

POLICY TOOLS – PROVISION OF MEANS OF TRANSPORT

4.13 RURAL TRANSPORT SYSTEMS

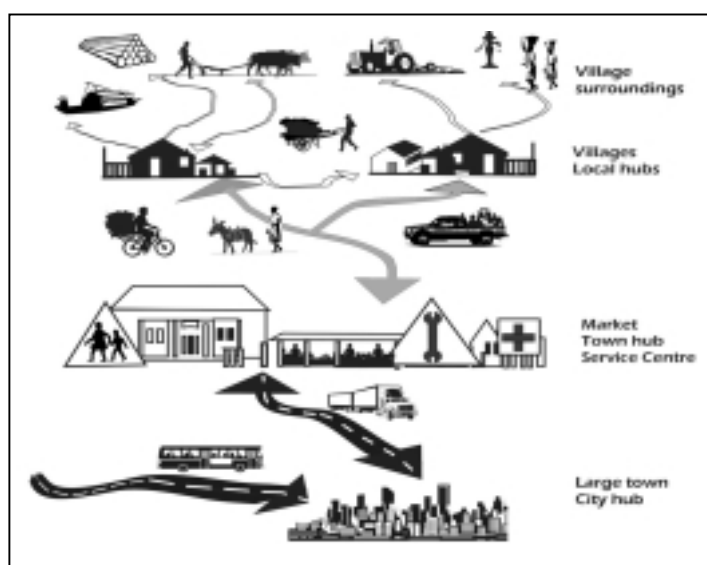
Problem: Many planners and policy makers do not consider a transport systems approach to rural accessibility. As such there is an over emphasis on infrastructure and little attention paid to mobility issues.

Solution: Consider a transport systems approach to planning rural accessibility.

BACKGROUND

Rural transport involves many types of movement for a wide range of purposes both within villages and beyond. The purpose of the travel may relate to the household (obtaining water, fuel, and food), agriculture (tending and marketing crops and livestock), or a wide variety of socio-economic activities (education, religion, recreation, health, employment, income generation). Journeys may have multiple purposes. Different transport services may be appropriate depending on infrastructure, purpose, distance, gender, and age.

Figure 1: A rural transport system



Effective rural transport relies on a variety of means of transport to move passengers and goods, with the type and diversity depending on infrastructure, environmental conditions, users, and demand (**Figure 1**). Most rural transport takes place in the vicinity of villages. These trips generally involve short distances and small loads carried on paths and tracks, typically for marketing, collecting water and firewood, and tending crops and animals. Intermediate means of transport (IMT) are ideal for such purposes but are not sufficiently promoted or supported by transport planners, and they are expensive for poor rural people.

Out-of-village travel is less common but of enormous economic and social importance, including trips to and from distant farms and markets, employment opportunities, schools, health facilities, grinding mills, and friends and relatives. These trips involve longer distances and are more likely to involve intermediate means of transport or motorised transport services. But in many rural areas, walking and carrying may be used even for long-distance movement. Motorised public and private rural transport services concentrate on routes from villages to market towns and from towns to cities, where there is greater demand and better infrastructure.

Figure 1 depicts a multi-modal transport system where the key features are the vehicles used, the terminals or transport hubs from which they operate and the demand on each leg of the journey. Demand is related both to the volume of goods needing to be moved and the levels of income required to pay for the services. It is clear that the efficiency with which the system works is as dependent on the village level movement as with inter-urban movements.

KEY ELEMENTS FOR CONSIDERATION IN RURAL TRANSPORT SYSTEMS

There are a number of factors that are important to take into account when planning in a transport systems approach:

- The vehicles
- The infrastructure
- The transport hubs (Villages, rural markets and urban terminals)
- The organisations and institutions which manage and regulate the system
- The user

Vehicles

An efficient transport system will have a diversity of vehicle types that provide complementary transport services with different but overlapping ranges, capacities and operating costs. Various complementary means of transport can work together, fulfilling different market needs. Large-scale motorised transport is seldom cost-effective for short distances and small loads. The first and last links of transport systems and marketing chains involve local collection and distribution, so it is common to use two or more transport services for one journey. For these feeder services, intermediate means of transport are likely to be appropriate, convenient, and affordable particularly where paths and tracks form the bulk of infrastructure.



The importance of complementary transport services is not always recognised and particularly intermediate means of transport is not promoted as heavily as it should be. However, it is now becoming increasingly recognised that large motorised vehicles will not be able to operate cost effectively without the feeder services provided by intermediate means of transport.

Where demand for transport is high such as around markets and transport hubs there is a greater potential for high diversity of complementary means of transport. This is good for the user because it generates competition, gives users choice and keeps prices down. In contrast, remote rural areas may only have a few multipurpose means of transport (animal carts, a few pickups, and perhaps cycles). Among the reasons for this lack of diversity are overall transport demand, availability of cash and credit and seasonality.

