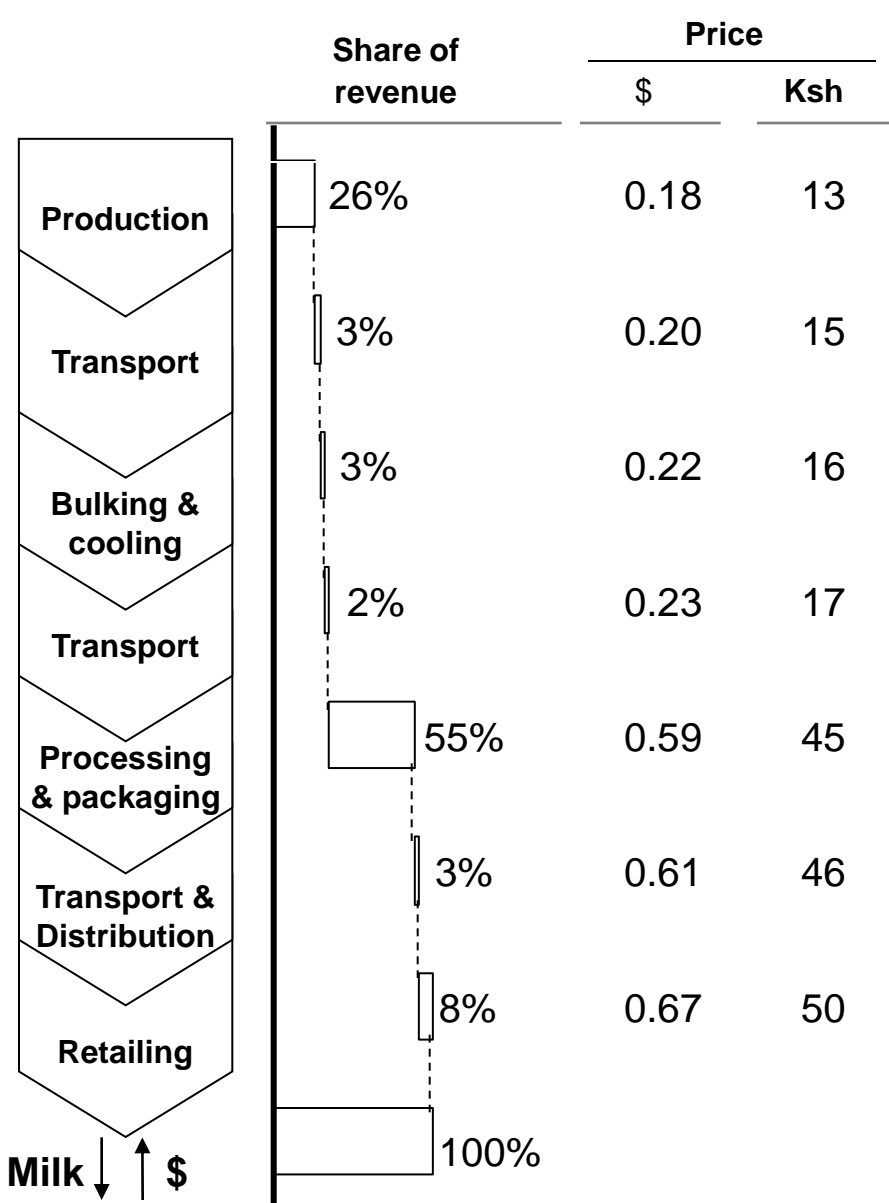
Low-investment distribution system – pick-ups, bicycles, used soda bottles, a cooling tank (sometimes)

