



Forum

News

International Forum for Rural Transport and Development

Understanding Rural Transport Hubs

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Transport Hubs: A new perspective for rural transport services

Widely dispersed populations, low volume economic activities and considerable distances between households and service provision points all present challenges to rural transport planners and the conventional planning tools made available to them. Through its international knowledge-sharing project 'Improving Mobility for the Rural Poor', IFRTD members have identified the concept of transport hubs as a potentially useful tool for understanding and building upon the natural evolution of transport organisation in rural areas.

Rural transport hubs generally develop organically to reflect existing patterns of interaction and hierarchy within and between settlements. While the notion of a hub implies a centre of transport convergence, the hubs approach embodies a wider interactive system consisting of households (as originators of travel), the means of transport used in an area, infrastructure within the hinterland, spokes leading outwards and the hub, consisting of a variety of business, transport and social services. Transport is the vital glue that melds together these patterns of spatial interaction.

In 2005 IFRTD commissioned four exploratory pilot studies on the organisation of transport services in small rural hubs in Ethiopia, Rwanda, South Africa and Zimbabwe. The studies examined the transport linkages between rural hinterlands and their primary market centres. Particular interest was paid to modal composition and integration, functions, spatial coverage and infrastructure needs associated with the means of transport that operate within the hub system.

The studies confirmed that rural hubs are characterised by a continuum of transport modes offering interlinked services at various levels of the system. Transport between the rural hinterlands and the local market centres is related to the marketing of crops, access to local employment, purchase of basic commodities, and access to social services. Interaction at this level develops economies of scale. Goods and human traffic from dispersed hinterlands are consolidated at the hub for local redistribution, or connected to onward transport to similar or higher order hubs. The transport services between the rural hinterlands and hubs consist of low volume services, typically intermediate modes of transport (IMTs), human portage and pedestrian traffic. Infrastructure is generally low quality and often does not provide all year access. Motorised services are infrequent and usually restricted to villages with high agricultural potential.

Within the hubs themselves there is a more diverse modal mix of transport – from IMTs originating from the hinterlands, to those that operate solely within the hub providing short-distance connections and distribution functions. Inter-hub journeys may also include significant IMT operations alongside motorised options. On page 3 **Tatenda Mbara** outlines the importance of IMTs in the smooth running of rural hubs/service centres.

The research indicated that there is a practical value in using the hubs approach to analyse origin and destination patterns, volumes of traffic along spokes, means of transport available, quality of infrastructure and inter-modal complementarity.

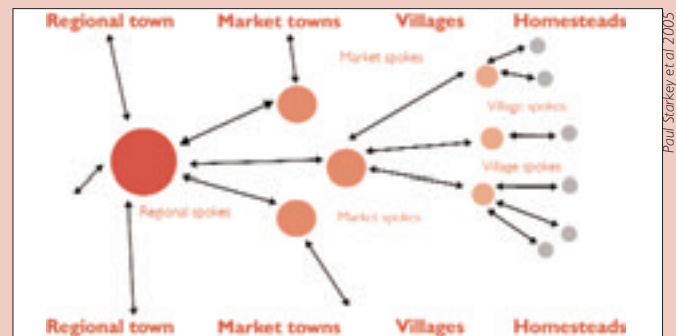
The analysis can also help to identify, prioritise and respond to critical access bottlenecks. For example, one of the case studies from Lume Woreda, Ethiopia, shows how the absence of an all-weather river crossing on a key spoke leading to the local hub, prevents an entire settlement from accessing services for up to 3 months during the rainy season. On page 2 **Ranjith de Silva** compares multi-modal journeys at two hubs and the challenges faced in establishing good connections.

In South Africa the study in Tombo and Lusikisiki shows how the hub structure can provide the basis for synchronising the delivery of various basic services such as pensions, mobile banking and medical care to the rural hinterlands by providing combinations of transport options. **Mac Mashiri** picks up this issue on page 3 with an exploration of hubs as a catalyst for effective service delivery.

