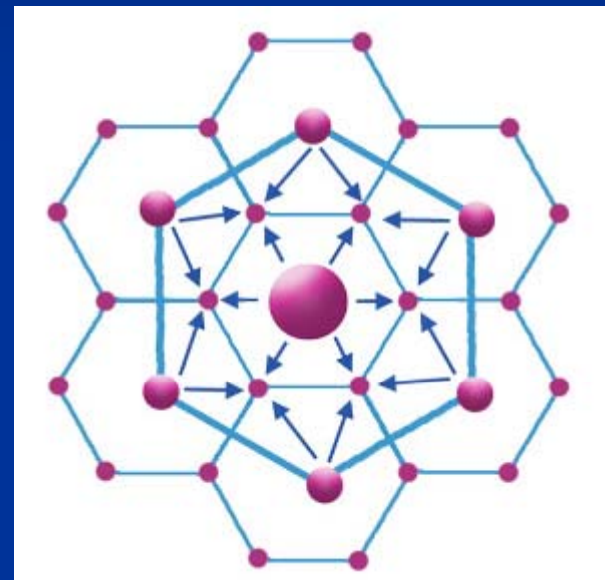


Leapfrogging from Rural Hubs to New Markets

**New Approaches
for Rural Freight
Transport Planning
in Developing
Countries**



Niklas Sieber
Transport Training Initiative TTI

Convention on Rural Roads, 25-27 Nov 2009, Arusha, Tanzania

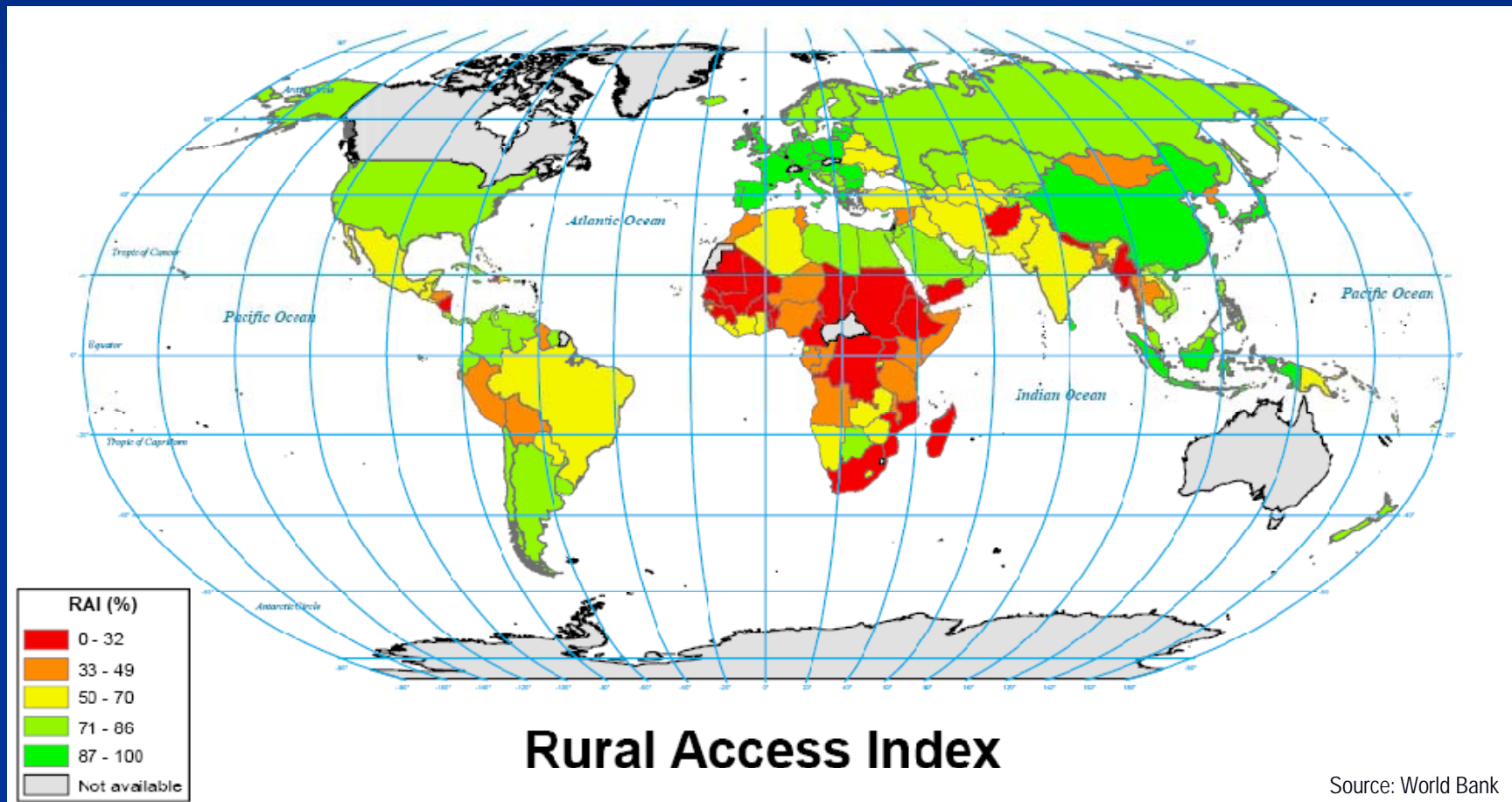
Poverty is rural

- *3/4 of the poor live in rural areas of Developing Countries*
- *70% of the population in LDC is engaged in agriculture.*
