



Feasibility Study of Options for Long Term Knowledge Sharing and Management: Final Report

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working in association with the

International Forum for Rural Transport and Development (IFRTD)

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Feasibility Study of Options for Long Term Knowledge Sharing and Management***

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Paul Starkey, *Team Leader*
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This project was funded by the Africa Community Access Programme (AFCAP) which promotes safe and sustainable access to markets, healthcare, education, employment and social and political networks for rural communities in Africa.

Launched in June 2008 and managed by Crown Agents, the five year-long, UK government (DFID) funded project, supports research and knowledge sharing between participating countries to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources.

The programme is currently active in Ethiopia, Kenya, Ghana, Malawi, Mozambique, Tanzania, Zambia, South Africa, Democratic Republic of Congo and South Sudan and is developing relationships with a number of other countries and regional organisations across Africa.

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For further information visit
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This project aimed to identify appropriate methods and institutional arrangements for storing, sharing and disseminating research findings and knowledge in the rural transport sector. This involved a review of current arrangements and past experiences as well as a survey of stakeholder views and requirements.

The project was implemented by a team contracted by the International Forum for Rural Transport and Development (IFRTD). The team was led by Paul Starkey who was responsible for preparing this report.

IFRTD is a global network of individuals and organisations working together towards improved access, mobility and economic opportunity for poor communities in developing countries.

IFRTD was formed to act as a global, but southern-driven research, networking and information dissemination platform. IFRTD's work focuses on promoting stronger connections between rural transport investments and human development outcomes such as poverty reduction, gender equity and achievement of the Millennium Development Goals (MDGs).

IFRTD engages in research, policy advocacy, networking and information exchange to ensure that new knowledge and practices are created, shared and enhanced, and their application is scaled up for wider impact.

For further information visit
<http://www.ifrtd.org>.

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Acronyms and abbreviations

ADB	Asia Development Bank	ILO	International Labour Organisation, Switzerland
AFCAP	African Community Access Programme	IMT	Intermediate means of transport
AFCAP1	AFCAP Phase 1 (similarly phase 2)	IRF	International Road Federation, Switzerland
AfDB	Africa Development Bank	IT	Intermediate Technology (but IT Transport is now simply a name)
AFERA	L'association des fonds d'entretien routier	ITDG	Intermediate Technology Development Group (now Practical Action)
AGEPAR	L'association des gestionnaires et partenaires africains de la route	ITDP	Institute for Transportation and Development Policy
ANE	Administração Nacional de Estradas	KaR	Knowledge and Research (DFID programme)
ARMFA	African Road Maintenance Fund Association	KeRRA	Kenya Rural Roads Authority
ARTA	African Rural Transport Association	M&E	Monitoring and evaluation
ASANRA	Association of Southern Africa National Road Agencies	MDG	Millennium Development Goal
ASIST	Advisory Support Information Services and Training (ILO Project)	NEPAD	New Partnership for Africa's Development
CGIAR	Consultative Group on International Agricultural Research	NGO	Non-governmental organisation
CSIR	Council for Scientific and Industrial Research, South Africa	NORAD	Norwegian Agency for Development Cooperation
CSO	Civil Society Organisation	PIARC	World Road Association (Permanent International Association of Road Congresses), Paris
CTA	Technical Centre for Agricultural and Rural Cooperation, the Netherlands	R4D	Research for Development, DFID-funded portal
DANIDA	Danish development cooperation	RTS	Rural transport services
DFID	Department for International Development, UK	RTTP	Rural Transport and Travel Programme (SSATP)
eg	for example	SADC	Southern Africa Development Community
ELDIS	Electronic Development and Environment Information Services provided by Institute of Development Studies, University of Sussex, UK	SDC	Swiss Development Cooperation
EngKaR	Engineering Knowledge and Research (DFID programme)	SDG	Sustainable Development Goal
ERA	Ethiopian Roads Authority	SEACAP	South East Asia Community Access Programme
EU	European Union	SSATP	Sub-Saharan Africa Transport Policy Program
FAO	Food and Agriculture Organisation	T2	Africa Transport Technology Transfer
FHWA	Federal Highway Administration, USA	Tanroads	Tanzania National Roads Agency
GATNET	Gender and transport network (hosted by IFRD)	TanT2	Tanzania Transportation Technology Transfer Centre
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit. German bilateral aid agency (formerly GTZ)	TRISP	Transport and Rural Infrastructure Services Partnership (World Bank initiative supported by DFID)
gTKP	Global Transport Knowledge Practice (Partnership), a DFID-funded initiative, now hosted by	TRL	Transport Research Laboratories, UK
ICT	Information and communication technologies	TRS	Transport Research Support to the World Bank for Inclusive Growth
IDS	Institute of Development Studies, University of Sussex, UK	UK	United Kingdom (of Great Britain and Northern Ireland)
ie	that is to say	UN	United Nations
IFG	International Focus Group (IFG) on Rural Road Engineering	UNECA	United Nations Economic Commission for Africa
IFRTD	International Forum for Rural Transport and Development, UK	UNOPS	United Nations Office for Project Services
		USA	United States of America
		WIN	World Interchange Network (PIARC initiative)

Executive summary

The study reviewed the storing, sharing and disseminating of rural transport knowledge. A 'needs assessment' survey report is annexed. This noted knowledge gaps (possibly due to dissemination issues). Survey respondents gained most information from the internet. Mobile phones are also used to gain information. Respondents wanted documents on open-access websites with alerts and newsletters. Personal contacts are important. Much 'grey literature' has not been shared.

This report introduces organisations and information chains. Despite large roads budgets, little is spent on research and information dissemination. A hierarchy in investment, kudos and information products descends from highways to rural roads and to transport services. Agriculture has a UN agency, international research centres and an EU knowledge transfer centre. Rural transport lacks all these. Eldis is an open-source database of development publications that illustrates good practice. It has 30,000 abstracts and linked documents, it sends out alerts and newsletters and it collaborates with southern partners. Other organisations can share the database. While electronic documents are crucial, there are still key roles for printed documents, personal contacts and mentoring.

Nine DFID-funded initiatives illustrate recent problems of inadequate programme continuity and insufficient institutional legacies, partly due to short-term hosting arrangements. Difficult publication choices used to be made between high-status peer-reviewed journals with limited readership and more accessible reports and conference papers. With much unavailable 'grey literature', barriers to sharing are explored. Competitive tendering environments inhibit consultancy products being made freely available. DFID has promoted free-access to information but many national authorities and development banks do not share commissioned studies and reports.

National, regional and international lead organisations and champions are discussed. Many are influenced by the 'hierarchy' of technical interests. Some African regional bodies are mentioned, including those financed by national road funds that could provide long-term financial stability. These organisations could be valuable partners but none seems ready to lead in rural transport knowledge. Large companies have few vested interests in rural transport and cannot be expected to support rural transport information. Fund-raising could lead to corporate responsibility and/or philanthropic donations but this would be no more sustainable than other donor funding.

It is concluded there are five major requirements to improving knowledge management and sharing. 1) Make relevant literature available on the web. 2) Put details of literature into user-friendly, accessible databases. 3) Inform and alert people to available resources. 4) Use key knowledge for derivative publications to influence policy and practice. 5) Encourage and facilitate discussions and personnel contacts. Three options are presented to provide this. They are not mutually exclusive. All are compatible with new, ambitious suggestions for AFCAP support to national research centres.

The cheapest (without extra funding) involves AFCAP continuing good practices and encouraging others to adopt these. All non-sensitive outputs are placed on the web and in the R4D database. All future projects have strong information sharing elements. A code of conduct promotes good practices. AFCAP2 requests proposals for relevant initiatives including 'harvesting' grey literature.

Options to develop an open-access, open-source database are discussed. IRF is a sustainable organisation with the mandate, interest and capability to do this and build on the gTKP legacy. IRF would work with other partners. Donor funding would speed progress. Estimates are provided.

A coalition or network of partners is recommended. It would enhance and complement any database project. A facilitating organisation would link and empower partners (notably African) to undertake relevant activities. These include 'harvesting' documents, contributing to databases and sharing and preparing information products to influence policy and practices. Consortia of organisations with long-term commitments to rural transport information could tender to be coalition facilitator. Cost ranges are provided. Many actors will be empowered to create and use a long-term electronic information legacy. Human contacts and influences will also be promoted.

1 Introduction

1.1 Scope

This is the final report of the demand for, and access to, knowledge in rural transport. It was carried out on behalf of the African Community Access Programme (AFCAP) by the International Forum for Rural Transport and Development (IFRTD). The IFRTD consulting team consisted of Paul Starkey and Farai Samhungu with initial inputs from Priyanthi Fernando.

The objective of this assignment was to identify the most appropriate methods of storing and more importantly sharing and disseminating the research findings and knowledge generated in the sector. The proposed solution(s) should exist beyond AFCAP and have the capacity to integrate or link with similar knowledge management and sharing solutions. The aim was to allow relevant research findings to be built upon and meet the key criteria of being accessible and available. Rural transport research findings should provide an evidence base which could assist and support policymaking and technical delivery of relevant transport projects and programmes.

The assignment involved:

- Investigating the range of feasible knowledge management and sharing solutions, taking to consideration issues of governance and sustainability
- Evaluating existing knowledge management and sharing solutions in the sector, focusing on the institutions or bodies that have ownership and lead the promotion of such knowledge
- Conducting a survey of practitioners' requirements for access to information and research
- Recommending the best knowledge management and sharing solution for AFCAP, including institution(s) that could own and disseminate AFCAP research findings.

The Terms of Reference of this assignment are provided in Annex 1. Although the Terms of Reference were wide-ranging, the time and resources allocated to this assignment were modest. Therefore the IFRTD team, in consultation with AFCAP, maintained a wide vision of the subject but concentrated on issues most relevant to AFCAP. For most rural people, community access involves land-based transport and rural roads. To date, AFCAP has supported work relating to land-based transport and so this report will also concentrate on land-based transport and rural roads. However, it is acknowledged that there are many rural communities that depend on water-based transport, and this is a neglected topic. It is envisaged that the issues discussed and the solutions proposed will be highly relevant to community access through water transport.

The IFRTD team submitted their inception report in January 2013 (Starkey, Samhungu and Fernando, 2013) and a needs assessment report in February 2013. An updated version of the needs assessment report (Starkey and Samhungu, 2013) is included as Annex 2 of this output.

1.2 Needs assessment report

The needs assessment report summarised the results of a survey of transport professionals conducted in February 2013. The survey was made available online, through the Survey Monkey website and an email version was also available. The survey was publicised through email alerts sent out by AFCAP, by IFRTD and by the International Road Federation (IRF) that hosts the gTKP: Global Transport Knowledge Practice (was Partnership), the legacy of a DFID-funded initiative. The on-line survey received 74 online responses from 29 countries in Africa (13 countries), Asia (10 countries), Europe (6 countries) and the Americas (3 countries). About half (47%) of the survey respondents were from Africa. In addition to the on-line survey, several key informants were interviewed during meetings and by telephone for in-depth conversations about transport knowledge management.

The team also reviewed the findings of a previous 'knowledge demand assessment' carried out for the rural transport sector in 2003. The 2003 'knowledge demand assessment' had similar objectives but was more comprehensive in scope. It was carried out for the Transport and Rural Infrastructure

Services Partnership (TRISP) funded by the World Bank and the UK's Department for International Development (DFID). A detailed analysis was prepared by Lloyd-Laney, Fernando and Young (2003). The TRISP knowledge demand assessment consulted over 200 stakeholders in the transport sector worldwide, carried out a literature review, held four workshops in the UK, Zimbabwe, Peru and Senegal and sought responses to an electronic questionnaire. Although the TRISP survey was carried out a decade ago (and technologies are rapidly changing in the knowledge storage and dissemination sector) it remains highly relevant, and was cited in the Needs Assessment Report.

1.3 Declaration of interest and caveat on UK Aid perspective

The contract for this assignment was awarded to IFRTD and the implementing team members have long-standing relations with IFRTD. As a network of rural transport practitioners (managed as an NGO charity), IFRTD is clearly a major stakeholder concerning information exchange in the sector. IFRTD was one of three organisations that alerted its members to the survey (the others were IRF/gTKP and AFCAP). During the on-line surveys and stakeholder interviews many people referred to IFRTD and its past, present and future roles in promoting information exchange. The IFRTD team believe they reported the survey results accurately and reliably. They also believe that references to IFRTD in this report do not distort or exaggerate the significance of IFRTD. The lead author also has close links with many of the other institutional stakeholders mentioned in this report. While the team leader does not believe there are any conflicts of interest involved in this work, he wishes people to be aware of the situation.

The team leader is aware that this review for AFCAP (funded by DFID) is heavily influenced by the experiences of organisations associated with UK Aid. There are some references to other international partners, but time did not allow a broader international review. It is likely that a report commissioned in another country would have presented other perspectives.

2 Situation analysis

2.1 Key stakeholders in rural access

AFCAP identified the need to strengthen knowledge management and dissemination mechanisms in the sector. In the last 30 years or so, there has been a steady growth of development projects and research activities that have improved the understanding of the various dimensions of rural access such as integrated rural accessibility planning, sustainable infrastructure, equipment-based and labour-based technologies, transport services and social and economic impacts. These have resulted in a steady growth of expertise and a proliferation of knowledge. However, it is widely acknowledged that the accessibility of such knowledge is far from ideal, particularly for rural transport stakeholders in Africa.

To understand the problems, and the possible solutions, it is necessary to understand the needs for knowledge, and the main knowledge generation processes in the sector. A wide range of people need knowledge relating to rural roads and rural transport. Rural roads are generally understood to be roads that mainly link villages to other villages and to small towns, and generally have relatively low traffic volumes. Inter-urban roads and highways may pass through rural areas, and be used by rural people. However highways have different characteristics and the highway sector has different knowledge needs. Other infrastructure is also important for rural access in particular areas (eg, trails, footbridges, bridges, jetties).

Rural transport stakeholders requiring access to relevant knowledge include those responsible for road construction and maintenance. Thirty years ago, these may have been people in the government departments responsible for public works, but now they are mainly contractors in the private sector. The planning and supervision of rural roads is generally carried out by the public sector, perhaps by rural road agencies, ministries of works, ministries of transport or devolved

government structures. These may be supported by consultancy firms (national and/or international) and may receive financial backing from donor agencies or development banks.