Personal relationships underpin trust

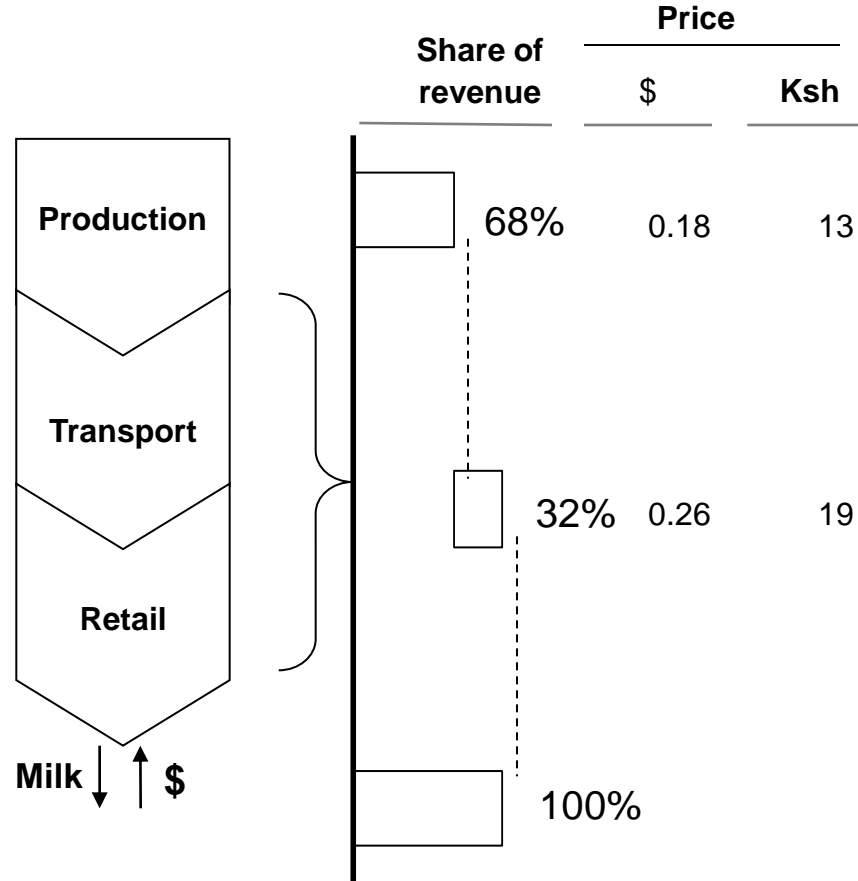
Prices are lower – Sold to families with lower levels of income but also those where food “tradition” is important

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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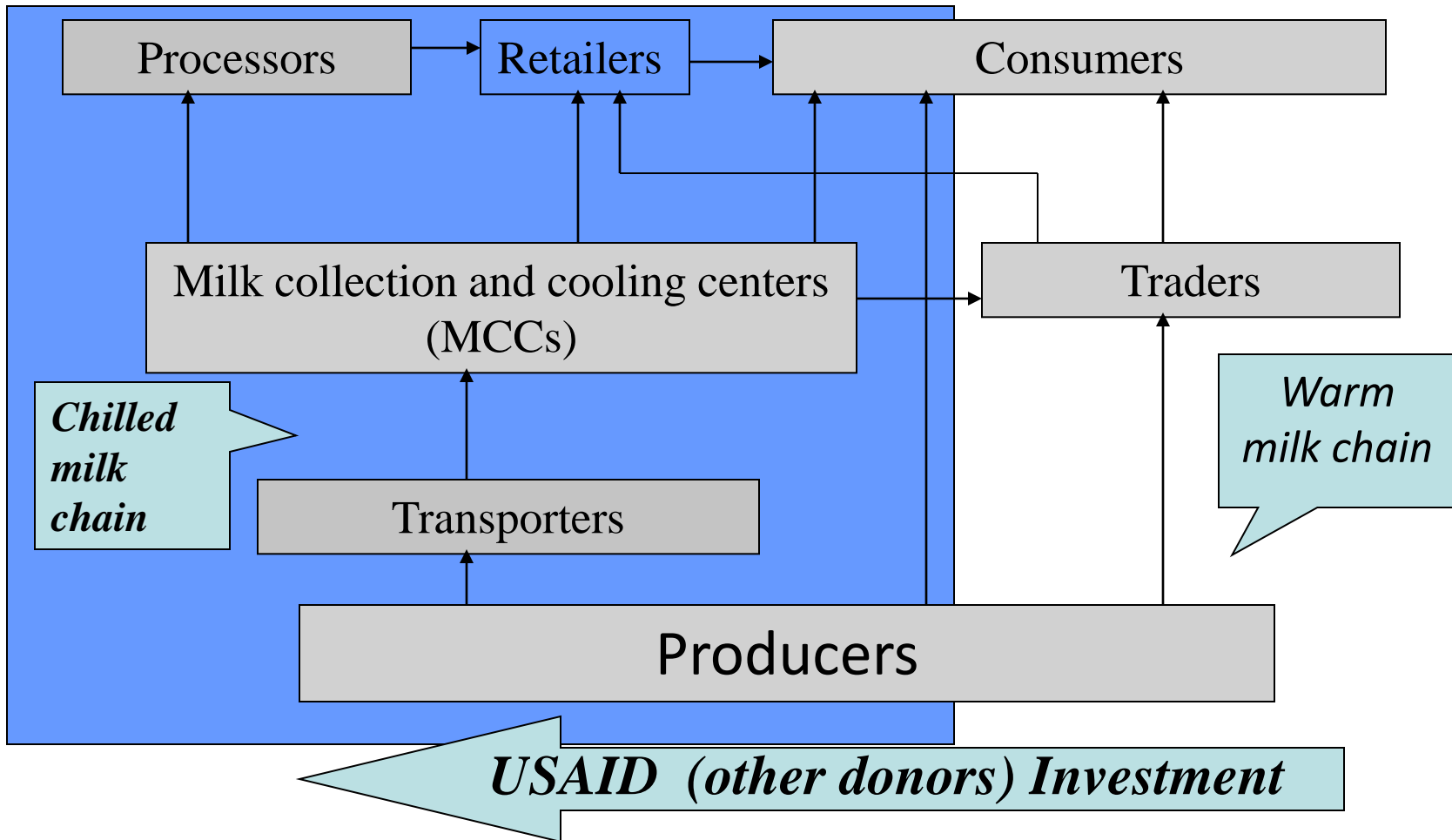
Where Does USAID Invest?