- ☞ *Alleviation of poverty and hunger through agricultural growth and increased marketing.*

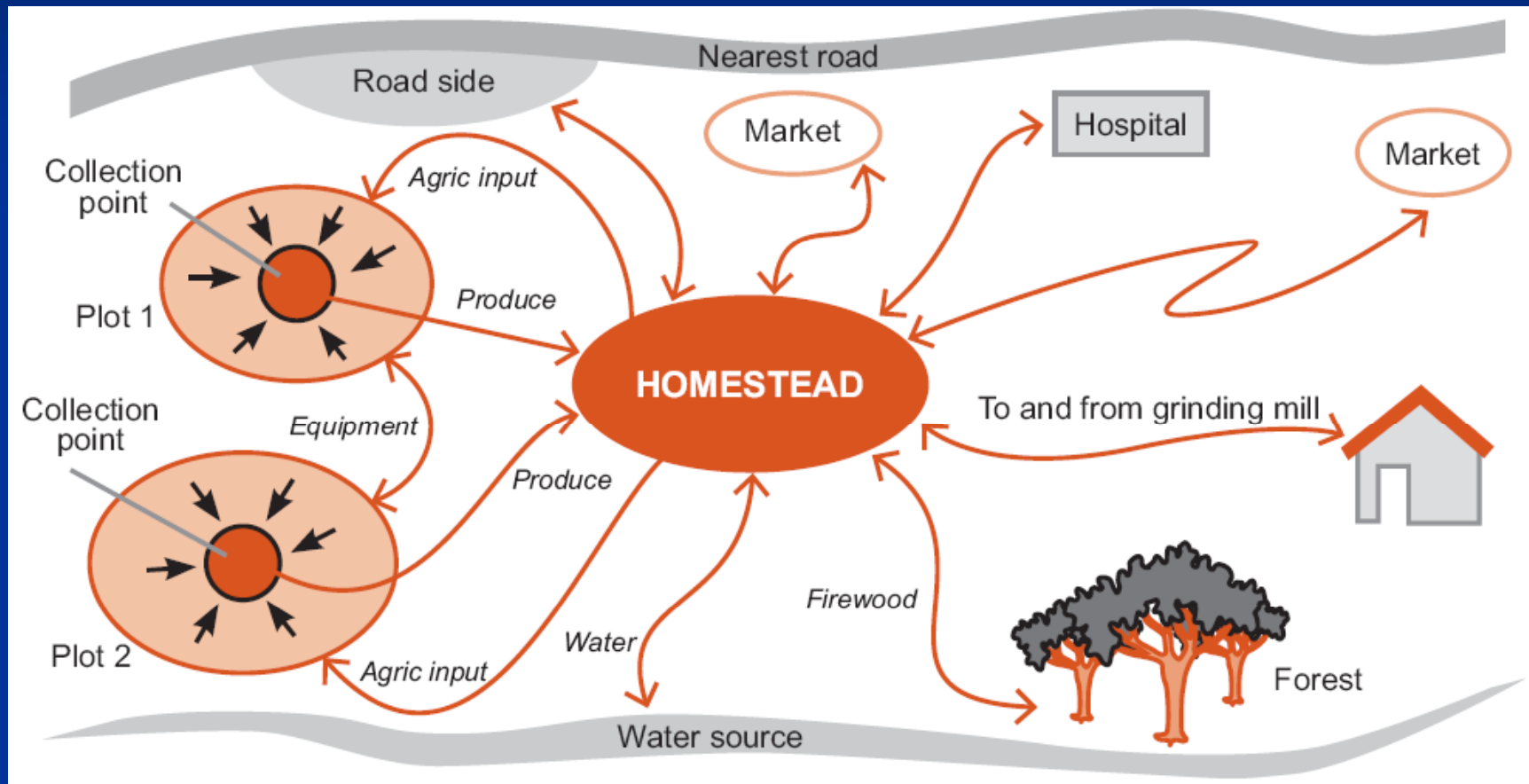


Bad access to rural markets

Population within 2 km of walking distance from next all weather road



The first mile



Source: Crossley et al 2009, p.4

Transport on the first mile

- On farm transport of agricultural produce
- Farm to village centre or road side
- Bad paths, trails or tracks
- Human portering