The rural roads are crucial for rural access, but most rural people in Africa do not own motorised transport and so they do not themselves drive on the roads. They depend on public transport services for their mobility, and on various freight services for the goods they buy and sell. Most transport services on rural roads (as opposed to inter-urban roads) in Africa are run by private operators in the informal sector. Fifty years ago there were some parastatal bus companies, but most of these ceased operations. Rural transport operators may form associations or cartels. The transport services are generally regulated by a government ministry, agency or devolved government authority. In most countries in Africa, the planning and regulation of rural transport is relatively weak.

Information on rural access is also vital for development authorities and service providers. Rural roads and transport services are needed for agricultural inputs and outputs, for medical services, education, and for the providers of services such as electricity, water and telecommunications. They are also needed for those concerned with socio-economic development, including the particular needs of governance, gender, children, older people and those with disabilities. Many of these areas of development have strong public-sector involvement (national ministries, local government, development projects), as well as contributions from NGOs and the private sector. Rural trade and the provision of goods are generally left to the private sector (formal and/or informal).

Clearly there is a great diversity of stakeholders concerned in various ways with planning and implementing aspects of community access in rural areas. Public organisations, private sector enterprise, NGOs and mixed programmes are all involved in various aspects of providing and/or using infrastructure, public transport and the many services people need. The current problems of creating, storing and disseminating knowledge are partly the result of this diversity and complexity.

2.2 Information dissemination chains

Knowledge management and sharing can be both demand and supply driven. The classic chain of information dissemination goes from knowledge generation through infomediaries to the intended audience. In reality knowledge generation and dissemination processes are more complex and require feedback loops with the audience providing information back to the knowledge generation mechanisms and the 'infomediaries'. The term 'infomediaries' (information intermediaries) is used here to refer to intermediaries that 'package' information for different audiences. They may act on behalf of the users/consumers of knowledge (demand driven) or on behalf of the knowledge generating agencies (supply driven), but their role is to transform research into information products that are appropriate to users. Infomediaries can exist as part of a knowledge generation agency or be independent organisations. 'Packaging' information can be in the form of developing a website or web portal where information is available to anyone going to look for it by going to the website, or using a search engine. However, many organisations feel it is necessary to engage in more active diffusion processes, by informing people of the existence of these knowledge products through electronic newsletters, printed publications and/or the dissemination of policy briefs.

In the rural transport sector, as will be discussed below, the main knowledge generators include national organisations (roads agencies, projects, universities, NGOs, consultancy firms), donor-funded projects (often implemented with north-south collaboration) and regional, international or northern-based organisations, including development banks. A high proportion of the knowledge generated in the sector is funded directly or indirectly from donor-agencies or public-sector institutions. The private sector is often involved in implementing programmes, through consultancy companies and contractors, but there is little private sector investment in information products.

Most knowledge generators disseminate their own information, through websites and publications. Very few act as infomediaries that actively broker other people's information. As will be discussed,

there have been several relatively short-lived initiatives to try to develop 'one-stop' sites for rural transport information through web-portals.

2.3 Knowledge generation and storage in the rural transport sector

Research relating to rural transport encompasses many disciplines, many public sector bodies (national and local) and many different types of organisation (NGOs, projects, consultancy firms). Many of these have been influenced by restructuring and the funding conditions of national budgets and external donors.

Several decades ago, there were large public sector organisations responsible for many aspects of rural transport, including research and recording lessons and experiences in departmental libraries. The large organisations were often expensive and the prevailing policies favoured reducing their scope and delegating more to the private sector. Ministries of public works and transport shrank, and became planning and contracting bodies. Parastatal agencies were created to organise national transport infrastructure and/or transport services. In the process, old institutional memories and resource centres were lost and new ones are now gradually being created in a larger number of smaller organisations. In many countries, different authorities are now responsible for urban transport, highways and national roads (attractive to transport professionals being well-funded with fashionable, modern, complex technologies) and rural transport (generally less attractive, devolved, remote and simpler technologies). Within countries, donor agencies and development banks, the proportion of budgets spent on the rural transport sub-sector has been declining relative to the highway and urban transport sub-sectors.

In recent years, most investment in rural transport knowledge generation in Africa has taken place in the context of transient donor-funded projects. These include road construction and maintenance projects, rural development projects and sector specific studies (influences of rural transport on health, education, agriculture, gender, governance and socio-economic development). In many projects, knowledge generation is tied to donor reporting requirements, rather than to internalising and institutionalising good practices within the host agency. The knowledge generated therefore tends to reside as reports within the donor agencies and supervising ministries and as unpublished 'grey literature' in a few libraries.

National and donor regulations on open competition and good governance have also influenced the rural transport sector in recent decades. In many countries, there were specialised organisations or departments that carried out transport-related research or monitoring and evaluation. Now, more work is put out to tender, and a variety of organisations become involved. This could be beneficial if they each retained their professional expertise and developed institutional memories and knowledge resources. However, consultancy firms seldom have the time, resources and focus to allow them to build on their assignments and share their knowledge. Frequently, contractual conditions actually prevent them from sharing their experiences publically. Therefore, a great deal of the knowledge exists among the sector's consultants and experts that is not sufficiently shared. This knowledge needs to be harnessed in a formal way to avoid the threat of knowledge loss.

In some ways, the fragmentation of the rural transport sector in Africa has been reflected within the UK. Prior to privatisation in 1996, the Overseas Division of the parastatal Transport Research Laboratory (TRL) was responsible for much rural transport research in Africa. It built up a documentation centre and a pool of experts, who sometimes were able to work on projects with a long timeframe. It published the influential Overseas Roads Notes. Following privatisation, TRL has remained engaged but its pool of expertise has shrunk and it is highly dependent on short-term project work. In recent years, tenders were invited to manage DFID's rural transport programmes including gTKP, SEACAP and AFCAP. A range of consultancy and management firms won the various contracts. While the various managing organisations have transparently reported the lessons and the progress, very little institutional memory has been built up from these programmes.

The past two decades have also seen changes in the number and type of institutions involved in the rural transport sector in Africa. While some institutions such as national transport ministries and the main bilateral and multilateral aid agencies remain crucial, their roles and priorities have been changing over the years. Their relative importance in knowledge creation, storage and dissemination has been evolving. New influential institutional actors have emerged and flourished, while others have ceased to be active.

Despite much rhetoric about the need for good research, sharing lessons, capacity building and the need for knowledge sharing, many of the stakeholders in rural transport have modest and uncoordinated efforts to achieve the stated goals relating to information exchange. No single organisation has emerged with the mandate and resources necessary to lead or coordinate knowledge management and dissemination relating to rural transport in Africa. Given the diversity and complexity of the continent, and the changing nature of institutions and donor funding, it is possible that none will emerge in the near future. Several complementary information sources may be needed to fulfil the stakeholder's information needs.

2.4 Sector comparisons and champion organisations

It is difficult to compare transport with other sectors, but some lessons relating to knowledge generation and dissemination can be drawn by looking at other fields. Agriculture is a productive sector that is vital for rural people's livelihoods. Agriculture has many publically-funded bodies that promote knowledge generation and dissemination. Many universities in Africa have academic faculties or departments dedicated to agriculture. A specialised UN agency, the Food and Agriculture Organisation (FAO) promotes agricultural development and best practices. There is an international network of research centres, the Consultative Group on International Agricultural Research (CGIAR) undertaking research in many tropical and sub-tropical countries. The European Union funds the Technical Centre for Agricultural and Rural Cooperation (CTA), which is based in the Netherlands but promotes information dissemination in African, Caribbean and Pacific countries. It produces the regular, informative, free newsletter 'Spore' in printed and electronic versions and has a database of publications. It also assists people in its target countries to organise and participate in national and international thematic workshops and to publish and disseminate the proceedings.

In contrast, there is no UN agency or internationally-funded research network dedicated to transport. There is no equivalent of CTA, with a good newsletter and support for local technical workshops and networking. Universities seldom have transport faculties or departments, with different aspects of the sector being studied by engineering, geography and other departments.

Despite the massive size of the rural transport sector in terms of world-wide investments and contributions to national economies, the rural transport sector lacks clear champions. From a British perspective (that may not be shared elsewhere) the Overseas Division of TRL appeared to be an international 'champion' in the sector for a few decades. However, with the privatisation of TRL, this role ended. TRL now has the same status as IT Transport, a British consultancy company with a strong history and idealistic principles, but which primarily responds to the market.

2.5 Some actors in information generation and dissemination in the sector

Some of the past and current actors that have been active in promoting and/or implementing transport-related research, knowledge generation and the diffusion include:

- **Sub-Saharan Africa Transport Policy Program (SSATP)** managed by the World Bank. SSATP has commissioned many influential publications on rural transport as well as other knowledge products that are available on its website. SSATP has influenced rural transport policy through its workshops (bringing African ministers and sector leaders together) and through many initiatives including the management of road assets and poverty-reduction aspects of transport.

- **Rural Transport and Travel Programme (RTTP)** managed by the World Bank. RTTP was an SSATP programme concentrating on improving rural transport policy and practice within collaborating African countries and it has produced various influential knowledge products that are available on the World Bank website.
- **International Labour Organisation (ILO)**, international organisation supporting work and projects relating mainly to labour-based road construction and maintenance.
- **Advisory Support Information Services and Training (ASIST)**, an information-resources project of ILO that has now ceased.
- **World Road Association (PIARC)** links transport ministries, roads authorities and other stakeholders and organises regular regional meetings and publishes PIARC technical reports and proceedings. PIARC and its members are mainly concerned with highways. While rural transport issues tend to peripheral, one of PIARC's 18 technical committees is on Rural Road Systems and Accessibility to Rural Areas. The technical committees organise meetings and workshops in different countries. PIARC has published recently two documents relating to rural roads. Nine African countries (all francophone) have national PIARC committees. PIARC has supported some T2 technology transfer initiatives.
- **International Forum for Rural Transport and Development (IFRTD)** is an international network that has been promoting information exchange for twenty years. It has conducted 'networked research' and produced reports on many neglected areas. It produces the 'Forum News' newsletter and sends out a monthly 'alerts' about publications and events.
- **Transport Research Laboratories (TRL)** international programme. Historically TRL was a public-sector institution and international information resource that produced many important knowledge products, including the influential Overseas Roads Notes series. It is now a consultancy business. It was contracted by DFID to develop the Transport Links database of resources, but this has not been updated since 2004.
- **International Focus Group (IFG)** on Rural Road Engineering – a DFID funded initiative.
- **Global Transport Knowledge Partnership (gTKP)** a DFID-funded initiative, now known as the Global Transport Knowledge Practice and hosted by the International Road Federation. Website: <http://www.gtkp.com/>
- **International Road Federation (IRF)** is a small, international non-governmental organisation linking stakeholders in the roads sector in developed and developing countries. Its members from 80 countries included commercial companies, universities and national authorities. It organises meetings and publications on technical and socio-economic topics and publishes reports covering a wide range of road transport issues, from highways to rural transport and including safety and environmental. It publishes electronic and printed newsletters, alerting people to publications and events. It now hosts the gTKP knowledge base. Website: <http://www.irfnet.ch>
- **GIZ** (the German bilateral aid implementing agency) has for several years supported the Sustainable Urban Transport Project (SUTP) that has undertaken many studies relating to best practices in urban transport. It has published related output documents, web-resources, alerts and newsletters. During the course of this assignment, GIZ expressed interest in collaborating with IFRTD and other partners in initiatives to improve knowledge management relating to both urban and rural transport. Website: <http://www.sutp.org>
- **IT Transport** (historically a spin-off of ITDG/Practical Action), a consultancy firm providing some information resources
- **Practical Action** (previously known as the Intermediate Technology Development Group, ITDG) a development charity that had been associated with intermediate and labour-based technologies and related information dissemination.
- **African Community Access Programme (AFCAP)** a DFID-funded initiative involving rural transport research and knowledge dissemination in Africa that followed the South East Asia Community Access Programme (SEACAP)
- **Africa Transport Technology Transfer (T2)**. The US Federal Highway Administration and PIARC have helped to establish technology transfer (T2) centres in ten African countries. Linked to

these have been a series of biannual international workshops designed to exchange transport-related knowledge and research findings. The last two, held in Tanzania and Botswana, were supported by AFCAP and so had more emphasis on rural roads and transport services than had been the case in the past.

- **Federal Highway Administration (FHWA)** of the US Department of Transportation has supported the establishment of transport technology transfer centres in several African countries and has support the T2 workshops

These organisations and initiatives have all been interlinked in a variety of ways. The 'Makete tree' initiative of IFRTD (<http://www.maketetree.org>) illustrated how interlinked the rural transport sector can be. The Makete tree illustrated how one small but influential research and development project in Tanzania was able to have a huge influence on subsequent activities and policy development through reports and person-to-person contacts.

This above list of stakeholders is not comprehensive, and comprises mainly organisations closely associated with British aid. However, other aid agencies have also been influential in the road transport sector in Africa, including DANIDA, NORAD and SDC. There have also been important transport-related programmes (with aspects of knowledge creation, dissemination and use) within international and regional organisations in Africa (such as AfDB, NEPAD, SADC and UNECA).

Some of the organisations listed above cover anglophone, francophone and lusophone literature but there are also organisations that are predominantly francophone, promoting research and information exchange in francophone Africa. During the participatory survey, there were discussions with stakeholders in anglophone, francophone and lusophone countries.

In addition there are anglophone, francophone and lusophone universities, research institutes, transport ministries and consultancy organisations that undertake research studies. CSIR in South Africa is an example of a large, diverse research institute investigating a wide range of transport technologies. The Ethiopian Roads Authority is another example. Both of these organisations collaborate with external researchers on some of their work.

The wealth of information that is created within national programmes is often inadequately shared, particularly across national boundaries. Consultancy firms are often contracted not to share information. The contracting ministries are seldom orientated to information transformation (appropriate packaging) and diffusion. Universities are more geared to information diffusion, but this may be inadequate due to insufficient resources and/or publication in journals of limited readership.

