

# Rural Transport Training Materials

## Module 4:

## Rural Mobility

# Matching demand with supply in rural transport

## Session 4.4

## Part 1

Presentation 4.4a



# The Training Modules

Module 1. Policies and Strategies

Module 2. Planning, Design, Appraisal and Implementation

Module 3. Management and Financing

This Module

**Module 4. Rural Mobility**

Module 5. Social and Environmental Issues

# Module 4. Rural Mobility

Session 4.1 Rural Mobility: Overview of the Issues

Session 4.2 Promoting the use of intermediate means of transport  
– vehicle choice, potential barriers and criteria for success

Session 4.3 Agricultural marketing and access to transport services

This session

Session 4.4 Matching demand with supply in rural transport

# 1. Introduction

## Learning Objectives

This session enables participants to:

- ③ Define 'density of demand' for transport services
- ③ Analyse the factors effecting the density of demand
- ③ Suggest strategies for maximising effective demand for rural transport services

# Session Overview

- ③ Density of demand
- ③ Markets and storage facilities
- ③ Network interconnectivity
- ③ Transport brokers
- ③ Flow of information
- ③ Complementary investments

© Compared with African transport - Asian transport is:

- more competitive
- lower cost
- higher service frequency
- more diversified - for short distance rural movements

Why is this?

## 2. Density of demand

- © The reason ..... density of demand for transport
- © Density of demand is determined by:
  - Population
  - Farming system
  - Income

## Population

- Low population = low demand
  - ✓ Sri Lanka 263 persons/km<sup>2</sup>
  - ✓ Pakistan 150
  - ✓ Ghana 66
  - ✓ Zambia 12

## Farming system

- more intensive – more inputs and yields

## Income

- little cash available

The *viability* of transport services is reduced by the need to service **poor, small and dispersed** rural populations.



# 3. Markets and storage facilities

- ⊙ Need to **concentrate** the demand for transport services
- ⊙ Dispersed populations = dispersed markets
  - Affects vehicle choice
  - Affects farm gate prices

## 🌀 Vehicle choice

- larger the **demand** - more efficient and cost effective vehicle can be justified
  - unitary costs reduced
- markets and **storage facilities** are important
- E.g. village grain store - justify donkey cart for transportation to market
  - without the store can only justify headloading

## 🌀 Farm gate prices

- farmers sell directly to final consumers
- farmers rely on travelling wholesalers, traders, parastatals, large private marketing companies
  - ... reduces demand for transport services
  - ... and supply of vehicles available for rural areas

# Examples of rural markets

Mali

Malawi

Zambia

Honduras

## Weekly markets

- serve a group of villages
- communities within 30 kms of their nearest market
- use IMTs and headloading (donkey carts, ox carts, bicycles)

## Motorised vehicle (if exists) use

- depends on distance, quantity of goods, quality of the roads
- services 1 day/ week
- traders travel between markets

## Abundance of markets

- goods easily amalgamated for transport by motorised services
- IMTs viable for transport from village to market

## ⊙ Marketing of agricultural products **dominated** by **Agricultural Development Marketing Corporation (ADMARC)**

- state owned
- buy agricultural produce at rates published at the beginning of the season
- transport, store and sell produce to rural and urban buyers
- has no vehicles – contracts out to local transporting companies

## ⊙ Since **liberalisation**

- new private sector actors competing
- ... but ADMARC has biggest national network of centres, depots and markets
- April to November they operate 1300 small seasonal markets

- ③ Marketing of agricultural produce historically dominated by the **parastatal marketing boards**
  - organised the collection of agricultural produce
  - paid the farmers a government agreed rate
- ③ Liberalisation 1991+
  - **agricultural marketing companies** formed
  - formed collection points for produce = storage areas
    - farmers bring their produce to these collection points
    - or companies send large trucks to pick up directly from the farm
- ③ Formal rural markets
  - **scarce**, distant, concentrated at district centres
  - e.g. high poverty districts of Eastern and Northern Provinces the average distance to markets is nearly **40 km**.

## ☉ Guinope Municipality

- nearest market was Tegucigalpa (capital city) **60 km** away

## ☉ Widespread use of **animal transport**

- most rural people could not afford it

## ☉ Result

- rural people reliant on the traders or “**coyotes**”
- communities felt exploited

## ☉ Communities set up **mobile markets**

- met periodically
- advertised on the radio
- within reach of IMTs
- allowed direct contact between the farmers and buyers

## Rural marketing structures



### Group Activity

- A. *What are the features of the marketing structure that makes it effective?*
- B. *How could the marketing structure be improved?*



# Strategy for demand management

## ③ More rural markets

- long distances to rural markets make transport services more viable

## ③ Regular market

- increase incentives for farmers to buy IMTs
- encourage transport operators and traders to visit the markets
  - can guarantee sufficient demand to warrant the trip

## ③ Mobile markets

- dispersed communities

## ③ Storage facilities

- amalgamation of goods for onward movement

## ③ Co-operation with agricultural authorities

# 4. Network interconnectivity

## ⊙ Redundancy

- more than the minimum number of links and length of road
- many rural feeder road networks = **dead-end routes** (100km+)

## ⊙ Problems

- high **risk** for transport operators: less revenue & possible breakdown costs
- community becomes **isolated** when road is impassable

## ⊙ With inter-connectivity of routes

- potential **demand** for transport services is maximised
- operators can travel a route '**on spec**' with a reduced risk of an empty return journey
- **more transport operators** - competition

# 5. Transport brokers

## The problem

### ☉ Lack of contact between transport operators and clients

- lorries/ buses wait for passengers/ loads to come to them & will **not move** until full
- **rare** for vehicle operators to travel and look for passengers/ loads
- less populated areas - farmers **walk** to urban centre to find a vehicle prepared to pick up the load
- **harvest spoils** on the roadside because transporters are unaware of the location of the harvest

Transport brokers can help .....