=> The first mile is most expensive



Kenya Rift Valley

Transport is essential



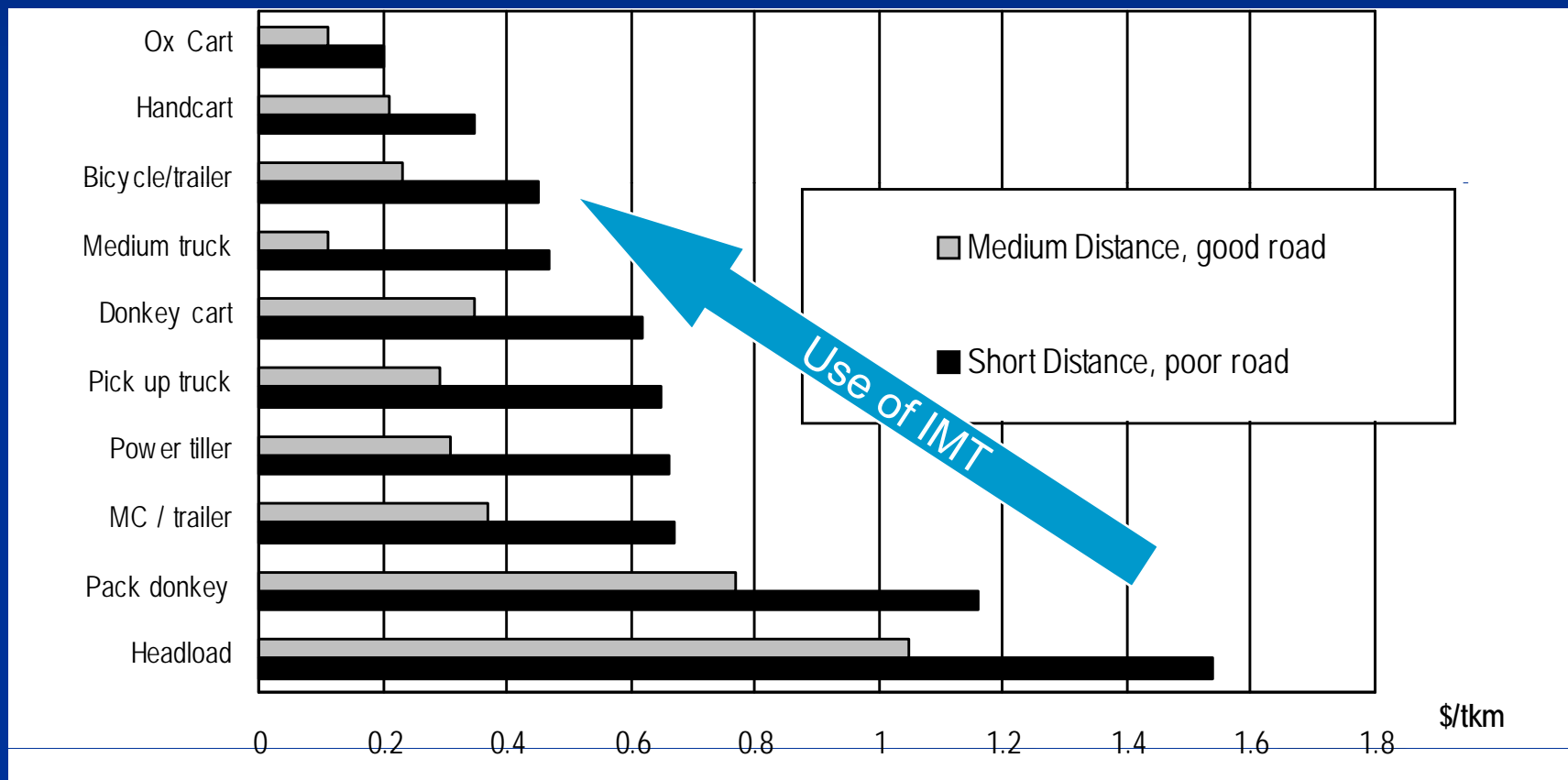
Good roads are a precondition for marketing...



...but roads are not enough!

