RURAL TRANSPORT
TRAINING MATERIALS

Module 4:Rural Mobility

Matching demand with supply in rural transport

Session: 4.4
Part 1

Presentation: 4.4a

The World Bank TRL DFID Department for International Development itt theIDLgroup SSATP Africa Transport Policy Program

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

By the end of the session participants will be able to:

- Define ‘density of demand’ for transport services
- Analyse the factors effecting the density of demand
- Create strategies for maximising effective demand for rural transport services

Session Overview

- Density of demand
- Markets and storage facilities
- Network interconnectivity
- Transport brokers
- Flow of information
- 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/km²
    - ✓ 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

Mali

- 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

Malawi

- 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

Zambia

- Marketing of agricultural produce historically dominated by the **parastatal marketing boards**
  - organised the collection of agricultural produce
  - paid the farmers a government agreed rate
- 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
- 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**.

Honduras

- 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

- **More rural markets**
  - long distances to rural markets make transport services more viable
- **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
- **Mobile markets**
  - dispersed communities
- **Storage facilities**
  - amalgamation of goods for onward movement
- **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 ....

- Matching goods with vehicles
  - reduce the need for empty running
- An effective brokerage service needs:
  - nation-wide **network** of brokers
  - good telephone/ other **communication system**
- Traditional role
  - service large vehicles on longer distances
- Could also serve **rural communities**
  - transport of agricultural produce
  - people
  - emergencies

Pakistan – a model for success

- One of the most efficient freight transport systems in the world
- Large network of freight forwarding agents
  - individually owned
  - 25% general merchandise
  - 75% specialist consignments e.g. quarried materials, iron, steel
  - ⅓ of consignments were “smalls” (< one ton)

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Pakistan

- 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)
  - ⅓ by telephone
- Service r**esponse** 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

- Appropriate communication technologies for rural communities
- User costs - purchase of equipment, air time, electricity, maintenance
- Infrastructure requirements for the introduction of the technology
- 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