- **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



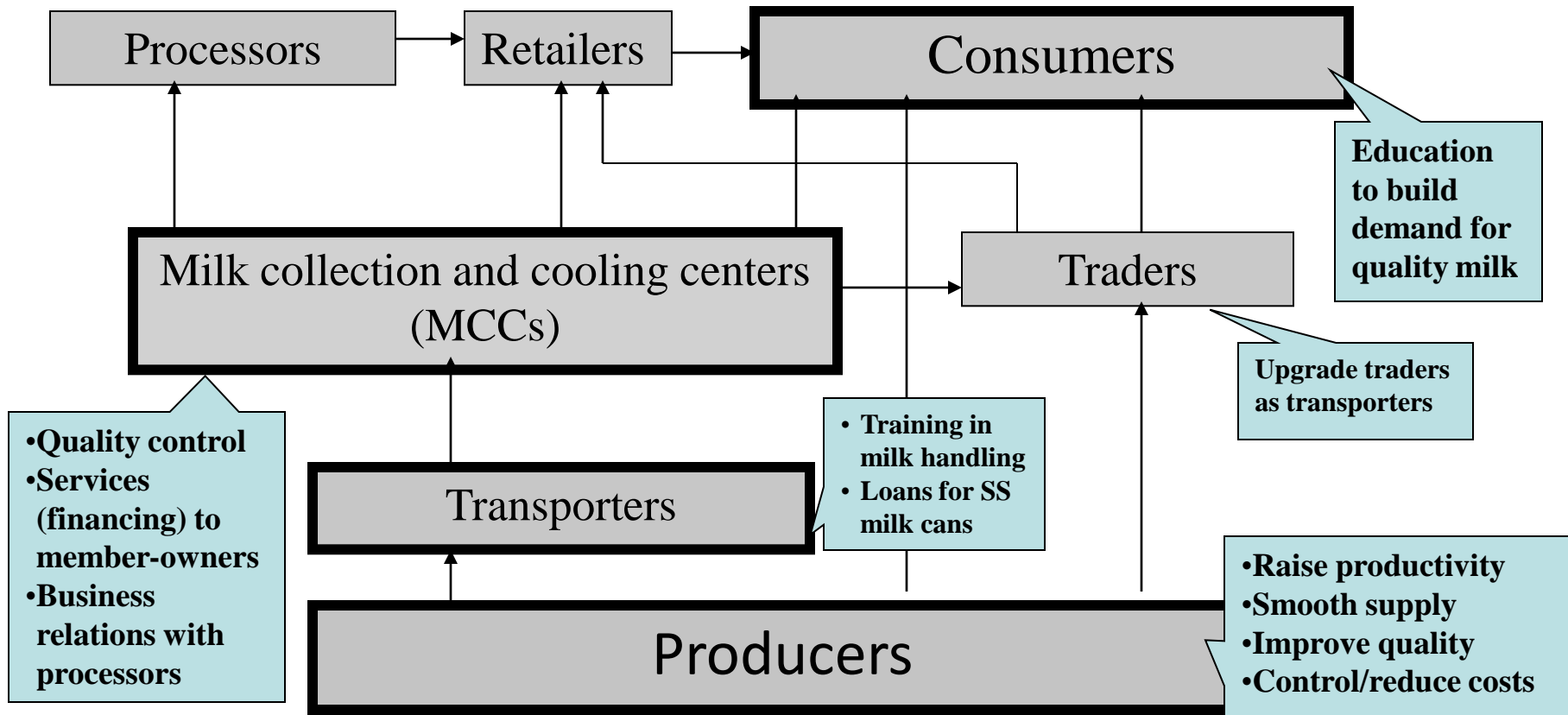
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Collection, Cooling and Marketing of Raw Milk