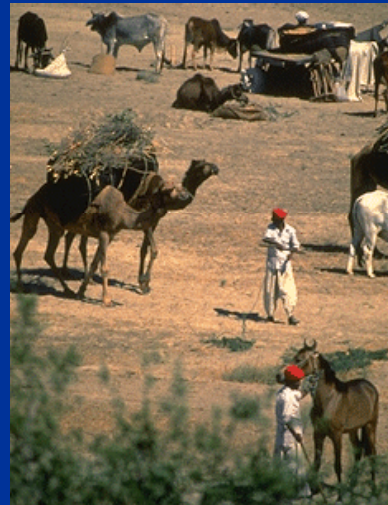
Walking is the most expensive mode

Rural transport costs in Developing Countries (\$/tkm)



Source: Sieber 1999

IMT widen the modal choice

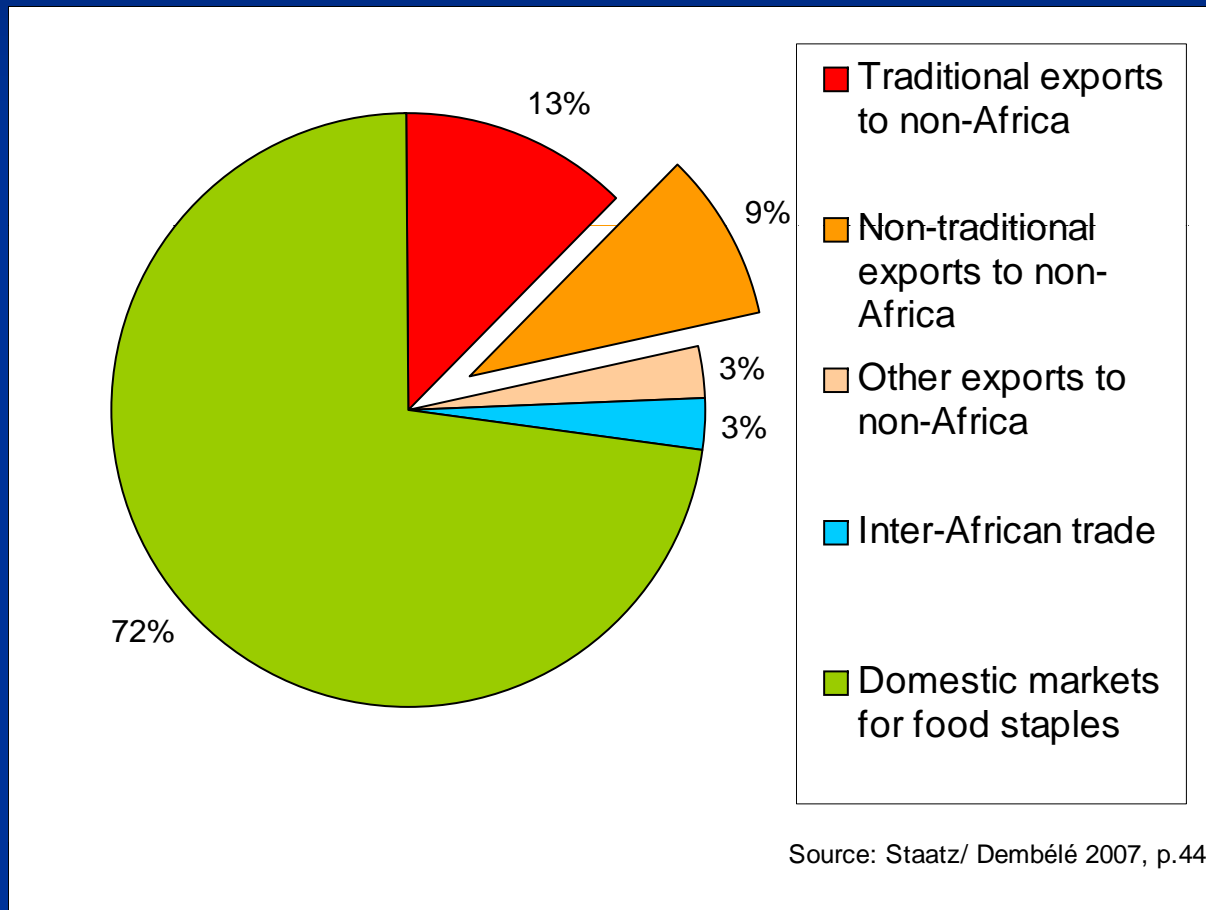


A multimodal least cost planning approach

- Basic access for the first mile
 - Intermediate Means of Transport
 - low cost infrastructures
- LGV or HGV on well maintained rural roads
- Intermodal facilities at Buying Points or rural Hubs