A further important element in knowledge management relating to rural transport in Africa, are the more general databases concerned with development issues. These include:

- **Research for Development (R4D)**, a DFID-funded and hosted database of evidence-based information relating to poverty and development, that includes rural transport and has received all the AFCAP outputs. Website: <http://r4d.dfid.gov.uk/>
- **Eldis**, a database of 30,000 publication abstracts with links to original documents relating to development issues, including some related to rural transport. Eldis is hosted by the Institute of Development Studies of the University of Sussex and supported by DFID and Irish Aid. Website: <http://www.eldis.org/>
- **Evidence on demand**. A DFID-funded advisory service started in 2012 as a resource informing development practice relating to climate and environment, infrastructure and livelihoods. This does not yet have resources relating to transport. Website: <http://www.evidenceondemand.org/>

There are also more specialised organisations that focus on particular issues or sectors relevant to rural transport, including agriculture (FAO, CTA), road safety, particular transport technologies and particular stakeholder groups (elderly, people with disabilities, youth).

Eldis: an example of good practice

Eldis is a database of 30,000 free-to-access publications relating to development. It concentrates more on socio-economic development issues rather than engineering topics. The Eldis database contains summaries of all the documents together with associated standard bibliographical data with links to the original documents. The majority of the documents are held on the websites of the original information providers, which may be anywhere in the world. Eldis is hosted by the Institute of Development Studies of the University of Sussex and is supported by DFID and Irish Aid. All documents have been editorially selected by a member of the Eldis team or authorised partners. In addition to the document database, Eldis produces alerts and newsletters and facilitates social media interactions to increase awareness of documents. Not only is the database available free-of-charge worldwide, but the data is 'open licensed'. There are applications that allow other users and other information providers to acquire any of the content for use within their own systems (the content being the abstracts, bibliographic details and the hyperlinks to the original documents).

Now that it is well-established, Eldis sources information relating to new publications from hundreds of publishing organisations around the world. Increasingly these are in the form of electronic bibliographic alerts that can be added to the database without editing. The thematic editors are also constantly on the lookout for relevant publications. Anyone can submit a publication for possible inclusion and with an invitation to contribute on the home page. However the number of entries acquired in this way is quite small. Eldis has several partners including organisations in India, Bangladesh and Malawi that search out and supply database entries. Sometimes basic 'harvesting' of the 'grey literature' is undertaken with partners. This can involve requesting and receiving documents by email. Sometimes teams have driven to national institutes and universities to make copies or scans of documents for subsequent review and entry in the databases and making available on-line.

Eldis currently adds about 3000 entries a year to its database. For this level of operations it has the equivalent of just under five UK-based full-time staff, of which 0.5 persons/year are needed for computer programming and technical database work and another 0.5 persons are needed for website editing, updating and maintenance. The other staff (equivalent to about four people) are involved in the various tasks of sourcing documents, reviewing, abstracting, bibliographic entries, preparing newsletters and other alerts, marketing, M&E, sourcing and working with partner organisations. As several staff provide a proportion of their time, there are more than four people involved and the Eldis team believe the synergy of the multi-disciplinary teamwork in IDS is very important. The partner organisations are funded with the equivalent of about one full-time staff position, although work is often shared also. With several thematic staff in UK and partner organisations working for Eldis for a few days a month there are issues relating to ensuring efficient time management. The partnerships are considered highly beneficial for all. They involve much remote interaction and have required patience, understanding, commitment and capacity building on all sides. In the future, the partnership arrangements may go out to open tender.

Eldis has guidelines for those seeking to build upon its database resources or even emulate them. Eldis is keen to explore partnerships with research producers and other infomediaries offering similar services.

3 Key survey findings

The results of the survey have been presented in a Needs Assessment Report (Starkey and Samhungu, 2013). In the following paragraphs the main findings are summarised. Due to the small sample size and the self-selected nature of the on-line survey respondents, the results should be interpreted with caution.

Almost all of the 100 people surveyed produced some information outputs, notably reports on a wide range of topics on road infrastructure, means of transport and socio-economic and institutional issues.

Respondents needed information on many different topics. Over three-quarters needed information on rural transport infrastructure and on community access and mobility needs. Over half the respondents needed information on rural transport services, transport technologies and economic and financial issues. Information on gender, disability and governance was required by about half the respondents.

Key knowledge gaps included disability issues, rural transport services, gender, governance and economic issues. Rural transport services and community access and mobility were areas that combined inadequate information with broad demand. Apparent knowledge gaps may be due to poor information dissemination.

Half the respondents felt it was difficult or very difficult to access the information they needed. The main information sources were on the internet (search engines and websites concerned with transport or research and development). Personal contacts were important information sources and people gained much professional knowledge from workshops. Libraries and resource centres were not used much. A large majority of people preferred original documents to repackaged information.

As most people used the internet as their main source of information, this is the key platform for future information dissemination. While computers are mainly used, smart phones are increasing although speeds, costs and file sizes can be problems. People appreciated alerts and newsletters, such as those produced by IFRTD and IRF/gTKP.

Improved dissemination would best be achieved through open-access websites containing original documents. Alerts should inform people of new acquisitions and newsletters should introduce topics and resources. Websites and databases should be user-friendly so people can find information quickly. There should be 'light' information options for those with poor or expensive connectivity.

Much valuable information has not been adequately shared. There is need for organisations to put their own grey literature on-line and for this to be 'harvested' so that it becomes more accessible. Guidelines are needed to promote and assist greater document sharing and this can be encouraged by national and international stakeholders, including donors. There are important roles for universities, workshops, professional exchanges and mentoring programmes. Printed books, manuals and newsletters have important on-going niches.

The survey confirmed the great need for better access to all types of information on rural transport with additional information on transport services and community access and mobility as well as disability, gender and governance issues. Surveyed people felt that an initiative to improve information dissemination in the sector should be a collaborative venture, involving key international stakeholders and national bodies.

Further details of the survey are contained in the Needs assessment report (Starkey and Samhungu, 2013) which is considered to be Annex 2 of this document.

4 Emerging issues

4.1 Short-term initiatives

The sector has suffered from the short time horizons of donors and the lack of continuity. DFID stands out as it has supported several initiatives for limited periods without adequate continuity arrangements. As these are all directly relevant to this analysis and to the conclusions, the various initiatives are summarised below.

- **Engineering Knowledge and Research (EngKaR)** which ran from about 1988 to 2004 was a mechanism for DFID to fund research relating to engineering appropriate to developing

countries. Transport (urban and rural) was a major element, with 105 transport projects costing £23 million, of which £17.5 million was awarded to TRL (Arnold et al, 2005). In addition to infrastructure-related research, KaR projects included socio-economic issues, disability issues and rural waterways. As part of a KaR project, TRL published a DFID transport newsletter from 1994 to 2004 which contained, among other things, reports (alerts) about the KaR project findings. There was no KaR website but some (but not all) the KaR outputs were made available on the Transport-Links website.

- **Transport Links** is a database of rural transport information and links, funded by DFID and implemented by TRL. It was used as a dissemination site for the outputs of the DFID-funded Knowledge and Research Programme, but also included other relevant material and web-links. It published a newsletter, alerting people to new publications. The website still exists as a resource, but the site has not been actively maintained since 2004. Website: http://www.transport-links.org/transport_links/index.asp
- **Rural Transport Knowledge Base** was organised by SSATP (RTTP), funded by DFID and implemented by TRL. It attempted to encapsulate key knowledge and experience in the sector through a large number of papers written in academic style. Prepared in 2001, it remains as a static, unchanging, on-line resource. Website: http://www4.worldbank.org/afr/ssatp/Resources/HTML/rural_transport/knowledge_base/English/Contents.htm
- **International Focus Group (IFG)** on Rural Road Engineering – a DFID funded initiative designed to exchange information on rural roads experiences in Asia and Africa. TRL was contracted to facilitate and act as its secretariat. It convened an initial meeting in TRL in 2002 and then arranged with local partners international seminars on road engineering issues. These were held in Cambodia (2002), Ghana (2002), Sri Lanka (2003) and China (2004). The 2004 workshop, elected an IFG president from Asia and an IFG executive secretary from Africa, but IFG did not develop into an effective organisation and funding ceased. The four workshop reports are available on DFID's R4D website.
- **The South East Asia Community Access Programme (SEACAP)** ran from 2004 to 2009. It was envisaged as a rural roads research programme within the framework of gTKP. DFID contributed £8 million of the £15 million budget, with other funds coming from ADB, EU, UNOPS and the World Bank. It was managed by Crown Agents. It had a short-lived website, the resources of which were taken over by gTKP. Key output documents are available by searching on the gTKP and R4D websites (or with a search engine such as Google).
- **The Global Transport Knowledge Partnership (gTKP)** was intended to be a collaborative initiative designed to promote and disseminate sustainable transport knowledge, whilst encouraging greater participation from the developing world. It was intended to work with existing organisations, such as IFG and PIARC and gain funds from several donors. Initially it was managed by Pricewaterhouse Coopers. However, neither DFID nor the management group was able to attract other funding partners. DFID provided £3.5 million in Phase 1, from 2005 to 2009. It started to develop the gTKP website, which contained thematic pages and a database of documents. It produced a newsletter to alert people about new web postings and events. In 2007, WSPimc was asked to take over the management of gTKP and prepare for it to be handed over to IRF. From 2009 to 2011, DFID provided £1.9 million to IRF to manage gTKP and to continue to update the website and organise workshops. Since 2012, IRF has continued to maintain the gTKP site using its own resource, adding documents to the database. However the thematic pages are not currently being updated.
- **African Community Access Programme (AFCAP)**, which is the Client for this current report, is a DFID-funded initiative to promote research, capacity building and knowledge exchange relating to rural transport in Africa. It is managed by Crown Agents and the cost to DFID was £10.5 million, excluding the 2013-14 extension. Unlike the earlier SEACAP programme, AFCAP funds work relating to transport services as well as road engineering. Although AFCAP does have a basic website, it is not a particularly useful knowledge resource. However, all AFCAP project outputs have been placed on the R4D website, and there are currently about 350

AFCAP-related documents available there.

- **Transport and Rural Infrastructure Services Partnership (TRISP)** was a joint DFID and World Bank project to improve access to information relating to transport. DFID's contribution was £1.9 million, from 2001 to 2004. The aim was to facilitate and enhance the information services required by decision-makers for transport and rural utilities. Key issues of concern were availability of an accessible database, implementation of best practices, policy guidance and an open access website containing electronic information, southern news and events information linked to other websites and appropriate alerts and newsletters. One of the TRISP outputs was a detailed needs assessment report that has been cited in this study although it remains unpublished (Lloyd-Laney et al, 2003).
- **Transport Research Support to the World Bank for Inclusive Growth (TRS)** was a follow-up to TRISP designed to use the lessons and experience of TRISP to focus on key emerging research issues and apply the lessons. DFID's contribution was £3 million for 2008-2011.

In addition to these knowledge generation and dissemination projects, in the past fifteen years, DFID provided support for Practical Action and IFRTD directly relevant to rural transport information generation and dissemination. The websites of these organisations contain relevant resource materials, some of which also exist on the Transport Links and gTKP websites, but others do not.

The final review of SEACAP noted that 'from discussions with stakeholders in the region, it is clear that the plethora of initiatives by international agencies for collating and disseminating information on the sector, many of which were short-lived, was confusing and possibly counter-productive' (van Gijn and Benjamin, 2009).

DFID has also spent a great deal of money supporting bilateral transport initiatives in many countries. Lessons from these investments, such as evaluation reports of road-building projects, have not always been shared with the various information exchange programmes or databases supported. However with DFID's commitment to open access to information and the R4D website the situation has been improving.

The focus of this section has been on DFID, which is indirectly supporting this current study. Time did not allow comparable reviews of other donors and development banks. However, given the amount of donor money spent on transport-related investment, and the lack of any obvious clear repository of the knowledge collected, it may be assumed that comparable situations have existed elsewhere.

Key problems appear to be:

- Not all relevant knowledge created has been made readily available to the community of practice, and
- When knowledge has been made available there have been no sustained systems for:
 - making knowledge easily accessible (user friendly libraries/databases)
 - alerting people to that knowledge (fliers, email alerts, newsletters)
 - disseminating that knowledge (publicity and general derivative products)
 - influencing people with that knowledge (derivate products targeted at particular groups).

4.2 Continued need for non-electronic media

A large number of research reports and technical information relating to access and transport that have been created in the past three decades are now available in electronic format. Most were created electronically and some have been scanned. This greatly eases the problem of information storage, distribution and access. Most users of this information can access, and if necessary print out, files from the internet. Even specialist outputs such as technical drawings, photos, maps and GIS databases can be stored and shared using the internet.

This does not mean that there is no need to create, store and disseminate printed documents. There is still a demand for books, manuals, booklets, brochures and other printed outputs. The attractive document that stimulates interest is still an important information resource.

4.3 Need for user-friendly portals and within-site search tools

The development of web-based search engines, such as Google, has allowed people to search the entire internet for particular key words and phrases. In some ways, this has reduced the need for one-stop specialist portals. Many people (including the IFRTD team responsible for this report) maintain that it is often easier to find documents using web-based searches (such as Google) than to search documents within certain websites. For example, it can be difficult to track down specific documents starting from the home pages of AFCAP, SSATP, gTKP, Transport-links and similar websites. All the documents on these websites can be tracked down from outside the websites using search engines (provided one searches for appropriate words and phrases). To give an example, if one enters the words 'Ethiopia Knowledge and Information Centre' into the Google search engine, then in the first ten 'results' is a link to a presentation on the AFCAP website that mentions this subject. However, if one goes directly to the AFCAP website, it is not obvious how to find this publication. Entering the same terms into the search box on the library page of the AFCAP website will not identify this document, but there are no guidelines on how to search this website.

Infomediaries need to consider the search tools (and search instructions) available on their own websites. Despite internet search engines, web-portals still can have particular value if they can provide guidance to the user and help the user search for specific information in appropriate ways.

4.4 Public or private knowledge

There are conflicts of interest related to the dissemination of knowledge. The first relates to copyright and the need or desire to sell information. Information generators (authors and/or organisations) may claim copyright to their work and expect people to pay for the knowledge. Publishing houses and commercial websites need income streams to pay for the costs of their information provision (and to generate profit). For generations it has been accepted that people have to pay for some information. The principles remain clear-cut for the entertainment industry, even though enforcing the principles are increasing difficult. It is less clear cut for those concerned with development and the public good, who want the information disseminated widely and do not wish to restrict knowledge to those who can afford to pay for it.