Infrastructure

Rural mobility depends on good rural transport infrastructure (roads, paths, footpaths, bridges) as well as good, low-cost transport services. For transport services in rural areas, the priority must be maintaining basic year-round access for the types of vehicles likely to be operating. The quantity of access is even more important than the quality. Other sections of this toolkit discuss issues of basic access in more detail.

Where more than the minimum number of links and length of road are present on a road network, the network is said to exhibit redundancy. In providing access to remote rural communities, road engineers and planners often try to minimise costs by avoiding redundancy. One result is that rural feeder road networks have many dead-end routes with some exceeding 100 kilometres. Interconnected routes help maximise potential demand for transport services. There is less chance of poor load factors, and rural communities can respond to a wider range of market opportunities.

Transport Hubs

Transport hubs are vital to a multi-modal transport system because they provide the areas where interchange between modes takes place and where demand can be amalgamated. Without sufficient transport nodal points it becomes difficult to amalgamate goods. For example, where rural markets are non-existent or too distant then intermediate means of transport cannot operate because distances are too large and motorised means of transport do not operate because demand is too low.

Transport hubs of particular interest are villages, rural markets and urban terminals. In terms of planning an efficient transport system it is important that these facilities are located appropriately, vehicle operators have fair access to them and that the necessary facilities are there for the users. Transport hubs are often the key to both the transport and marketing chain and as a result there is a tendency for monopolistic provision of these services which places users at a significant disadvantage.



Managers and regulators of transport services

The provision of transport services is big business employing a large proportion of a country's total workforce. While it is important that this business is allowed to get on with service delivery it is also important that this is within a conducive operating environment free from unfair operating practise and over restrictive regulation. To achieve this delicate balance requires extensive planning, management and appropriate regulation. Very often this has been ignored with the argument that the market will provide transport services and that government departments should be more concerned with the provision of infrastructure. This has been shown to be false and rural transport policy needs to address this element of service provision.

The user

Understanding the requirements of the user is the starting point for planning rural transport services. This requires extensive consultation and participation. Users and their requirements are not all the same. The needs of the isolated and extremely poor are very different from those living in rural areas with high population densities, high vehicle diversity and high incomes. **Table 1** provides some typical scenarios of users which might be considered together with their problems and types of interventions that might be considered.

KEY REFERENCES

Starkey P et al (2002). On the move in rural areas. *Prepared for the Rural Transport Thematic Group. World Bank Technical Paper, awaiting publication*

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Table 1: Interventions for Transport Service Users

	Case 1	Case 2	Case 3	Case 4	Case 5
Population and income characteristics	Low population density, mainly subsistence agriculture, low incomes.	Low to medium population density, low incomes, subsistence & some cash-crop agriculture	Medium to high population density, low income, mainly cash crop agriculture and some non-agriculture income	Medium to high population density, medium income, cash crop agriculture & non-agricultural income sources	High income, high-intensity agriculture or non-agricultural income sources
Transport characteristics	Low vehicle ownership & diversity, very high cost and infrequent transport services, poor transport infrastructure	Limited vehicle ownership & diversity, high cost and limited transport services, poor transport infrastructure	Medium to high ownership of IMTs & diversity, low to medium cost & reasonable availability of transport services, adequate transport infrastructure	Moderate to high levels of IMTs & motorised vehicle ownership & diversity, frequent & low-cost transport services, adequate transport infrastructure	High level of motorised vehicle ownership & diversity, availability of transport services variable, medium to high cost transport services, good transport infrastructure
Specific problems	Isolation from essential social & economic services, unaffordable transport services & IMTs, unviable transport operations, lack of rural transport strategy & support, lack of competition and a regulatory framework in the transport sector, lack of acceptance of IMTs and women's use of IMTs.		Lack of transport co-ordination & structure, poor legal framework & enforcement, IMTs not included in the organisational framework, poor safety, pollution high, scope for decreasing the costs & increasing availability		Disadvantaged (elderly, disabled, unemployed) population is isolated due to infrequent & relatively high cost transport services, transport services unviable
Interventions	Subsidies (rural funds), fundamental reform of transport services sector, (strategies, liberalisation, taxes & duties), public, private partnerships, competitive tenders for routes &/or areas, promotion & financial support of IMTs, training in the whole sector, identification of champions, route planning, road spot improvements, inclusive planning and management techniques, combi transport (modes, goods, service & passengers)		Improve safety, environment & transport efficiency through better co-ordination of relevant stakeholders, legal framework, enforcement of regulations, driver & mechanic training, vehicle maintenance, inclusive planning and management techniques.		Subsidies, transport telematics, improved information systems, combi transport