Traditional markets still dominant

Share of agricultural value marketed in SSAfrica 1996-2006

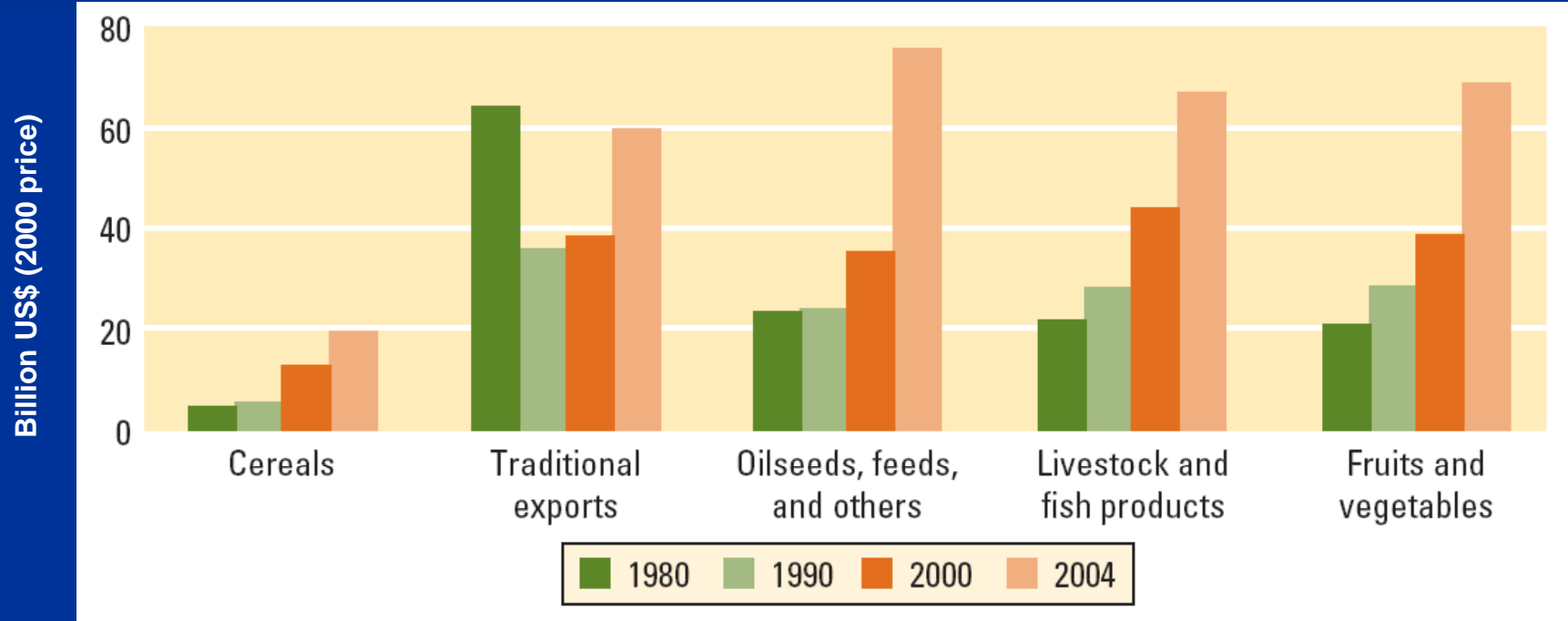


Traditional Exports:

Cotton lint, Molasses, Chick peas, Beans, dry, Bran of Wheat, Cocoa beans, Sesame seed, Cashew nuts, with shell, Cake of Cottonseed, Maize, Palm oil, Tea, Sugar Raw Centrifugal, Cottonseed, Rubber Nat Dry, Jute, Coffee Husks and Skins, Rice Milled, Coffee, green, Onions, dry, Rice Broken, Tobacco, unprocessed