The dilemma was greater before digital technologies: books were expensive to produce and distribute. Giving away free copies did not always ensure good distribution. Some organisations, including GTZ/GIZ and FAO, had two systems: free copies to legitimate requests from developing countries and book sales in other countries. Commercial distribution was inhibited by bookshops unwilling to stock books that could be got free-of-charge. Practical Action Publications (formerly Intermediate Technology Publications), that published influential works such as 'Roads are not enough' (Dawson and Barwell, 1993), argued for commercial publication and good commercial distribution. IFRTD undertook a networked research programme on gender and transport. It decided to publish the resulting book commercially, with some free copies available (Fernando and Porter, 2002). This increased the status of the book and its use in libraries, but reduced its availability as a downloadable resource. There remains a continuing on-going dilemma about whether or not to market publications through commercial channels.

Related to the copyright issue is the kudos of knowledge 'ownership'. Many international peer-reviewed journals will not take information that has already been published. This means an information generator (author and/or funding institution) that wants to publish information in peer-reviewed journals will not want that same information to be widely circulated on the web in pdf format. Most peer-reviewed journals are read by a limited number of people (mainly academics) and

they were not major information sources of the people surveyed as part of this assignment. In the past, there has been a clear choice. Researchers could go for the kudos of academic publishing and influence policy and practice through academic channels. Or they could try to disseminate widely to the community of practice, but at the risk of this being considered a second-class information product without the stamp of academic approval. It may be that the recent push to open-access journals is starting to change things, in which case, this problem may be reduced. In the transport sector, the World Transport Policy and Practice electronic journal (http://www.ecoplan.org/wtpp/wtj_index.htm) is beginning to have a positive impact in relation to this issue.

The academic community has generally concentrated on peer reviewed journals to which access is restricted. Much of the transport sector (including staff of transport agencies, NGOs, donor agencies and consultancy firms) have tended to exchange information through reports, conference papers and newsletters, which tend to be freely available. Recent experience within AFCAP suggests that there are pressures to reduce this dichotomous problem. Academics are being encouraged to share their research work through informal publications and other transport specialists are being encouraged to write for peer-reviewed publications.

4.5 Barriers to information sharing

As has been noted, existing knowledge gaps may be due to lack of knowledge or to lack of sharing of existing information. Many people interviewed stressed that a great amount of information exists that has not yet been shared. There is an important need to convert unshared 'grey literature' into accessible documents within the public domain. This will require proactive initiatives to 'harvest' existing information and to encourage individuals and institutions to collaborate. However, there is also need to understand why this situation exists and what can be done to overcome the problem.

Much valuable information relating to transport is generated through research, appraisals, evaluations and technical studies. These may be conducted by staff of public sector, private sector, NGOs or donor organisations and/or by national or international consultants. This wealth of information is often read by one or two people in the ministries and supporting funding agencies and then is filed without being adequately shared within the organisation or with other people.

The author of this report estimates that the majority of the consultancy studies he has undertaken for national governments, for bilateral and multilateral aid agencies and for development banks have never been adequately shared. These outputs had all been prepared in such a way that the content and design were entirely suitable for sharing. Briefly examining possible explanations for this failure to share, may allow greater understanding of the barriers and possible incentives to remove them.

Some clients (notably national governments) have simply not been interested in sharing the lessons. Most consultancy contracts have 'gagging clauses' that prevent the authors from publishing or sharing information gained during consultancy assignments. It is up to the client to share, or not to share, the lessons. In certain cases, the work undertaken involved studies related to poverty-reduction included by donors as conditions for major infrastructural investments. The national ministries concerned with transport infrastructure had agreed to undertake the studies on 'minor' transport issues, but had, themselves, no interests in such 'unfashionable' topics. The donors had provided the necessary funding, but had not specified that the output reports should be made public.

With some other clients, the problem related to the pressures on those responsible for signing off outputs and ensuring they were published in hard or soft formats. The longer the delay, the less it seemed to matter as there was great urgency for 'internal' periodic reports and no system for flagging unpublished documents.

Other issues seem to relate to Client-Consultant relationships within the transport sector. There is often competitive tendering in which proposals are commercially sensitive. The contract is awarded, the consultant delivers, the client pays and the contract is ended. The client does not want the consultant to further 'benefit' by using the information generated. The client benefits from the information (perhaps using a sector appraisal to secure investment funds or using an evaluation to justify the investment). The client's staff responsible for the contract (perhaps within a national ministry or agency) are not in an environment that favours 'open access' to information. They are under time pressure and have no incentives to make studies available on their institution's website.

The failure of organisations to share information and lessons results in the duplication of efforts and people unable to build upon lessons already encapsulated within professional reports.

DFID and the AFCAP can be cited as examples of good practice here. Only ten years ago, DFID-supported projects such as SEACAP and TRISP failed to ensure that all valuable, non-sensitive outputs were made available on permanent websites. AFCAP is now obliged to ensure that all such outputs are made public and accessible. Moreover, DFID has been making it much easier for consultants to share information. In some recent DFID framework contracts, it has been explicitly stated that 'DFID hereby grants to the [information creator/supplier] a worldwide, royalty-free, perpetual, nonexclusive licence to use the material for non-commercial purposes' subject to some simple conditions (the uses must be 'not-for-profit' and acknowledgement to DFID should be made where appropriate).

Many other stakeholders need to be 'encouraged' to adopt such open-access principles and practices. This may take time. It may involve drafting a 'code of good practice' and stimulating changes in the ethos of institutions and government departments to make non-sensitive information-sharing the default option. There will probably be a need for lobbying and negotiations at national and international levels. There should be incentives (including acclaim at international workshops) for those who help to change the prevailing attitudes and promote open access to non-sensitive technical reports.

As rapid, spontaneous changes are unlikely, there will be a need to actively search out and 'harvest' existing grey literature. These will be primarily national-level initiatives, perhaps with external support. For successful 'harvesting', it will probably be necessary to have approval and endorsement at a high national level. Donor agencies, such as the World Bank/SSATP and AfDB, could be very influential in achieving high-level national support. At a lower level, networking and social media may be used to encourage transport professionals to share their knowledge output documents with others.

The 'harvesting' might result in piles of important documents to be scanned although it may be possible to obtain electronic versions, to remove the need to scan. It should be agreed that the harvested electronic documents would be put on the websites of appropriate national institutions in accordance to the subject matter. Their bibliographic details and links would also be made available to central databases. Where appropriate, copies (electronic and/or hard copies) could be made available to interested national and regional resource centres.

4.6 Personal contacts, mentoring and networking

From the survey and discussions with stakeholders it was very clear that although internet access is important, transfer of knowledge is strongest when there is person-to-person contact. Professionals in the transport sector really value the exchange of information provided by conferences and workshops. When there is an information gap, transport professionals often turn to people they know for advice. These may be colleagues they have encountered at workshops, training courses or even on electronic discussion groups and social media. There is a need to encourage national and international networking, including workshops, conferences, site visits and exchanges. Guidelines

should be developed to maximise the value of such exchanges with appropriate professional exchanges, site visits and sharing reports, newsletters and other information outputs.

During conferences, workshops and electronic discussions, it is important to prevent particular groups from dominating discussions. Several African participants have observed that AFCAP-sponsored events tend to be dominated by a small core group of experienced people. Their knowledge is valuable, but it needs to be shared sensitively.

Mentorship programmes should be established for young practitioners in the rural transport sector. Much information and knowledge exists within the heads of older experts (both national and international). Much of this has not been adequately captured and risks being lost if there are not good systems to transfer this expertise to the coming generations. Mentorship sometimes arises spontaneously, as when an experienced 'expert' works on an assignment with a younger colleague. However when transport professionals are brought together at workshops, there is a natural tendency for people to interact mainly with people of similar types (discipline, age, nationality, organisational affiliation, etc). This reduces the prospects of mentoring discussions. At workshops, there may be need for some activities, such as field visits and discussions, in small groups that mix people to allow mentoring interactions to start. Electronic discussion groups and social media can also be used to arrange or encourage mentoring relations.

Social media is likely to have increasing importance. SSATP has recently initiated a 'Linked-in' discussion group. In such an environment of knowledge sharing it is quite difficult to strike the right balance within the membership between the silence of non-participation and the excessive noise of irritating chatter. Just as in international workshops, such discussion groups can become dominated by cliques of people who know each other and it can be quite intimidating for people outside the core group to enter into discussions. However if the balance can be struck, there is great potential for people working in different disciplines and sectors to learn from each other.

4.7 International lead institutions and champions

There are many potential international lead institutions and champions. These include SSATP, IFRTD, TRL, PIARC and IRF. To avoid repetition, these will not be profiled here as they have already been introduced and will be referred to in a later section.

One interesting observation relates to the Africa Development Bank (AfDB). AfDB is a very large investor in roads in Africa, with numerous road appraisals, evaluations and socio-economic studies undertaken with its support in many countries. However, it has featured very little in discussions relating rural transport knowledge and information sharing. Similarly, the European Union has also been mentioned very little. It is likely that AfDB, the EU and their partner ministries in Africa may hold a wealth of 'grey literature'. The need to remove barriers to information sharing was discussed in section 4.5.

4.8 National lead institutions and champions

National transport institutions can have huge national budgets complemented by donor- provided funds. However, information sharing at a national or international level is seldom seen as a priority investment. As noted in section 4.5, information sharing may even be discouraged as unnecessary and possibly sensitive (commercially and/or politically and/or institutionally). It was not possible within this study to review national transport institutions. However, two examples will be provided.

The Tanzania Transportation Technology Transfer (TanT2) Centre is a clearing-house for transportation information where technological information from within the country and different parts of the world is collected sorted and tailored to suit local conditions and then disseminated across the whole transport industry in Tanzania from national to local level. The Centre also has been established for the purposes of coordinating, developing and conducting training, education,

technical assistance, research and development in pursuit of the objectives of the TanT2 centre. (TanT2, 2013)

The Tanzanian Ministry of Works established the TanT2 Centre in 1997, in collaboration with the then Faculty of Engineering of the University of Dar es Salaam and with support from the United States Federal Highway Administration. The centre has an electronic database of documents and a physical library of books and documents which can be borrowed. It is a designated PIARC National Technology Transfer Centre and a member of the World Interchange Network (WIN) which is PIARC's system of linking the technical enquiries of its members to experts worldwide. The Centre is now the responsibility of the national roads agency, Tanroads (Bishanga, 2007). While the TanT2 centre has had a clear mandate to promote improved information exchange, like other T2 centres it has tended to be quite passive between the bi-annual T2 conferences. It has not yet 'harvested' and made available many of the relevant reports and publications produced within Tanzania.

The Ethiopian Roads Authority (ERA) is an autonomous roads agency. In the past fifty years it has carried out a vast programme of road building and maintenance, using national funds and those provided by donor agencies and development banks. It is currently implementing a very large (billion dollar) investment programme. In collaboration with many organisations around the world, including RTTP, TRL and AFCAP, it has carried out research, evaluations and appraisals. It has prepared manuals and guidelines and implemented training programmes. ERA therefore has a great deal of expertise and experience. However, like many national agencies, not all the outputs of past and present studies are readily accessible. It has not 'harvested' all its own information resources and made these accessible on the web for its own staff, and those of other countries. ERA also still needs access to new information. Therefore, it is in the process of developing a road research centre which will include a knowledge and information centre that will be responsible for cataloguing, storing and disseminating information. It may receive assistance from AFCAP to achieve this (Alemayehu, 2013).

Within the national ministries and roads agencies in Tanzania, Ethiopia, South Africa and other countries, professional interests tend to favour highway investments and technologies. There may be hierarchies of technology and skills that influence funding and career opportunities. Some tensions may include:

- modern, high-level technologies and those considered old-fashioned and backward. Funding, kudos and professional interests generally favour the modern complicated technologies.
- urban and rural transport sectors, with urban transport often being politically more important.
- highways and lower level roads, with rural roads being at the bottom.
- road infrastructure and transport services, with interest in transport services often restricted to high volume systems, notably urban and inter-urban systems.

In all these cases, rural roads and rural transport services tend to be low in terms of institutional interest and resource allocation.

Many national agencies wish to improve their information systems, and in particular receive information about new technologies. There is much scope for working with such partners to share and promote information relating to rural transport.

4.9 Regional lead organisations and champions

Broadly-based regional organisations such as NEPAD have important roles in promoting appropriate rural transport. In the past, NEPAD's interest in transport work has focussed on cross-country transport links within the framework of facilitating regional trade. However, there is an indication of a renewed interest in rural roads through a new programme focussing on rural transformation. An inaugural high level meeting to launch this initiative was held in Benin at the beginning of May 2013.

It will be important to closely follow this development and to explore opportunities for collaborating with and supporting information exchange within the NEPAD framework.

Transport professionals who had been involved in the SSATP/World Bank RTTP initiative have formed an organisation that advocates the development and implementation of good rural transport policies and strategies. However, despite some support from SSATP, the African Rural Transport Association (ARTA) is not yet functioning as an effective regional transport organisation that generates and disseminates information resources.

The Association of Southern Africa National Road Agencies (ASANRA) links road agencies in southern Africa. The African Road Maintenance Fund Association (ARMFA) also known as l'Association des fonds d'entretien routier (AFERA) links the road funds of about 30 countries in Africa. L'Association des gestionnaires et partenaires africains de la route (AGEPAR) is a group of about 20 African countries (mainly francophone). Among its current interests are performance-related contacts. All these organisations wish to promote information exchange. They are all supported in some of their activities by SSATP and PIARC. They are mainly concerned with high-volume roads.

Sampson (2013) and Sampson and Geddes (2013) have argued that such organisations, notably ARMFA, should develop regional information hubs that would be linked to the information hubs hosted by national authorities (roads boards and roads funds). Sampson's model for this is illustrated in Figure 2.