The case studies underscore the need to strengthen the links between spatial and local transport planning. Conventional approaches can overlook areas that fall below certain economic thresholds yet

What are Hubs and Spokes?

Transport systems involve various hubs and spokes. Spokes converge and radiate out from the centre or hub. Key rural hubs are regional capitals, market towns and villages. Spokes to and from these hubs have characteristic transport combinations including trucks, buses, rural taxis, boats, intermediate means of transport (IMTs) and pedestrians. The spokes may be roads, tracks, waterways or footpaths. Non-road spokes such as waterways or tracks and paths may be 'invisible' to transport planners. Main roads to regional towns are transport corridors (national hub and spoke systems) and are not typical of rural transport.



Paul Starkey et al 2005

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could benefit from the development of simple bridges or safe crossing points. Similarly local level planners continue to ignore the role of IMTs even where they have been acknowledged at a macro policy level. The South Africa study identifies the lack of designated inter-modal interchange facilities as an underlying cause of chaotic and unsafe transport operations at the hubs and a reinforcer of the anti-IMT bias.

In some instances deliberate interventions are needed to stimulate transport service development. This was the case in Rwanda where transport services were almost non-existent at the two study hubs, Butama and Gabiro. IMTs are completely absent and headloading predominates along the spokes and within and between the hubs. Experience on the introduction of IMTs from other countries would be very beneficial in the case of Rwanda.

Key advantages to the hubs approach highlighted by the case studies include:

- A focused perspective on existing transport patterns. In many cases the basis for a local sustainable transport system is already in place

and what is required are well sequenced interventions to improve efficiency at every stage.

- Reaffirmation that various means of transport are complimentary and each has a niche in terms of distance and payload thresholds, initial and operational costs, speed, lifespan and infrastructure requirements.
- Improved rural-urban linkages. Transport is a key means through which linkages are maintained and strengthened.
- Points of passenger and freight consolidation, helping the development of motorised rural transport services, linked by IMTs.

The studies suggest the need to strengthen the capacity of local planners to address local transport problems in an innovative and holistic manner that highlights the role of transport as a means to an end and not just an end in itself. Despite the growth in global knowledge on local transport options, local planning is yet to embrace the need to integrate all modes of transport and provide infrastructure appropriate to existing needs.

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Making Connections

Mountains and rivers isolate and marginalise poor rural communities by reducing their connectivity, particularly during winter or rainy seasons. Practical Action offices in Bangladesh and Nepal have started to demonstrate technologies and interventions which are appropriate for these two situations, and to assess the degree to which they can improve mobility and access for local communities.

The majority of the inhabitants of Salamkhardung, a village in the char area of Sadar Upazilla, Faridpur district, Bangladesh, face poor connectivity and rely primarily on country boats for their transportation. The project initiated by Practical Action Bangladesh has provided landing stages and waiting facilities for boat passengers through organised community groups. However the landing stage 'jetty' is about 2 kilometres from the village and once passengers disembark the boats they must walk this distance carrying heavy loads on their heads. Horse carts are available but high user fees put them out of reach for the poor. The land (filled by silt during flooding) is sandy and prevents the use of narrow wheeled vehicles such as bicycles.

This project highlighted the need for a road to connect the boat landing station with the village. Such a road would facilitate the use of affordable modes of transport, connecting one to another to complete the journey, for example boat to bus or cycle to rickshaw or IMT. The road would need to take into account the flooding of this land during the monsoon season.

In Janagaon, a mountain village in the Dhading District of Nepal, livelihoods are primarily derived from rain-fed agriculture. Poor farmers hire porters (migrant labour from other areas) at high costs

to transport produce to Bishaltar, the nearest road head connecting to markets. The transportation of consumer items back up the mountain is even more costly and time consuming. Practical Action Nepal has constructed a Gravity Ropeway, with the participation of local communities, to connect Janagaon village to the road head at Bishaltar at the bottom of the mountain.