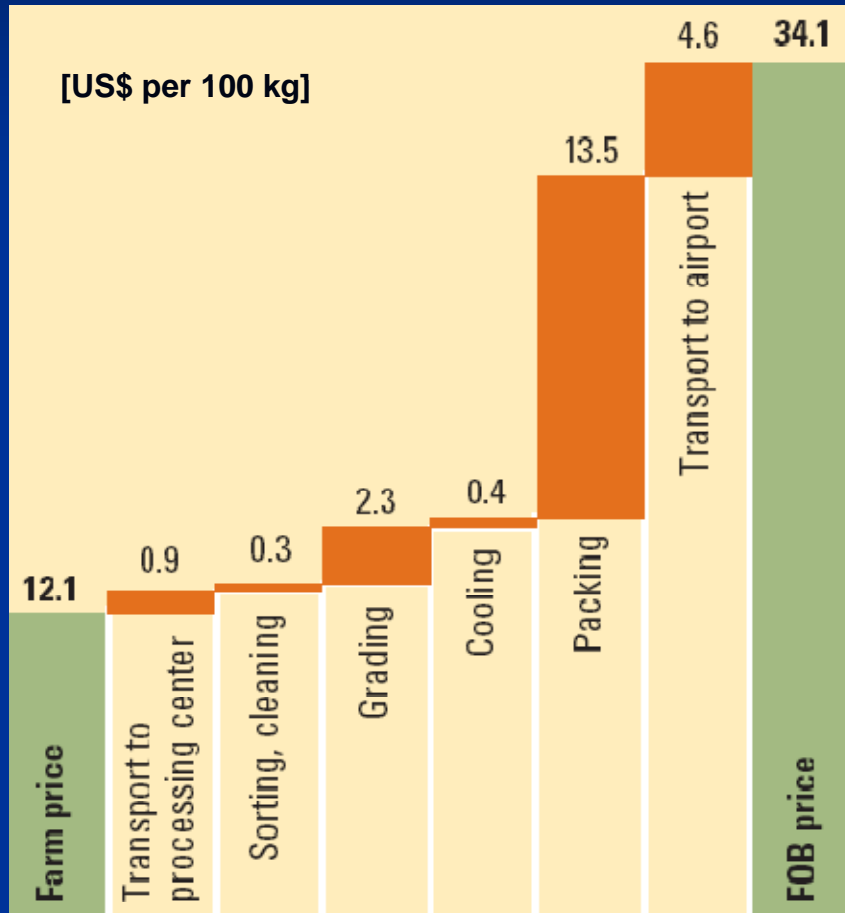
New high value products for export

Value agricultural exports from Developing Countries



Source: WDR 2008, p. 61

Large values can be added



Cost of French bean export in Bangladesh

French bean export Bangladesh

- Farmgate price (35%)
- Transport (16%)
- Packaging, processing, cooling (48%)

Supermarkets create new demands

Region/Country	Food retail market share	
	1980s	Early 2000
United States, UK, France	70-80%	
South America, East Asia (ex. China), Northern-Central Europe, South Africa	10-20%	50-60%
South East Asia, Central America and Mexico, Southern Central Europe	5-10%	30-50%
Selected Countries in Africa (Kenya) , Central (Nicaragua) and South America (Peru), Southeast Asia (China), Russia, India	Negligible	10-20%

Source: Reardon 2007, p. 2829

Requirements of new markets

- High value marketing requires
 - centralised procurement,
 - involving specialised wholesalers,
 - new contracts with suppliers and
 - quality and safety standards.
- Modern logistic services needed:
 - packaging, cold chain management, container handling, establishment of distribution centres and warehousing.