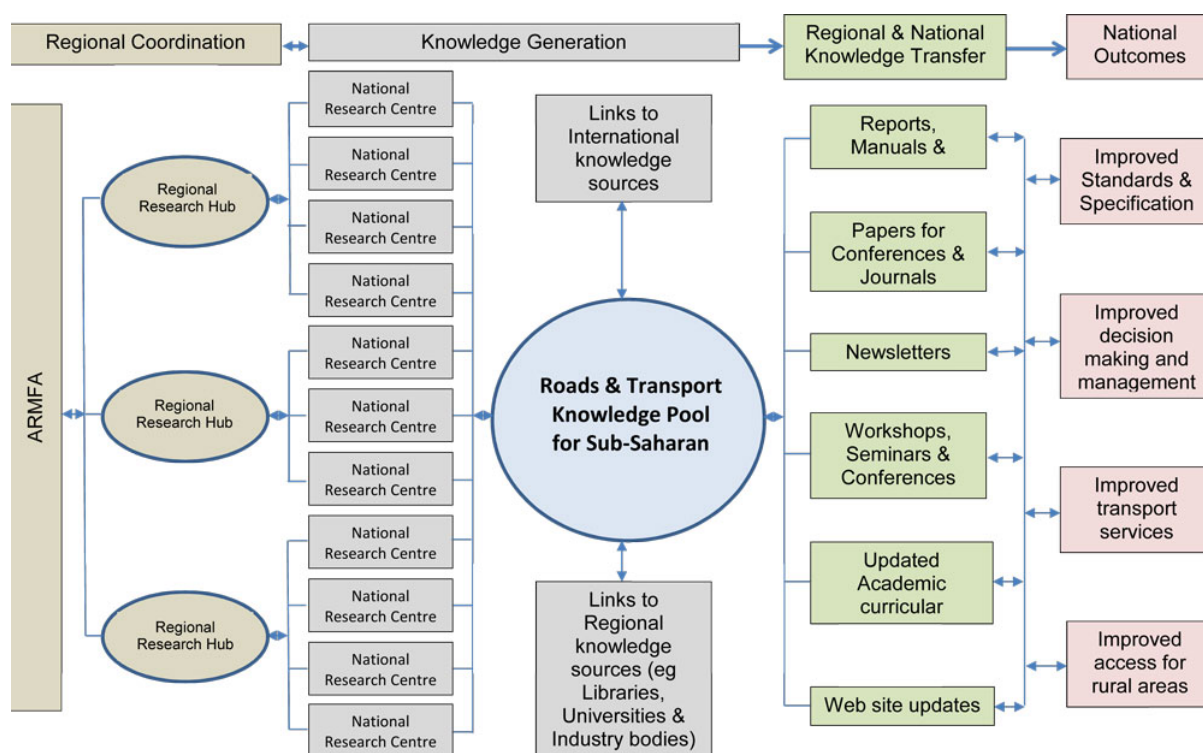


Figure 2. Regional coordination framework for knowledge generation and transfer suggested by Sampson (2013)

If such regional organisations can develop effective knowledge storage and sharing systems, this should be of great benefit to the sector. Since these organisations are supported by national road funds which gain most of their incomes from national fuel levies, they should be 'sustainable'. If the regional organisations (and their national members) were to commit themselves (and their funds) to developing effective, long-term knowledge management systems, they could be highly beneficial. However, this will be a long process. Based on their track records, recent publication outputs and websites, none of these organisations is yet ready to take a lead. Recent advocates of strengthening and promoting these organisations for knowledge creation and sharing have envisaged that significant technical assistance and external funding may be required to enhance the resources and

capacities within technology transfer centres (Geddes, 2013; Sampson, 2013; Sampson and Geddes, 2013). Therefore, in the time-frame envisaged in this study, they will be considered as potentially valuable partner organisations rather than possible lead infomediaries.

4.10 Private sector solutions

Almost all the funding for the rural transport sector comes from the public sector (national budgets, roads boards, road funds, donor-provided funds). The private sector is involved in contracts for construction and maintenance, the operation of rural transport services and consultancy services related to appraisal, technical supervision and evaluations. Small-scale contractors, often using second-hand equipment, are generally involved in rural road investments. Rural transport operators are often in the informal sector, sometimes owner-operators with very old vehicles. Large-scale national and multi-national businesses have little direct stake in the rural transport sector and few opportunities to benefit from any investments. There are few incentives for the private sector to invest its own funds in improving knowledge flows about rural transport.

In contrast, there are many national and multinational companies that can gain significantly from the highway sector. Construction companies and the suppliers of specialised equipment and construction materials can gain significantly from highway contracts. Vehicle manufacturers can gain from fleet renewal for urban and inter-urban transport services and logistics. Such companies have vested interests in promoting highway construction based on the equipment, materials and techniques that they offer and/or promoting better transport services on urban and national roads. Therefore, it is possible for the highway sector to receive some funding from the private sector for advertising (newsletters, websites) and sponsorship (workshops, events, information centres).

With time and effort, some funds for development-related work could be raised for rural transport initiatives from the private sector. Such funds would be provided as part of 'corporate responsibility' and philanthropic donations. The transport NGO 'TransAid' receives funds from the European transport and logistics industry and the transport NGO 'Riders for Health' receives funds from the motorcycle industry. Organisations receiving funds from the highway industry (PIARC, IRF, T2 technology transfer centres) may be willing to assist knowledge sharing relating to rural transport, provided that such support is a minor part of their operations.

The situation is similar in the agricultural sector. The private sector will invest in high-end technologies (large-scale farming, genetic modification, export crops). It is possible to 'sell' information relating to these technologies and obtain sponsorship or advertising revenue for events related to these technologies. However, research and information exchange relating to small scale agriculture is almost entirely funded by bilateral and multilateral donors, NGOs and philanthropic foundations. Knowledge management systems relating to the small-scale agricultural sector have not found 'sustainability', except within the context of long-term donor commitment.

It therefore appears unlikely that the rural transport sector could rely on sustainable funding from the private sector for mainstream, knowledge-management initiatives. With good fund-raising, some contributions could probably be obtained from private sector corporate responsibility and philanthropic donations.

4.11 Recent AFCAP ideas on knowledge management and research capacity

Following the submission of the draft final report of this assignment, there was correspondence with AFCAP that suggested that AFCAP (and perhaps its funding source, DFID) had already adopted policies relating to rural transport knowledge management. It was suggested that the discussion paper prepared by Sampson and Geddes (2013) might be the basis of any implementation strategies.

The suggestion appears to be that AFCAP may support (or contribute to) an ambitious programme, with several national-based initiatives to establish or support road research centres that would

include knowledge management functions (Sampson and Geddes, 2013). The programme would involve regional-level coordination, using organisations such as ASANRA, as well as strong national centres such as CSIR (South Africa) and the planned Ethiopian Road Research Centre and/or the Kenya Transport Research Centre (Sampson and Geddes, 2013).

The author of this report would welcome any such support to African-based organisations. The general approach suggested by Sampson and Geddes is ambitious, but is not new. There have been comparable proposals in recent decades within the transport sector (notably the T2 initiatives) as well as within other sectors. The lessons of such previous initiatives should be built upon.

The idea that AFCAP might build upon the suggestions of Sampson (2013) and Sampson and Geddes (2013) was provided after the completion of this study. However, the outline ideas provided by Sampson are fully compatible with the recommendations made in this final report. Such potential investments would not alter the key recommendations made here.

None of the national or regional organisations mentioned by Sampson and Geddes had (at the time of writing) the characteristics required of international lead organisations in this field. In the framework being proposed, international lead organisations need to be sustainable organisations that have had proven track records in both rural transport advocacy and information management. All the organisations mentioned by Sampson and Geddes have the characteristics of potential partner organisations in the collaborative framework being proposed here. Therefore, should such AFCAP-supported national and regional initiatives go ahead, the various organisations supported by AFCAP would be expected to be collaborating partners. In the future, they might well develop into lead organisations in this field and take on additional roles. Naturally, they would be expected to demonstrate a sustained commitment to both technical and socio-economic rural transport issues as well as active international collaboration.

It may be noted that the ideas presented by Sampson and Geddes (2013) are orientated to supporting a limited number of national initiatives and regional hubs. As noted, such initiatives would be entirely compatible to the proposals outlined here. However, the following proposals go further than the ideas of Sampson and Geddes. An open-access database and related networking initiatives could reach transport professionals in all countries in Africa (and elsewhere) and not just those with AFCAP-supported research and knowledge centres.

5 Future requirements

From the survey and discussions with key stakeholders, the five priorities concerning information in the sector appear to be:

- Make all relevant literature available on the web
- Bring as much literature as possible into one or more user-friendly, accessible databases
- Make people aware of newly-available knowledge through abstracts, alerts and newsletters
- Make use of the knowledge to influence policy and practice, by producing influential derivative products, such as policy briefs, reviews of issues, manuals or training resources in forms more user-friendly than the original documents
- Encourage open-ended discussion and personnel contacts, including discussions, workshops, training, mentoring, some of which may be electronic but other involving physical presence.

These five actions cannot be undertaken by a single organisation. Actions will be required by many organisations in the sector, at national and international level. While it would be possible to facilitate the processes (and projects, organisations or groups of organisations could assist here), progress will depend on many people, of many disciplines in many countries all working in various ways to improve information creation, storage, access, dissemination and influence.

6 Organisational options for future knowledge storage and dissemination

6.1 Three complementary scenarios

While there could be a huge number of possible organisational options, there seem to be three main scenarios to consider.

- No major investment, but small initiatives to improve sector information management practices using existing (and envisaged) project funding (ie, 'laissez faire plus').
- Development of a central database within one 'permanent' institution that has an unambiguous mandate to share information and willing to develop mechanisms for sharing the actual database with other stakeholders in Africa and elsewhere.
- Coalition, consortium or network of organisations working together to improve information exchange and access to a range of information resources, whether in a central (and shared) database or on a range of partner websites.

These three scenarios are not mutually exclusive and, with appropriate arrangements, all three could be implemented in complementary ways. Moreover, they could build upon each other and be scheduled and funded over time, as appropriate. While the third scenario (a coalition of partners) would work best if there were also a database project, this is not actually a prerequisite. The 'coalition' approach could be funded before any attempt was made to develop a specialised database. Many of the envisaged coalition activities (including grey-literature 'harvesting' and newsletters) could be undertaken using existing (and/or slightly enhanced) web-resources.

In none of the suggested ways forward is any one organisation responsible for all aspects of the information dissemination chain. Whether or not there are designated lead organisations and/or facilitating organisations, the responsibilities for creating, storing and disseminating knowledge will be shared. This will allow the various national and international organisations to build on their particular strengths and interests. It also 'spreads the risks', should any one partner be unable or unwilling to continue.

All three broad scenarios would be compatible with the ideas for national roads research centres and regional coordination recently advocated by Sampson and Geddes (2013).

6.2 Laissez faire plus

In this scenario, there would be no major initiatives but all stakeholders would be encouraged (in the course of other, normal work) to help improve information exchange. No separate project funding would be needed for this: all stakeholders including AFCAP2 and DFID would include low-cost information dissemination as part of normal operating costs.

All appropriate past and future AFCAP documents would be provided to R4D for inclusion in that database (a practice that has already been established). Documents within the subject areas of Eldis (primarily development and socio-economic issues), would also be submitted to Eldis.

Output documents would also be circulated to other transport sector institutions and 'infomediaries' with permission to include them in their own databases, abstract them if they wish and alert people to their existence and availability. Such institutions receiving documents would include:

- international stakeholders (IRF, PIARC, IFRTD, SSATP)
- private sector consultants (eg, TRL, IT Transport, IMC Worldwide, Roughtons)
- regional bodies (NEPAD, AGEPAR, ARMFA, ASANRA).
- national transport institutions and resource centres (ERA, KeRRA, Tanroads, CSIR, T2 centres, etc).

The costs of undertaking this distribution electronically would be minimal. Many of the institutions are already on the AFCAP electronic mailing list and any additional management time would be small.

It would be hoped that the various institutions concerned would emulate the practice and there would be more and more reciprocal sharing of documents among the various stakeholders.

The great advantages of this approach are its simplicity, its low cost, its targeted actions to increase the visibility of knowledge products on multiple websites and the spread of the risk. Should some organisations or databases close or cease to be actively supported, the existing knowledge would have already been shared and available elsewhere.

As part of the 'plus', various actions and responsibilities relating to knowledge dissemination could be included in all future professional responsibilities and in the TOR of AFCAP2 and other DFID-sponsored initiatives (and those of other interested stakeholders too). These could include such simple and basic actions as:

- All relevant staff have a duty to facilitate the dissemination of non-sensitive technical knowledge outputs
- All non-sensitive technical output documents of appropriate quality to be shared with R4D (and Eldis where appropriate) and the email dissemination list with a proactive agreement that such documents may be entered into other databases in their original form.
- In discussion with other stakeholders a 'good practice in knowledge management and dissemination' code could be drawn up and shared widely. This might include a requirement that copies of outputs of all transport-related research conducted in Africa should be provided to appropriate national resource centres, such as T2 centres. AFCAP and other research sponsors could make this a contractual requirement.

A further element of 'plus' would be to continue and to build upon the recent good practices of AFCAP1. AFCAP1 and its projects have been involved in much good information dissemination through project reports, journal articles, workshops, websites, newsletters and training courses. Such good practices should be continued and improved as part of normal operations.

The 'laissez faire plus' option is cheap and simple and does not involve any specific information management project. It should make improvements to the existing situation, particularly for new knowledge outputs. The main disadvantage is that there are few incentives to 'harvest' the backlog of existing knowledge and make it more available. There are also no mechanisms, apart from emailed dissemination and existing processes, for strengthening southern institutions and developing expertise 'outside the box' of the present, slightly-inbred community of practice. There are no resources allocated to improve person-to-person contacts, through workshops, mentoring or social media. However such deficiencies could be overcome by component projects of AFCAP2. These might include the national roads research and knowledge management centres and their regional coordination hubs proposed by Sampson and Geddes (2013). However, should such centres be supported, they would be most effective if they were linked to an open-source database project and networking initiative, as outlined below.

6.3 Possible host organisations for a database project

The danger of short term knowledge-improving initiatives has been illustrated. Any future database project must be designed so that it has a clearly definable and sustainable legacy in terms of easy access to good information in the long-term. The legacy must be institutionalised in a sustainable way, even if the project itself is ephemeral.

Before discussing the project, some ideas will be presented on possible sustainable institutions to host an improved transport-related database. The brief notes and comments on them are based on various discussions held with the organisations and other stakeholders, as well as some personal observations. Due to the condensation of many issues into a few sentences, some of the initial observations might appear to be subjective, but they should stand up to scrutiny. Any further examination of the options should include further discussions to reach a consensus.

‘Legacy’ organisations are only included that have:

- a long-term commitment and to rural transport (rural roads, rural transport services and related cross-cutting issues)
- a long-term commitment to active information dissemination beyond own reports and outputs
- expressed interest in long-term development of knowledge management in the sector.