# Transport brokers' role ....

## ③ Matching goods with vehicles

- reduce the need for empty running

## ③ An effective brokerage service needs:

- nation-wide **network** of brokers
- good telephone/ other **communication system**

## ③ Traditional role

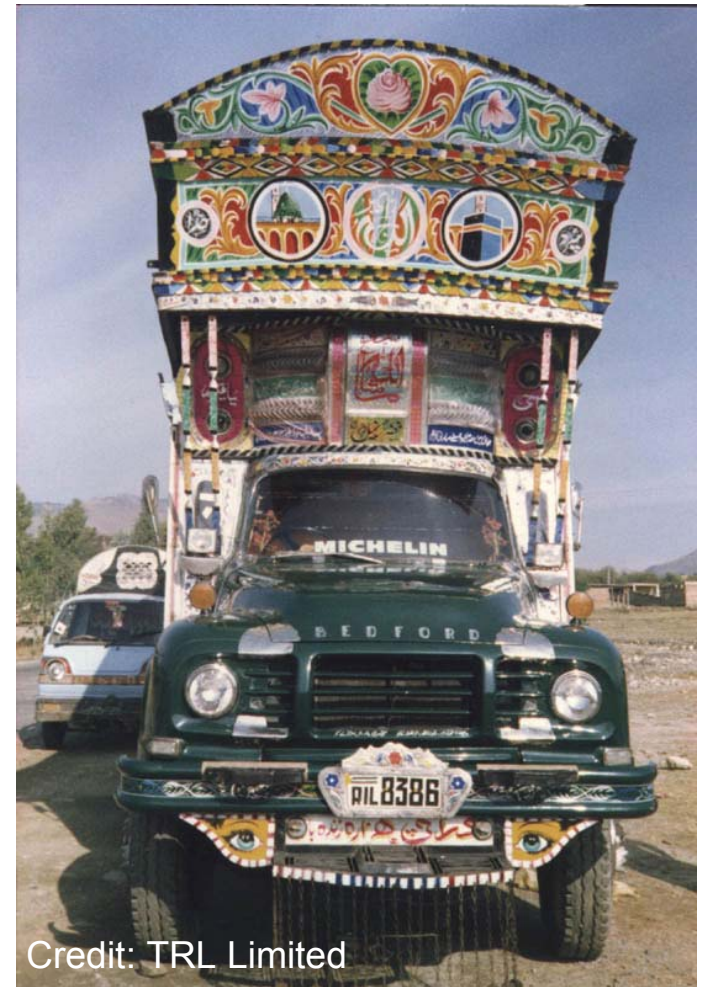
- service large vehicles on longer distances

## ③ Could also serve **rural communities**

- transport of agricultural produce
- people
- emergencies

# Pakistan – a model for success

- ① One of the **most efficient** freight transport systems in the world
- ① Large **network** of freight forwarding agents
  - individually owned
  - 25% general merchandise
  - 75% specialist consignments e.g. quarried materials, iron, steel
  - 1/3 of consignments were “smalls” (< one ton)



Credit: TRL Limited

## ⊙ Agents used for

- **longer distances**

## ⊙ Charges

- 4.8% for long journeys; 11.3% for journeys less than 50km

## ⊙ Communications

- 90% of agents had a **telephone**; 96% had reliable **postal service**

## ⊙ Business generated by

- **personal callers** (two thirds)
- $\frac{1}{3}$  by telephone

## ⊙ Service **response** to find a vehicle

- 64% of agents - no delay
- 89% within one hour
- 96% within two hours.

# 6. Flow of information

- ⊙ Major problem for most rural communities
  - **no communications** - telephone or radio
  - in **low demand** - areas not viable for operators to travel on the off-chance that they pick up a load
- ⊙ **Communications technology** may help the more efficient provision of transport:
  - matching supply and demand
  - emergency services
  - substitute for travel
  - access to markets and market information
  - faster transfer of information on technological developments

# Key issues for planners

- ③ **Appropriate** communication technologies for rural communities
- ③ User **costs** - purchase of equipment, air time, electricity, maintenance
- ③ **Infrastructure** requirements for the introduction of the technology
- ③ Do the communities have the **skills** and **resources** to operate and maintain the equipment?



# 7. Complementary investments

- © Transport sector interventions should support:
- **health** - hospitals or health centres
  - **education** - schools or colleges
  - **agricultural extension** - improved information and improved availability of seed and fertiliser
  - **industrial investments** - agro-industries
  - **small-scale enterprise** - support to local artisans
  - **credit facilities** - improved banking facilities or small scale credit schemes