The important factor here is the location of the down-station of the ropeway at Bishaltar, almost on the road, from which the village produce can then be transported easily to market by conventional modes of transport. The ropeway has resulted in high transport cost savings and is very popular as a means of communicating messages which are tied to the ropeway carriage basket. The sites of the ropeway stations were strategically chosen by Practical Action Nepal following a previous experience where produce sent via a ropeway still required considerable head-loading due to the distance between the bottom station and the nearest road head.

Experience from these two projects demonstrates the importance of establishing good connections between different transport modes to enable people to complete their journeys. This includes the timing of services, the location of transition points, and improvements in the quality of infrastructure in order to facilitate the development of affordable transport services.

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The Hubs Approach in Action

The concept of transport hubs facilitates the sampling, surveying and mapping of rural transport systems. In 2005 a team of IFRTD members, led by Paul Starkey, developed and tested a rapid assessment methodology for the Sub-Saharan Africa Transport Program of the World Bank (SSATP). This methodology surveys transport types, operators, users and regulators at sampled hubs and spokes, stratified by hub hierarchy and remoteness.

While survey details are adapted to specific contexts, the methodology envisages an administrative province/region (5–10% of the country) with a distinct transport catchment area. This area will contain a finite number of hubs, perhaps one regional hub, 5–20 market hubs and 1000 village hubs.

Motorised transport services travel to and from urban hubs. Therefore questioning transport users, operators and authorities at the regional capital and three market towns yields an overview of transport services, prices and constraints. Participative interviews in 5 villages, stratified for remoteness, provide further insights on the transport needs of users (gender disaggregated) including farmers, traders, employees, housewives, schools, health services and



Traffic count in Tanzania

marginalised people. Traffic counts (including IMTs and pedestrians) are made on village, market and regional spokes.

Over two months the methodology provides a rapid, inexpensive, overview of rural transport, highlighting key constraints, stakeholder views and proposals for improvements.

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Draft study available at: www.ifrtd.gn.apc.org/new/issues/t_services.php*

Paul Starkey



Improving Access and Service Delivery

Rural Africa is undergoing a process of socio-economic restructuring, partly characterised by a transition away from agrarian livelihoods towards diverse livelihoods strategies that straddle both rural and urban locations. The significance of off-farm activities is growing and transport services are emerging to cater for this change, connecting rural trade centres to higher order settlements. However, transport links between these rural trade centres and the hinterland remain unreliable, rendering access to services and emerging economic opportunities difficult for rural communities.

Hubs and satellites provide an interface between the money economy (markets, shops, banks) and the subsistence sector, and a staging post for transport services. Networking at hubs facilitates the dissemination of vital information that is often the impetus for production for the market.

Hubs can be modelled in terms of nodes and vectors by ascribing properties to nodes (socio-economic factors, characteristics of settlements, population) as well as ascribing values to vectors (average speed, type of road). The resulting models can be used to predict the effects of different service options and to identify and estimate the impact of infrastructure backlogs on service provision.

Rural communities are often forced to pay exorbitant prices for goods and services or sell their own at give-away prices due to the inaccessibility of distribution centres and markets. This discourages the exploitation of opportunities to produce high value crops for market and traps them in subsistence activities. The hubs approach intends not only to provide opportunities for consolidating and marketing loads, but also to deliver services closer to demand, reduce transaction costs and circumvent challenges faced by rural communities, such as high losses due to low carrying capacities, hindrance to the integration of disparate markets, and constraints to accessing agricultural inputs, extension services and information.

The typical response by mainstream producers and distributors would be to develop highly synchronised, bulk-efficient supply chains

that connect to large urban centres and are supported by computerised market information. This model economises on inventory and handling costs but consumes large quantities of transport and energy resources. It also marginalises labour intensive small scale producers and distributors who are unable to compete on the same terms. Evidently this model is inappropriate for rural communities but it does provide us with an opportunity to explore innovative and pro-poor rural freight and logistics solutions, which adequately respond to and reconcile competing demands for: accessing social facilities and economic opportunities; transporting people, goods and services; and storage and exchanges services. In essence a wider range of services and delivery options are provided from the combined hub-satellite and corridor operations while overhead/infrastructure costs are shared.