=> Modern Supply Chains

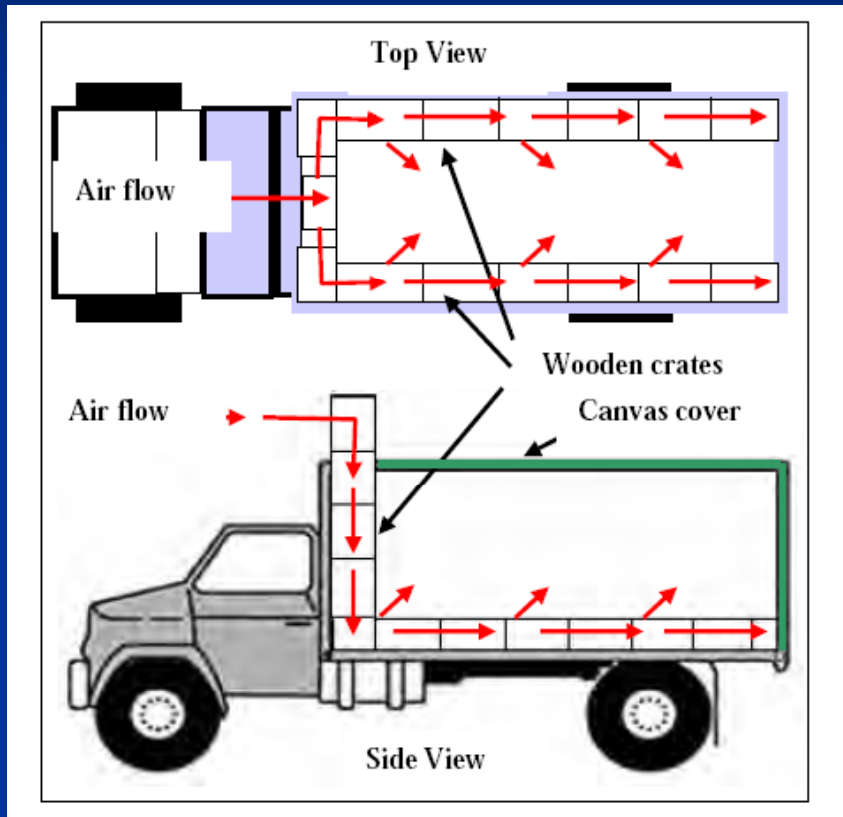


Logistics of modern Supply Chains

Harvest	<ul style="list-style-type: none"> • Minimise delays before cooling • Cool the product thoroughly as soon as possible
Cooling	<ul style="list-style-type: none"> • Store the produce at optimum temperature
Temporary storage	<ul style="list-style-type: none"> • Practice 'First in First out' rotation storage • Ship to market as soon as possible
Transport to market	<ul style="list-style-type: none"> • Use refrigerated loading area • Cool truck before loading • Load pallets towards the centre of the truck • Put insulating plastic strips inside door of refrigerated truck if it is to make multiple stops • Avoid delays during transport • Monitor product temperature during transport
Handling at destination	<ul style="list-style-type: none"> • Use a refrigerated unloading area • Measure produce temperature • Move produce quickly to the proper storage area • Transport to retail markets or foodservice operations in refrigerated trucks • Display at proper temperature range
Handling at home or food service outlet	<ul style="list-style-type: none"> • Store produce at proper temperature • Use the produce as soon as possible



Appropriate Technologies for modern Supply Chains

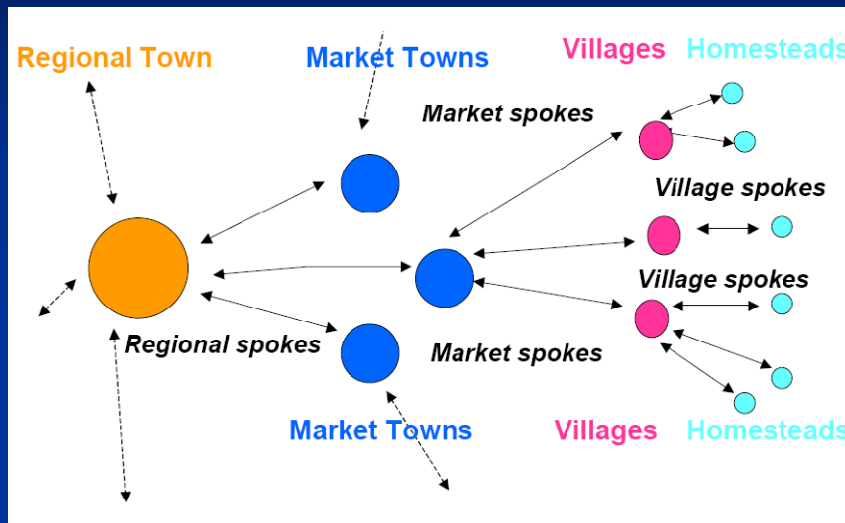


A modern regional planning approach

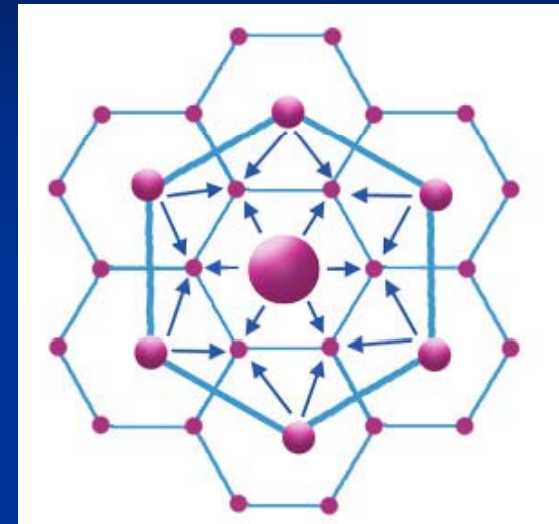
- First mile: basic access through multimodal transport
- Loading, storage or cooling facilities at Buying Points or rural Hubs
- Information and Communication facilities at Central Locations
- Services for traditional and modern Supply Chains