Given that DFID and AFCAP are supporting institutional and capacity development in Africa, it would have also been good to have included a condition relating to participatory and empowering approaches within Africa. However such a condition would have eliminated some key organisations. Despite their various constitutions, principles and governance structures, several influential organisations in this sector tend to be dominated by ‘northern’ actors and/or top-down approaches.

The first condition excludes general databases such as R4D and Eldis. Such databases will accept good and relevant transport documents and are seen as being valuable, complementary resources rather than lead institutions. As will be discussed below, Eldis would be prepared to assist the establishment of a transport-related database, but it does not see itself becoming a lead institution in the transport sector. As noted in the ‘text box’ in section 2.5, Eldis concentrates on socio-economic development issues, while many outputs of AFCAP relate to technical/engineering topics. R4D is a DFID-funded project that will accept relevant documents, but is not considered an appropriate legacy institution for the transport sector. R4D is a multi-disciplinary information-related project, with no specific professional interest in transport. As a DFID project, it could be required to build up its capacity on transport-related information but this would provide few opportunities for synergy and mutual learning within the sector. Any capacity building should be undertaken within one or more ‘permanent’ organisations with long-term commitments to improving information exchange within the rural transport sector.

The conditions applied in this analysis, would also exclude organisations that have made important contributions to information generation, exchange and dissemination, but for whom the promotion of information on rural transport produced by third parties has been of peripheral concern. Many organisations have made valuable efforts to promote their own information products, but what is needed is an organisation committed to promoting third-party information products on a wide range of both technical and socio-economic topics.

Regrettably, the conditions applied would also exclude those southern institutions that do not yet have a track record in this area. CSIR is a large research institution in South Africa that has been mentioned as a possible organisation capable of hosting an international database. However, it does not have a clear track record of promoting international information exchange on rural transport issues. It has the capacity to become a lead organisation, but for the moment it can be considered as a potential collaborator. The same would be true of the planned Ethiopian Roads Research Centre.

The author believes that southern institutions should be strengthened and could become lead organisations in the future. However it would be risky to invest in only one ‘legacy’ institution that has yet to prove itself in terms of information storage and dissemination. Southern organisations could be, and should be, linked to any project supporting an international / northern institution to host and disseminate information. They would also be included in any consortium of collaboration (see below).

From this review and discussions with various stakeholders, the number of potential ‘legacy’ organisations suitable to be assisted with a project to consolidate knowledge storage and dissemination on rural transport are few. The ‘front-runners’ appear to be SSATP, TRL, IFRTD, PIARC and IRF. All have informally expressed their interest in the prospect. Some key factors relating to their relevant track records and possible risks will be briefly summarised.

SSATP can be considered as it has a mandate to improve information on rural transport in Africa and has a good track record of producing and disseminating its own information products. However, while SSATP has made a very valuable contribution to the sector, it cannot be said to be particularly effective as an 'infomediary'. It has only promoted other people's work in the context of its own projects. Even its own products have not all been adequately shared and its website has not been user-friendly for finding information. If SSATP wishes to develop its information storage and dissemination (which it says it does), it has been, and still is, in an excellent position to take a lead and do this on its own initiative. It should be able to find or attract the necessary resources. Other possible issues in promoting SSATP as the major information manager might be its Africa-only mandate, the possible high costs of funding an SSATP-based solution and the question of sustainability (SSATP is not an independent institution but a 'donor-led' programme.) That being said, if SSATP decided to develop a sector-wide knowledge storage and dissemination system, it could have a major impact. In any case, SSATP could be a valuable member of a coalition of partners.

TRL could be considered as a lead institution as it has proved itself (over a decade ago) capable of running the 'transport links' website and the 'Transport' newsletter for several years. For ten years it has continued to host the transport links website. However it has not developed it and news is ten years old. It has argued that as a private sector consultancy firm, it cannot be expected to fund from its own resources an active and expanding rural transport database. Therefore, while it has proven capacity and the foundations of a transport knowledge database, TRL does not seem to be an appropriate long-term 'legacy' host. As a private sector company, it would again value the opportunity to be funded to provide an information services. However, it is clear that it could not commit to sustaining and continuing to develop any enlarged database unless there were to be on-going funding. Therefore, even if it were given a ten year contract to undertake the work initially, there would be no sustainability in the long-run. However the transport links website remains a valuable resource and TRL could be a useful member of a coalition of partners.

IFRTD is an independent southern-driven organisation (international network with legal status as a UK charity) with a clear mandate to promote information exchange. It has had a good track record in information creation and sharing over twenty years. It has promoted knowledge dissemination in various ways, including much thematic information on its website and the circulation of its newsletter 'Forum News' that has discussed issues and alerted people to publications. It has also circulated monthly electronic alerts. While it has many information products produced by different people and partners on its website, it does not have a dedicated database. Among its strengths are its global mandate, southern advocacy, broad international membership and relatively low overhead costs. However, it has intentionally concentrated on neglected areas of rural transport (gender, waterways, mobility and health, poverty watch, labour-based technologies) and so has not been a resource for conventional road engineering. With its track record, its commitment to use its own resources to fulfil its international, information-dissemination mandate, and its willingness to diversify into engineering topics, IFRTD might seem a suitable legacy organisation. However, IFRTD does not have a secure funding base and depends primarily on donor grants, which cannot be considered sustainable. Without more secure funding, it would not by itself be a suitable 'legacy' guardian of a long-term knowledge storage and dissemination system. IFRTD could be an important member of a coalition of partners.

PIARC is an important international organisation concerned with roads that represents the interests of its members. These include 120 national governments and many highway contractors, consultants and researchers. It therefore has a strong global mandate. Its members, activities, publications and website are mainly concerned with highways. However, one of its 18 committees considers rural roads and arranges meetings in countries around the world to discuss key issues. It has supported the development of Transport Technology Transfer (T2) centres in several African countries which are also mainly oriented to highway technologies but do include rural road and labour-based technologies. PIARC has various publications on its website relating to rural roads. PIARC is a

membership organisation and it could provide information services to non-members if its membership requested it. Developing an open-source database on rural roads and transport services would be a peripheral activity. In the long-term it would be difficult to justify devoting much of its own resources to this, when most of its members would prefer attention to 'higher level' technologies. If its member governments were able to confirm their long-term interest in such an initiative, PIACR could become a sustainable 'legacy' guardian of a rural transport knowledge storage and dissemination system. Such an assurance might take time to negotiate and so it is not seen as an immediate solution. However, it remains an option to consider. In any case, PIARC could, be a collaborating partner in various appropriate initiatives.

IRF, like PIARC, has a good track record of managing and disseminating information relating to roads and highways. Its newsletters and publications, though dominated by highway technologies have included some information relating to low-volume roads and cross-cutting issues (environment, safety, mobility). In 2010, it agreed to be the long-term host of the gTKP database and thematic pages. Initially, DFID paid for this service, but it is now hosting gTKP using its own resources. It does not have plans to update the thematic pages, but it does intend to gradually increase the database by including more information products that it receives from external sources. It still presents gTKP as a distinct knowledge base hosted by IRF. gTKP has a separate portal (accessible from the IRF home page) and specific gTKP membership to allow access to documents and email alerts. At the moment, IRF management is committed to gradually developing gTKP with its own resources. Therefore, it would make sense for any new initiative to build on this. IRF appears to be a long-standing organisation with an appropriate mandate and a sustainable future. However, it must be recognised that IRF, like PIARC, is more a highways organisation than a rural transport organisation and many of its members are large-scale contractors. Its future leaders may not be as concerned with rural transport issues as the current management. Nevertheless, since IRF has already has a rural transport information knowledge base and information dissemination system that it intends to develop (slowly) using its own resources, this would be a possible 'legacy' host for future knowledge storage and dissemination initiatives. It would also be a good partner in any coalition arrangement.

During discussions with the management of IRF, they indicated that the development of the gTKP knowledge base could be speeded up with additional funding. They also said they would, in principle, be happy to participate in a collaborative project and share information resources with other partners, including south-based organisations.

The main advantage of supporting an organisation such as IRF to be a major repository for rural transport information is that it would require one simple contract to activate a project. The project could be small or ambitious.

The main comparative advantages of IRF are:

- a recognised international institution with a suitable mandate and anticipated long-term sustainability
- an existing database and dissemination system that could be developed.

However IRF is a small organisation based in a relatively 'expensive' country. While it has organised some events in Africa, it does not yet have much proven capacity to work in participatory ways with southern partners. It would only be able to succeed as a 'legacy' institution if it actively cooperated with many different partners, as collaboration will be essential for major improvements in the sector.

One possible issue for AFCAP2/DFID relates to competition and tendering processes. It is difficult to combine the idea of a 'legacy' organisation with competitive tendering. Recent management contracts for DFID-funded transport-knowledge initiatives have involved tendering, with major contracts going to TRL, Crown Agents, PriceWaterhouseCooper and WSPimc. The 'institutional legacy' benefits of such tendering systems have not been apparent.

6.4 Possible scope of a rural transport database project

The aim of the project is to develop an open source database that can be shared by many institutional partners. Subject to detailed planning, it would be based largely on the Eldis model. Eldis have indicated that they would be interested to collaborate with development-oriented transport institutions and provide advice on setting up such a system.

The host institution would develop the database, initially by bringing together existing documents, including those on the key resource sites (eg, gTKP, IFRTD, R4D, Transport-Links, SSATP). It may be that some of these could be 'imported' together with existing abstracts and bibliographic details with minimal human intervention (once the procedures and programming has been agreed). Such arrangement could be on-going, so any future AFCAP2 outputs submitted to R4D could be automatically shared with the rural transport database (and, where appropriate, vice-versa). The skills required at this stage would mainly be programming and website development, although transport professionals (within the host or remote) would provide appropriate levels of review and quality control. Such professionals would also have to provide appropriate abstracts and key words for documents that did not have such information.

The present Eldis database does not itself have many documents. It provides links to the websites of the 'publishing' organisations. This prevents there being any issues with intellectual property rights, as the users have to comply with any 'terms and conditions' (if any) on the 'publishing' website prior to downloading the actual document. This system works well for users with good internet connections and for 'publishing' websites that remain consistent and reliable. Unfortunately, not all publishing websites are consistent (Eldis is constantly checking broken links) and websites hosted in some countries have intermittent availability. Therefore, one issue that any rural transport database project would need to address would be how to make available more documents within the database itself. This would allow partner organisations to acquire many electronic documents as well as the links to the original publishing organisations.

As part of the project, the database would need to be designed from the outset to allow sharing with authorised partner organisations. The intention would be that many partners would join. In theory all roads agencies, transport ministries and relevant regional organisations and university departments in Africa (and elsewhere) could potentially become partners. They would, in principle, be able to import data directly from the database, for use within their organisations and for their own 'infomediary' functions.

The expansion to multiple partner organisations would be gradual, but it would be valuable to have at least two partner organisations from the outset. At least one of these should be based in Africa. This would be important to ensure potential problems are identified at the outset and the database system is designed to cope with such problems.

Some 'harvesting' of existing, unpublished information would be included as part of the database project. However, such activities require different skill sets (networking with multiple partners) and if there is to be a coalition project, most active 'harvesting' would be better in that context.

Associated with the database development will be a system of 'alerts'. These would initially be the email alerts and newsletters sent to membership email lists associated with the database. Like those currently issued by gTKP, IFRTD, AFCAP and SSATP, they would alert people to newly available publications and new opportunities). These could also solicit members to submit documents, with a submission facility on the database portal. Assuming there were to be a 'coalition' project charged with 'active' harvesting, such 'passive' harvesting would be all that would be expected of the database project. However the transport professionals charged with reviewing and quality control would themselves be looking for new documents all the time. Eldis experience suggests that such professional identification by team members tends to result in more documents than 'passive' invitations to share.

The location of the individuals compiling the database and the location of the transport professionals reviewing documents need not be the same, and need not be within the host organisation. Although Eldis has stressed the advantages of inter-disciplinary synergy within the Eldis/IDS team, remote operations might provide other benefits (greater professional and cultural diversity and lower overhead costs).

As noted above, the suggested host for the central database would be IRF, the current host of gTKP. Prior to any formal agreement with IRF, it would be good to further sound out SSATP and PIARC to learn if there were a serious probability of them actively engaging themselves in the development of an open-source rural transport database.

As for the initial partner organisations, further scoping would be required. Any of the short-listed possible host organisations (SSATP, TRL, IFRTD, PIARC) could be an international/northern partner. Similarly, any of the African organisations mentioned could be a suitable southern partner, depending on their current interests and resources. Rather than a 'stand-alone' (high-risk) project with an African partner, it might be better to support a rural transport organisation that was already investing in information technologies, perhaps with donor support. Examples could include Ethiopian Roads Authority (ERA), Kenya Rural Roads Authority (KeRRA), Tanroads/TanT2 (Tanzania), Administração Nacional de Estradas (ANE Mozambique), CSIR (South Africa) or ASANRA (SADCC/Malawi).

The recent proposals for strengthening national roads research facilities and information management (Sampson and Geddes, 2013) fit in well with the development of a sharable, open-access database. With such an open-access database project, any national or regional information hubs developed would be able to collaborate with the database. They would be able to develop their own compatible database systems that would allow them open access to the whole international database. It would also be easy for them to share their own 'harvested' knowledge products internationally.

6.5 Coalition, consortium or network

A coalition, consortium or network would ensure that rural transport ideas and information are exchanged and shared and influence policies and practices. Information from a database is shared in one direction but the coalition/network would stimulate information sharing in different directions. Though meetings, newsletters, electronic discussions, joint reviews and collaborative activities it would encourage challenging debates and participatory contributions. It would stimulate, energise and facilitate transport professionals and organisations to adopt better and more relevant rural transport policies and practices. The coalition or network would promote both better information sharing and also better application of this knowledge, using human attributes (participation, champion endorsements, mentoring, debate and collaboration) as well as technologies.

It is clear from the survey and from discussions with stakeholders that a collaborative way of going forward is essential. The great majority of survey respondents favoured a collaborative approach and not one single organisation responsible for information storage and dissemination.

A collaborative approach (without direct project funding) is implicit in the 'laissez-faire' option. A collaborative approach would also be required if any sustainable database project were to be funded. However, the coalition, consortium or network approach is suggested here as a mechanism for facilitating multi-directional information exchange and funding collaborative activities that would allow people to build upon the available information.