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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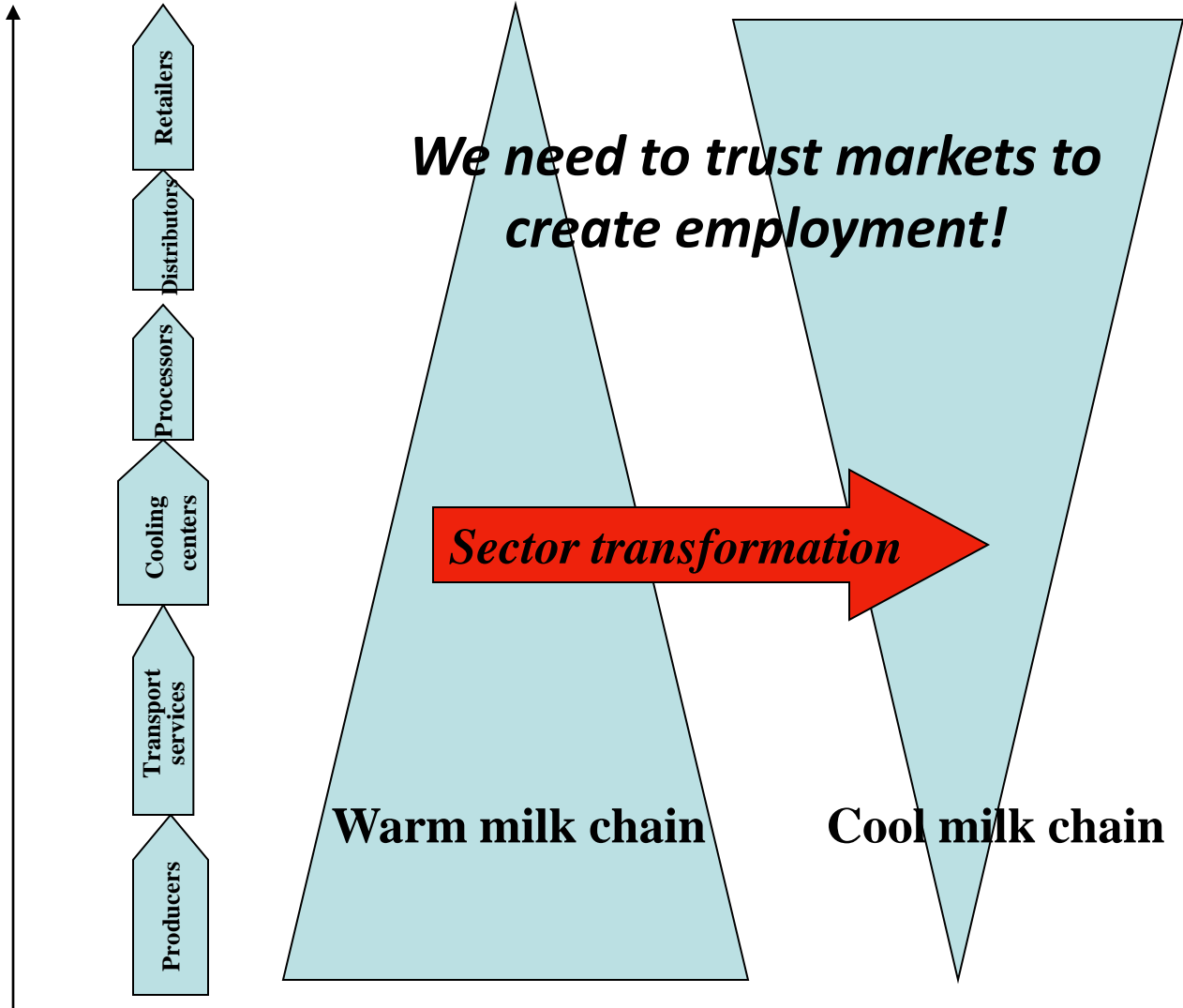
Inputs and Services

- **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”.



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

- ***Climate Smart Dairy Development***: Reducing CH₄ 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.



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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!!