Particular emphasis needs to be given to a balanced package of measures. Locational measures, for example the clustering of new housing, infrastructure and facilities. Infrastructural measures, including the adoption of a holistic, integrated approach to planning roads, telecommunications, energy, public facilities and multi-purpose centres. Finally, operational measures which include: establishing and coordinating periodic transport services and market schedules; providing information, regulations and selective subsidisation to support the coordinated services; and facilitating freight collection/distribution services for enterprise.

Because this represents a departure from conventional solutions it is important to introduce the concept in a phased incremental manner – building a core group of supporters and building institutional capacity to plan and implement. This includes the nurturing of political commitment and the empowerment of communities to agitate for improved service delivery.

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IMTs Sustain Rural Hubs

Motorisation levels are low in developing countries particularly in rural areas of Sub-Saharan Africa. The lack of available and affordable transport compromises connectivity between rural areas and the major towns and cities where most goods and services are found. Intermediate Means of Transport (IMTs) therefore play a crucial role in bringing diverse goods from the rural hinterlands into the hubs. Likewise they are critical for the dispersal of goods both back into the hinterlands and within the hubs themselves, acting as feeders to each other and to higher capacity motorised transport.

In the study conducted on two rural hubs in Zimbabwe it was found that people made extensive use of IMTs to travel from the hinterlands to the hub for a variety of trip purposes, for example:

- Selling agricultural produce
- Buying household goods
- Selling naturally acquired commodities (firewood and wild fruits)
- Attending political meetings
- Imparting or acquiring information
- Accessing education
- Accessing health care
- Employment

The most common IMTs used for these trips are animal carts, wheelbarrows, pushcarts and bicycles. Animal carts, wheelbarrows and pushcarts are used for a variety of tasks – to carry agricultural produce, firewood, grains to the mill, as well as the sick to hospitals. Bicycles are used to go to work and to transmit information from the hinterland to the hub and vice versa. Walking and head-loading are also prevalent. The study showed that walking alone constitutes 66%

of the non-motorised means of transport, although invariably walking is taken for granted and not recognised as a means of transport.

The hub and spoke concept faces a number of functional constraints in rural areas. Poor and inadequate infrastructure provision is a common problem experienced in most rural areas of developing countries, particularly Sub-Saharan Africa. If hubs are to be accessible, then concerted efforts are needed to improve infrastructure for IMTs, including walking. Most rural communities do not benefit much from infrastructure that is dedicated to motorised transport, and more investment is needed to maintain the earth roads and paths used by IMTs and pedestrians. Seasonal problems occur during the rainy season when many people from the hinterlands are unable to access hub based services such as schools, hospitals and markets due to flooded rivers. The construction of low cost footbridges that are appropriately located could provide a solution.

The hubs pilot studies in Ethiopia, Rwanda and Zimbabwe have shown that the cost of owning an IMT is beyond the reach of the intended beneficiaries. There could therefore be a suppressed demand for IMTs as people cannot afford them. The introduction of micro credit schemes could boost IMT ownership.

Ultimately the rural hubs approach has highlighted the crucial role played by IMTs in the smooth functioning of the rural transport system and the need to recognise IMTs as an important means of transport. Such recognition should go beyond lip service and focus on creating an enabling environment for IMT ownership and use.

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News and Events

New Chairman for the Forum

With great pleasure we introduce Dr. Danang Parikesit, an active member from the Indonesia National Forum Group, as IFRTD's new Chairman. It was decided during IFRTD's Executive Committee Meeting in Stockholm in November 2005 that a new Chairman should be elected to restore the north-south balance between the Executive Secretary and the Chair. The IFRTD would also like to extend here our gratitude to Paul Starkey, our out-going Interim Chairman, for his long-time commitment and assistance to the Forum.