The aim would be to develop a coalition or network of partners with similar aims to work together for the common good, and to strengthen their own capacities.

The coalition would involve in various ways:

- National level institutions such as roads boards, T2 centres, universities, national transport authorities (eg, ERA, KeRRA, Tanroads, ANE, CSIR)
- Regional institutions (eg, AGEPAR, ARMFA, ASANRA)
- International organisations (eg, IRF, IFRTD, SSATP, PIARC, GIZ)
- Other interested stakeholders (TRL and other consultancy organisations, NGOs).

While there would have to be a facilitating organisation (or organisations), different members of the coalition or network would have different roles, according to their particular strengths.

It would be highly desirable (but not essential) to have an organisation with a central rural transport database, modelled on the open-access Eldis model, as one of the partners in this coalition. As noted above, such a partner might be IRF, on the grounds of legacy and sustainability. While it would not be ideal, it would be possible to undertake all coalition information sharing and gathering activities using existing websites to store and display documents. The synergy of the open-access database and the coalition networking activities would be great, but neither would be totally dependent on the other. Either could start before the other. While both activities could be included in one contract to one organisation, this is not recommended. The database work is primarily a computer-based bibliographic database that will provide information resources. The coalition will actively acquire and make available additional information resources. It will also undertake joint sharing activities that will facilitate individuals and organisations to make use of the information to influence rural transport policies and practices.

If there were a central, open-access database, all coalition members, including national and regional resource centres would have access not only to the data from the public website, but through open-source data management systems they would be able to import some, or all, of the database into their own information management systems. The flow of information would be multi-directional. All organisations authorised to access the central database (as opposed to the website) would be expected to contribute documents derived from their own spheres of influence.

All members, particularly national-level members, would be encouraged to 'harvest' 'grey literature' and make it available on-line in digital form. The facilitating organisation(s) could prepare guidelines on how to 'harvest' information. Processes would include persuading authorities that have commissioned studies relating to rural roads and transport to make non-sensitive reports available. The commissioning authorities could make them available on-line on their own websites. Alternatively, they could provide electronic copies (or hard-copies for scanning) together with permission to include these on the websites of agreed organisations. The commissioning organisations might include national ministries, road agencies, development banks, donor agencies, NGOs and international organisations. Organisations that may have carried out such studies (such as transport consultants and university departments) would be requested about information on non-published reports: 'hard' or electronic copies from such sources may make it easier to identify key information and make it easier to obtain the necessary permission to share it.

While the 'laissez-faire' option would have no resources to fund 'harvesting' initiatives, within the coalition model, there would be some funding available to facilitate the processes. Small grants could be applied for to assist with the resources required for such 'harvesting' schemes.

Regional and international organisations would, in their own spheres of influence, encourage and facilitate these processes.

Alerts to new information could be sent out from the host(s) of any central database. They would also be sent out by some of the collaborating organisations. As with Eldis, different electronic alerts could be sent out from any central database project, based on members' interests, so those concerned with road geometry and disability issues would receive different alerts. These would be complemented by multi-disciplinary newsletters that would ensure exchange of knowledge across

technical domains and cross-cutting issues. Newsletters could be produced by the database host organisation and/or the facilitating organisation(s) as well as by a variety of the partners. These would build upon existing strengths and interests. Some newsletter issues could be prepared by, or in cooperation with, various 'guest-editor' institutions. While some newsletters would be electronic, there would be some thematic issues that would be printed. It is widely recognised that printed documents, such as attractive newsletters, can reach some influential stakeholders that electronic versions do not. With modern technologies, it would be quite possible for the coalition of partners to share partly completed generic newsletter templates that could be finalised and customised within countries, or regions, and printed and circulated locally. There would be some funding available for coalition members to apply for to support appropriate newsletter production.

All coalition members or partners would be expected to try to influence good policies and practices in their own spheres of influence. This might involve the circulation of original documents and/or the preparation of 'derivative products' based on longer documents or reviews of several sources. This could be facilitated with the coalition or network by the availability of open, competitive grants to assist the production of appropriate outputs (eg, policy papers, refereed journal articles, best practice manuals). Some, or all, grants could be linked to particular subjects, regions or countries to help target neglected areas.

There would also be need for important cross-fertilization and mentoring through human interactions including discussions, social media and workshops. These could be facilitated in various ways by the different members, wherever possible building upon existing national, regional and international initiatives.

The great advantages of the coalition and networking approach are that:

- It is inclusive so that many organisations, including national institutions and southern regional organisations, could actively contribute to and benefit from the collaboration.
- It allows funding agencies to sponsor particular organisations to undertake various activities in their own spheres of technical and geographical interest.
- The information generated and harvested by different organisations is widely shared, increasing dissemination and long-term sustainability.
- The networking processes needed for collaboration will encourage human interactions and enable mentoring and mutual capacity building.

One disadvantage of a formal coalition approach is that it could be complicated to set up. Some members might try to dominate discussions and decision making. There could be tensions relating to unequal resource allocation within the coalition. Tensions could also arise due to low levels of cooperation and collaboration from certain partners. For these reasons, and based on the experiences of many international networks, there would have to be clear delegation of responsibilities and total respect for the autonomy of members. Funding could be linked to the delegated activities of various member organisations.

It is not recommended to develop a formal coalition, as the administrative processes could lead to slow and frustrating progress. Rather, appropriate partners should be contracted to perform particular functions, within a collaborative framework. Such a flexible, collaborative and networking approach has many advantages. Various elements could be initiated at different times, depending on the preparedness of the partners. The different activities that together make up the whole could be funded in various ways: for example a national document 'harvesting' initiative could be funded by the national roads board, perhaps with funding from an existing supporting donor agency. Workshop initiatives could be 'piggy-backed' onto other events, with funds from various national and international sources.

It can be assumed that the coalition or network members will automatically be initially interested in the information-sharing activities in their own fields of interest and influence. Therefore some level

of ‘volunteerism’ can be expected from individuals and organisations. However funding will be needed to facilitate and manage the processes, to stimulate continued interest to provide additional resources to complement basic ‘volunteerism’.

The concept of a network of collaborating partners is entirely compatible with the suggestion for promoting national road research and knowledge management centres with regional coordination (Sampson and Geddes, 2013). The various national centres and regional hubs would be expected to be active members of such networks, and would presumably have funding to support relevant activities relating to knowledge management. The network (and any associated open-source database) would complement and support these initiatives, as well as those in other countries supported by other organisations.

6.6 Institutionalising a rural transport network

In an ideal world, the rural transport coalition or network would become an organisation with a long life, and not just another project initiative. It seems disappointing that DFID has invested much money in rural transport information provision in recent years, but has not facilitated long-term institutional development. TRL was not willing to maintain and develop ‘Transport-Links’ without continued funding (which was quite natural given TRL’s new commercial objectives). IFG was meant to become an international network but did not become independent. gTKP was intended to be a multi-partner initiative but no long-term partners were found. The gTKP website was handed over to IRF which intends to keep it going, using its own resources. Individuals in the management companies responsible for administering SEACAP and AFCAP will have personal lessons relating to rural transport, but there will be no organisation in the sector with on-going ‘institutional memory’ based on the lessons of these programmes. More importantly, as a result of the DFID investment in rural transport, there has been insufficient strengthening of south-based or south-orientated organisations with international mandates to continue the information sharing work. Yes, there has been capacity building within national institutions, but there has not been any sustainable network to continue the processes.

As DFID discovered with IFG and gTKP, it can be difficult to set up a new and sustainable coalition organisation. Similarly, for several years, SSATP has been trying to support a new network, the African Rural Transport Association (ARTA), based initially on the professionals working within its RTTP programmes. ARTA has yet to emerge as a strong organisation.

At the same time as these initiatives have been taking place, an international network has existed, and has been a partner in some activities. As noted before, IFRTD is a democratically-structured organisation, registered as a charity within UK. Many of its activities have been undertaken by its members on a voluntary basis, a characteristic shared by other networks and professional associations. Its mandate is to promote information exchange on rural transport and development and provide a ‘south’ perspective. While a large proportion of IFRTD members, in ‘north’ and ‘south’ countries, are engineers, IFRTD has been perceived by some influential engineers as being concerned mainly with ‘soft’ topics such as gender, informal transport types and participatory processes. While this has some truth, IFRTD’s mandate, and the interests of many of its members, would allow it to provide a networking platform for all aspects of rural transport, albeit with a ‘south-driven’ perspective.

Given that this report has been prepared by an IFRTD team, it would be inappropriate to include any recommendation that specifically recommends support to IFRTD. However, the author firmly believes that DFID should consider the long-term institutional aspects of any knowledge-sharing initiatives. IFRTD and IRF are both international organisations with over-lapping agendas and complementary experiences and skills. In whatever way the proposed coalition is funded, it is hoped that these institutions would be included and that they would work together with other partners to ensure appropriate institutional legacies, particularly in Africa.

The organisation(s) facilitating any coalition or networking initiative should envisage the long-term continuation of sharing and networking, using (as far as practicable) the resources of themselves and other member organisations. This should be made clear in any tendering procedures, terms of reference and contract conditions. Naturally, the level of activities after any project funding may decline, but the collaborative principles should continue, even if restricted by budgets to low-cost electronic exchanges.

7 Financial implications

There will be no attempt to prepare detailed budgets for the different options, as the range of possibilities is enormous. For each option, the scope of the tasks and the activities to be performed could probably affect costs by a factor of ten, or more. Before any detailed budgeting, decisions would have to be made on the organisations likely to be involved, the availability of some self-funding and/or co-funding, the envisaged speed of progress, the number of staff-years in different organisations in different countries and the number and types of funded activities (including events such as international workshops).

In the options presented, the basic budget is effectively zero. The idea is that all partners would endeavour to improve the situation using their existing resources. AFCAP2 would ensure that all future projects included appropriate resources to improve information exchange. There would be costs, but these would be dispersed among many organisations and projects.

To develop and maintain an open-source, database for sharing with partners, the costs would depend on the host organisation and country. Based on recent budgets provided by DFID to ELDIS, such a large, collaborative open data databases with associated newsletters and alerts and international collaboration might cost £1.5-£2.5 million per year. The scale of Eldis (3000 documents a year) is larger than is needed, but costs do not vary in direct proportion to the numbers of documents. Some organisations (such as IRF) already have staff engaged and there may be important contributions from the host organisation. The Eldis funding includes collaboration with several southern organisations (including contributions to their staff costs). A basic abstracting, database and newsletter service in a northern country could cost £0.5 million per year.

The coalition approach would involve a facilitation unit, charged with coordination and working with the various partners to develop component initiatives. The components could be funded from a core project or other source. It would also be feasible for some (or all) component initiatives to be funded separately by various partners or donors. For example, a T2 centre might use US or PIARC funding to develop its system to allow it to import data from the open-source base. The Ethiopian Roads Research Institute might request technical assistance from a supporting organisation to make its information system compatible with the rural transport open-source database. In terms of AFCAP2, it would be possible to have relatively modest contract(s) for network facilitation (primarily human resources and basic operating costs). Separate AFCAP2 funding contracts could be applied for particular activities, initiatives in partner countries and related workshops and outputs. This might provide greater control than providing coalition/networking contract(s) with funding for activities included, but such a system might prove frustrating for all stakeholders.

To give an order of magnitude, the annual operational cost of IFRTD has been about £0.5 million per year, covering core group (executive director, four regional directors and some office and web support), newsletters, travel and various information generating and sharing activities. An organisation facilitating a rural transport knowledge sharing coalition could operate well on a similar budget. Both smaller scale and larger scale operations would be possible, depending on the envisaged timescales and outcomes. Other order-of-magnitude estimates can be taken from the management contracts for facilitating the operations of SEACAP, AFCAP and gTKP (which involved fewer staff but higher costs).

8 Sustainability

Promoting development-related information exchange and better rural transport policies and practices are both key areas of public sector concern. Neither can expect to be genuinely 'sustainable' in the short-to-medium term. Development databases such as ELDIS and R4D rely on DFID funding. If this were to cease, they would probably attract funding from other donors. There is no sustainability model here. As discussed in section 4.10, there is little scope for commercial advertising or sponsorship in the rural transport sector. Philanthropic grants from the private sector are no more sustainable than donor funding.

As noted in 4.10, knowledge management systems relating to the small-scale agricultural sector have not found 'sustainability', except within the context of long-term donor commitment to organisations such as FAO, CTA, the CGIAR and their national partners. Long-term donor support appears to be the most sustainable possibility relating to rural transport and development.

Road funds and road authorities may have some autonomy, but they have the same internal conflicts and contradictions as purely public-sector agencies. They have inadequate resources for their aspirations and they inevitably prioritise their spending, with modern high-technology solutions preferred. Unless there is continuing influence from idealistic politicians, officials, development banks and/or donor agencies, rural transport is likely to be neglected. Those national agencies dedicated to rural roads generally receive additional support from donor agencies.

The author acknowledges that some people, such as Sampson and Geddes (2013), do not see the same problems of resource allocation within road agencies and road funds. However, while he appreciates such optimism, he does not see the evidence-base for this.

Organisations supported by road funds and international foundations supported by membership fees (IRF and PIARC) may appear sustainable. Their sustainability is assured by the highway sector. They do support some rural transport information exchange activities, but this is often co-funded by donor agencies. Whether rural transport knowledge management would be sustained by such organisations remains to be seen. However, long-term donor commitment to international and African organisations responsible for rural transport knowledge seems the only certain way of ensuring the 'sustainability' of knowledge management relating to rural transport.

9 Conclusions and recommendations

9.1 Key requirements

To improve knowledge management and information dissemination in the sector there is a need to:

1. Make relevant literature available on the web.
2. Put details of literature into user-friendly, accessible databases.
3. Inform and alert people to available resources.
4. Use key knowledge from derivative publications to influence policy and practice.
5. Encourage and facilitate discussions and personnel contacts.

AFCAP1 is already undertaking all these actions in its own sphere of influence. Therefore, AFCAP1, in recent years, appears to be an example of good practice (albeit with reservations about its website). This was not the case in some earlier DFID-funded programmes such as TRISP, IFG and SEACAP.

9.2 Default option: laissez-faire plus

To improve the situation further, the existing AFCAP1 project should undertake or strengthen the following actions that have minimal financial implications:

- Ensure that all non-sensitive and appropriate AFCAP outputs are available on its website and also have been submitted to the R4D website.