Hubs, Spokes and Central Locations

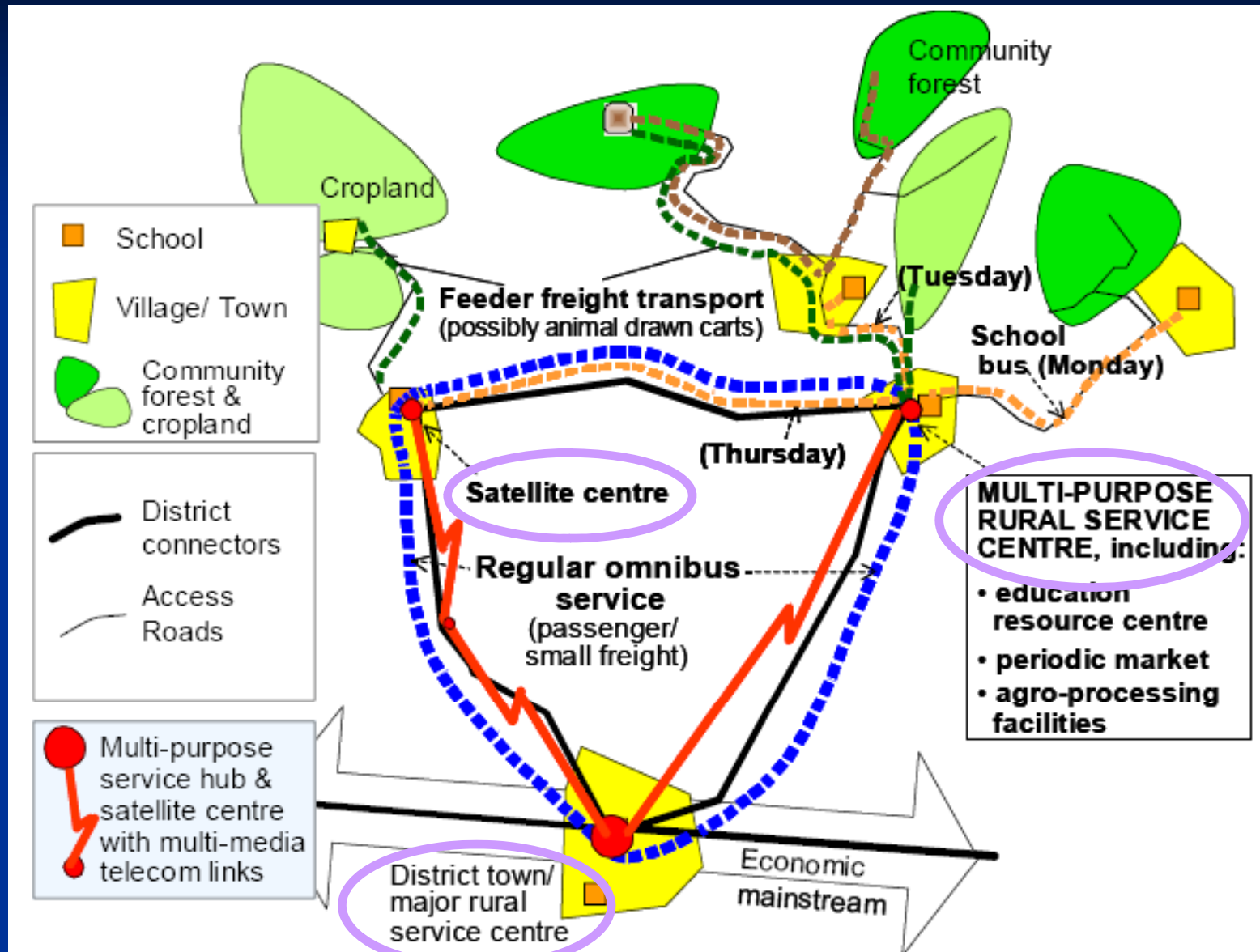


Source: Starkey



- It is the task of the regional planner,
- to identify Central Locations and Rural Hubs,
 - compare existing facilities with a pre-defined endowment of a Master Plan and
 - plan adequate investments and other improvements.

Leapfrogging from rural hubs to new markets



Source:
Mac Mashiri

Endowment of Central Locations

Central Location	Function	Facilities for Traditional Supply Chains	Facilities for Modern Supply Chains	Communication Facilities
Satellite Centre	Buying point Transshipment hub	Short storage facilities Loading facilities	Pre-cooling facilities	Telephone Fax
Multi Purpose Rural Service Centre	Local market Transshipment hub	Storage facilities Loading facilities Agricultural Extension Services Logistics Procurement Agency	Processing units Cooling and Refrigeration facilities Packaging houses Container handling	Telephone Fax Internet
Major Rural Service Centre	District market Transshipment hub	Additional to the above: Transport brokering service		

Source: Mac Mashiri

Conclusions

- Poverty is mainly rural.
- New markets provide opportunities to escape the poverty trap.
- Processing and packaging add considerable value to the new produce.
- A multimodal planning approach provides rural freight transport at least cost.
- Facilities for modern and traditional Supply Chains are to be planned in Central Locations.
- Governments should support Supply Chains (public-private partnerships).
- Integration of smallholders is essential for poverty alleviation.

=> Leapfrogging from Rural Hubs to new markets

More Information needed?

- This paper will be published by the World Bank
- Please visit my poster presentation on Transport Training Initiative TTI
- www.niklas-sieber.de



Asante sana !