I strongly believe that advocacy for rural transport and rural development issues is best undertaken by strengthening a civil society network and establishing policy dialogues among relevant stakeholders.

By chairing the IFRTD, I hope that we – as a network – can enhance our capacity in policy advocacy and dialogue processes. I hope the Forum can continue to progressively pursue a global effort in mobilising knowledge and experiences to develop sustainable development. The Forum is able to assist decision makers in determining rural transport policies and investments that will empower the rural poor and disadvantaged as well as serving larger development objectives.

Dr. Danang Parikesit, May 2006

Support for Mojo Horse Cart Owners Association

In Ethiopia the local Administration of Mojo has granted a 500 square metre plot of land to the Mojo Horse Cart Owners' Association for the construction of its office, store, workshop and other activities. This land was promised to the Association at an earlier workshop organised by the Ethiopian National Forum for Rural Transport and Development (ENFRTD), as an incentive for strengthening the organisation. The Association is now making the necessary preparations towards making effective use of the land. It has a membership of more than 270 horse cart owners who provide basic transport services to the residents of Mojo town and the rural areas around Mojo.

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Uvumbuzi Africa – Embedding Cycling Culture in Kenya and Africa

Sustainable and affordable transport is gradually becoming a key feature of transport policies and programmes in Africa. In Kenya, a recent study by the Ministry of Local Government, in collaboration with the Japanese International Cooperation Agency (JICA), reinforced the need to improve overall urban mobility and air quality by supporting cycling and pedestrian infrastructure facilities. Similarly, within the overall framework of sustainable transport, the UN-Habitat Transport and Energy

Focal Point has been working on policy and programme measures that can support efficient mass transit options, with walking and cycling acting as feeder modes.

Uvumbuzi Africa is a new initiative bringing a focused approach to cycling as a sustainable and affordable transport option in both rural and urban areas. Uvumbuzi Africa has evolved from the Uvumbuzi Africa club, a long-standing group of leisure cycling enthusiasts.

Uvumbuzi Africa is now in the process of developing a strategic

plan with the main aim of strengthening and deepening planning and technical knowledge. Integrating cycling into overall transport planning schemes as a sustainable, safe and affordable means of transport.

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Mobility and Health Update

In January and February of this year we invited researchers to participate in an international networked research programme on Mobility and Health. As you know, the IFRTD, in collaboration with the Swiss Agency for Development and Cooperation (SDC), the Swiss Resource Centre and Consultancies for Development (Skat), and the Swiss Centre for International Health (SCIH) as part of the Swiss Tropical Institute, is carrying out a two-year networked research programme on the links between Mobility and Health.

We received over 90 proposals for research case studies from over 34 countries in Asia, Africa and Latin America, an overwhelming response! The proposals were very diverse and touched upon many different perspectives and issues relating to health and mobility. Logistical delays placed the programme on hold for 2 months but the good news is that shortlisting has now taken place, and once full proposals are assessed and reviewed, 24 case study researchers will be selected to participate. In August regional workshops will take place in Asia, Africa and Latin America for these researchers to come together and develop the Terms of Reference and overall analytical framework.

The IFRTD Secretariat has been working on increasing the visibility of this initiative. The English web site www.mobilityandhealth.org is now live and the Spanish and French will follow shortly. In addition, The Secretariat has been invited to do a presentation at the Global Forum for Health Research's annual conference in November. This is an event which brings together over 700 health professionals from the South, an ideal opportunity to sensitise the health sector to the important linkages between transport and health.

About Us:

The IFRTD is a global network of individuals and organisations working towards improved access and mobility for the rural poor. It provides a framework for collaboration, information sharing, debate and advocacy that bridges traditional geographic and institutional boundaries.

Membership of the IFRTD is free. All members receive Forum News and any other publications that are made available to the network. In over 20 countries autonomous networks that subscribe to the vision of the international network have become affiliated to the IFRTD as National Forum Groups (NFGs).

The IFRTD is facilitated by a small, decentralised Secretariat based in the UK, Kenya, Peru, and Sri Lanka.

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