- Use its email alert system to notify its community of practice about newly available documents.
- Send comparable email alerts to other transport resource organisations, including national and regional centres
- Encourage partners in past and present AFCAP projects to:
 - a) Produce derivative product, such as policy papers, based on their technical reports
 - b) Examine their own archives to see if they have valuable 'grey literature' (without ownership restrictions) that they could offer to appropriate websites (eg, IRF, IFRTD, national roads agencies or consultancy firms) and be linked from databases (eg, R4D, Eldis if content is appropriate)
 - c) Participate in activities (including workshops and social media) that share knowledge, particularly between countries and generations.
- Encourage DFID to promote good information-sharing practices in the partner agencies with which it has influence, including the European Union and development banks supported by DFID.

Based on the 'laissez-faire-plus' model, AFCAP2 should ensure that the managing organisation and all contracted projects are obliged to follow similar processes, as highlighted above (and detailed in previous sections of this report). There will be financial implications as project budgets may include slightly larger allocations related to appropriate information products, sharing of information and possibly (in appropriate circumstances) 'harvesting' grey literature. It would be appropriate to openly invite new project proposals for initiatives designed to contribute to improving information availability and sharing in the various ways outlined above.

9.3 Developing sustainable open-source database on rural transport

With good search-engine techniques, publically-available documents on the internet can be found wherever they are located. However search engines are not perfect: it can be very time-consuming to find documents. More importantly, there are no shared benefits. Each transport professional in each country has to think of search terms to track down information. There are great advantages in material being brought together and indexed. Therefore, there is wide agreement that a good database containing rural transport knowledge would be highly beneficial.

At present rural transport information is located in many different places. 'One-stop' website resource centres were the unfulfilled aspirations of Transport-Links and gTKP. The ending of these projects illustrates that any future initiative must be sustainable. The database should be hosted by a 'permanent' organisation with the interest and resources to maintain it in the long run.

With the open-source model used by Eldis, it would be possible to have one primary database and many partner organisations with some or all of the same data. This would both increase sustainability and would allow some partners, such as African regional organisations, to develop and perhaps become the lead database organisation in the future.

While putting small numbers of documents onto a simple website is easy and requires relatively few skills and resources, managing a database is more complicated. Eldis is prepared to advise organisation(s) wishing to prepare development-oriented internet databases. Nevertheless, the main time-consuming tasks are to do with finding, selecting and abstracting documents and preparing alerts and newsletters. With good coordination, these tasks can be shared internationally.

If SSATP wished to take the lead in developing and hosting such a database, that could be beneficial provided it would be maintained. However, in past years when similar suggestions were made, SSATP has not taken a lead, and some of its past initiatives have not been sustained.

It is therefore suggested that AFCAP considers sponsoring a sustainable organisation to initiate such an open-source database. One appropriate organisation that could do this, and has expressed initial interest in this concept, is IRF which already hosts the gTKP legacy site. The costs of this would depend on the size and scope of the initiative, but they are unlikely to be less than £0.5 million a year. It might be difficult to reconcile the need for a sustainable organisation, building on the gTKP legacy, with the DFID rules related to competitive tenders.

Linked to the database development could be a raft of other initiatives that could be organised by the host organisation. However, it is recommended that such mutually-supporting initiatives be undertaken by a range of collaborating partners. Therefore a coalition of partners, rather than a single organisation is proposed for the complementary and supporting activities. The suggestion that AFCAP might support national road research centres and regional coordinating hubs is entirely compatible with this open-source database suggestion.

9.4 Promoting a coalition to improve knowledge, storage and dissemination

It is recommended that a consortium, coalition or informal network of partners be established in line with the previous discussions. A large international consortium would be complicated to arrange and is not recommended. A networking coalition could be formed easily, with several independent organisations working together. A call for tenders could be invited for a facilitating body, indicating that multi-organisational consortia would be welcome (including, of course, African organisations). This would allow some organisations to link from the outset (as already happens in some framework agreements). This facilitating body would be charged with promoting the five main activities described, with emphasis on empowering southern organisations. Certain activities would be contracted to other implementing partners, through separate contracts made with the facilitating organisation or with AFCAP2 or with another funding source.

It is proposed that the facilitating organisation(s) and the envisaged sustainable database host organisation are separately contracted to collaborate together. There would be synergetic benefits of collaboration and such arrangements would allow the different organisations to concentrate on different aspects of the various tasks required. Much of the information-related work could be carried out anywhere in the world, but enhancing national and regional capacities would naturally have to be carried out in specific African countries. As noted before, the costs of such facilitation could vary depending on the timescale, scope and number of collaborating national and regional organisations. A budget of £0.5 million per year might be appropriate, with both cheaper and more expensive options. The coalition approach, with a facilitating organisation, would provide many possibilities for complementary sponsorship of particular activities by other donors, roads organisations and even interested sponsors in the private sector. The suggestion that AFCAP might wish to support national road research centres and regional coordinating hubs is entirely compatible with this collaborative, networking proposal.

9.5 Concluding thoughts

It has been clearly stated for many years that knowledge generation, management and sharing in the rural transport sector needs to be improved. The donor agencies, development banks, national agencies and institutions have all agreed that this is the case and significant donor funds have been spend on what proved to be transient initiatives. Any future initiative should have a long time horizon and ensure a sustainable legacy. Improvements in knowledge management and dissemination methods should be shared among several organisations, including resource centres in Africa.

Finally, it must be remembered that while improved technical knowledge storage and sharing are extremely important, they are only part of the requirements for improving rural transport infrastructure and transport services. Decisions now being taken within national and devolved

authorities and within supporting organisations (including donors, consultants and NGOs) are based on a wide variety of factors. The pressures of time, funding, administrative procedures, political needs, governance issues, desires to be fashionable and gain kudos and other local socio-economic factors may weigh more than any technical knowledge recently gained through the internet. For improved rural transport policy and practice, good technical information must be complemented by appropriate advice and empathy, such as that provided during participatory discussions and in the course of personal contacts with professional colleagues, mentors and friends.

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11 Annex 1: Terms of Reference

Background

The goal of AFCAP is sustained economic and social development, poverty reduction and improved livelihoods of the rural poor through more effective, efficient and equitable access to socio-economic opportunities.

The purpose of AFCAP is to create sustainable access for rural communities to external opportunities and services including health, education, employment, markets and social networks. Therefore, to achieve the programme goal and purpose, AFCAP has a vision of delivering an integrated, wide-ranging portfolio of research, dissemination and training activities. AFCAP is currently active in Ethiopia, Kenya, Ghana, Malawi, Mozambique, Tanzania, Zambia, South Africa, Democratic Republic of Congo and South Sudan and is developing relationships with a number of other countries and regional organisations across Africa.

AFCAP provides advice and supports applied research to address rural access constraints, communicates the research outcomes to stakeholders, and supports the mainstreaming of the research results into practice. A number of projects have been implemented under AFCAP which have generated a selection of research findings that are to be made available to relevant practitioners and classified as public knowledge. By disseminating knowledge, AFCAP aims to improve policy making, technical research and improve rural access

Objective

The objective of the assignment is to identify the most appropriate method of storing and more importantly sharing and disseminating the research findings and knowledge generated in the sector. The proposed solution would continue to exist beyond AFCAP and have the capacity to integrate or link with similar knowledge management and sharing solutions.

The aim would be to allow relevant research findings to be built upon and meet the key criteria of being accessible and available. These research findings shall be an evidence base which can assist and support policymaking and technical delivery of relevant transport projects and programmes.

Scope of the Services

The project will be managed and funded by AFCAP. Services required include:

- Investigate the range of feasible knowledge management and sharing solutions. Consideration should also be given to the governance and sustainability of the proposed solution;
- Evaluate the existing knowledge management and sharing solutions in the Infrastructure/Transport and Development Research sectors, focusing particularly on the institutions or bodies that have ownership and lead the promotion of such knowledge;
- Conduct an appropriate survey/assessment of practitioners current and future research needs and requirements for access. The Consultant shall be responsible for identifying key stakeholders in consultation with Crown Agents; and
- Recommend the best available knowledge management and sharing solution for AFCAP. The recommendation will pay particular attention to the institution that shall take ownership and lead dissemination of AFCAP research findings.

Deliverables

- Inception Report: This will elaborate the work plan for the assignment, the methods to be used to assess the various knowledge management and dissemination options and the list of and a list of stakeholders to be consulted.
- Needs Assessment Report: Will present an assessment the existing and potential research and knowledge needs by stakeholders and the needs that the proposed knowledge management framework will need to meet.
- Final Recommendations Report: This will present the various options that will have been investigated, the merits and demerits of each case and estimated costs of the proposed solution or set of solutions.



Feasibility Study of Options for Long Term Knowledge Sharing and Management: Needs Assessment Report

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International Forum for Rural Transport and Development (IFRTD)

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***African Community Access Programme (AFCAP)
Project AFCAP/GEN/096
Feasibility Study of Options for Long Term Knowledge Sharing and Management***

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Launched in June 2008 and managed by Crown Agents, the five year-long, UK government (DFID) funded project, supports research and knowledge sharing between participating countries to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources.

The programme is currently active in Ethiopia, Kenya, Ghana, Malawi, Mozambique, Tanzania, Zambia, South Africa, Democratic Republic of Congo and South Sudan and is developing relationships with a number of other countries and regional organisations across Africa.

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<https://www.afcap.org>

The International Forum for Rural Transport and Development (IFRTD) is a global network of individuals and organisations working together towards improved access, mobility and economic opportunity for poor communities in developing countries. IFRTD has 3000 members, 30 affiliated autonomous national networks and four communities of practice focusing on specific transport-development linkages, including gender and health.

IFRTD was formed to act as a global, but southern driven research, networking and information dissemination platform. IFRTD's research, networking and information dissemination work focuses on promoting stronger connections between rural transport investments and human development outcomes such as poverty reduction, promotion of gender equity and achievement of the Millennium Development Goals (MDGs). IFRTD underscores the importance of transport services, motorised and non-motorised as key in optimising the benefits of investments in rural transport infrastructure

IFRTD engages in research, policy advocacy, networking and information exchange to ensure that new knowledge and practices are created, shared and enhanced, and their application is scaled up for wider impact. Currently, IFRTD is engaged in activities to ensure mobilisation of stakeholders and various knowledge streams that can ensure rural transport issues are not missed out in the post MDGs development framework (Sustainable Development Goals –SDGs).

For further information visit
<http://www.ifrtd.org>.

1 Summary

The African Community Access Programme (AFCAP) contracted the International Forum for Rural Transport and Development (IFRTD) to identify the most appropriate methods of storing and sharing research findings and knowledge generated in the rural transport sector. An IFRTD team conducted an on-line survey and personal interviews involving about 100 respondents. This report presents and discusses results concerning the demand for, and access to, knowledge in rural transport. A subsequent report will make recommendations for the future management of information in the sector. IFRTD declared its interest as a key stakeholder in the sector.

The on-line survey received 74 responses from 29 countries. Half the respondents were from Africa. The respondents were transport professionals from public bodies, the private sector, NGOs, academia and donor agencies. They had been alerted to the survey by IFRTD, AFCAP and IRF/gTKP. In-depth interviews were held with African transport professionals and resource organisations (including consultants and donors). Ideas also came from a larger study carried out in 2003.

Almost all people surveyed produced some information outputs, notably reports on a wide range of topics on road infrastructure, means of transport and socio-economic and institutional issues.

Respondents needed information on many different topics. Over three-quarters needed information on rural transport infrastructure and on community access and mobility needs. Over half needed information on rural transport services, transport technologies and economic and financial issues. Information on gender, disability and governance was required by half the respondents.

Key knowledge gaps included disability issues, rural transport services, gender, governance and economic issues. Rural transport services and community access and mobility were areas that combined inadequate information with broad demand. Apparent knowledge gaps may be due poor information dissemination.

Half the respondents felt it was difficult or very difficult to access the information they needed. The main information sources were on the internet (search engines and websites concerned with transport or research and development). Personal contacts were important information sources and people gained much professional knowledge from workshops. Libraries and resource centres were not used much. Most (83%) people preferred original documents to repackaged information.

As most people used the internet as their main source of information, this is the key platform for future information dissemination. While computers are mainly used, smart phones are increasing although speeds, costs and file sizes can be problems. People appreciated alerts and newsletters, such as those produced by IFRTD and IRF/gTKP.

Improved dissemination is best achieved through open-access websites containing original documents. Alerts should inform people of new acquisitions and newsletters should introduce topics and resources. Websites and databases must be user-friendly so people can find information quickly. There should be 'light' information options for those with poor or expensive connectivity.

Much valuable information has not been adequately shared. There is need for organisations to put their own grey literature on-line and for this to be 'harvested' so that it becomes more accessible. Guidelines are needed to promote and assist greater document sharing and this can be encouraged by national and international stakeholders, including donors. There are important roles for universities, workshops, professional exchanges and mentoring programmes. Printed books, manuals and newsletters have important on-going niches.

The survey confirmed the great need for better access to all types of information on rural transport with additional information on transport services and community access and mobility as well as disability, gender and governance issues. Surveyed people felt that an initiative to improve information dissemination in the sector should be a collaborative venture, involving key international stakeholders and national bodies. This will be discussed in a following report.

Acknowledgements

The IFRTD team would like to thank all the people who provided the ideas and information on which this report was based. Particular thanks are due to those who gave up their time to supply information during interviews, through emails and by completing the on-line survey. They are also grateful to the International Road Federation (IRF), AFCAP and IFRTD for sending out email alerts about the survey.

The authors are also very grateful to Priyanthi Fernando who contributed to the planning, implementation and reporting of this assignment. They also express their gratitude to Nyasha Musandu of CommsConsult Zimbabwe who helped to prepare the survey and to Peter Njenga, Executive Director of IFRTD who has been the Project Manager.

Paul Starkey, *Team Leader*
April 2013

Acronyms and abbreviations

AFCAP	African Community Access Programme
CD	Compact disc
CIMRC	Communication and Information Management Resource Centre, a DFID-funded initiative
CSO	Civil Society Organisation
DFID	Department for International Development, UK
DVD	digital versatile disc
eg	for example
ELDIS	Electronic Development and Environment Information Services provided by Institute of Development Studies, University of Sussex, UK
GATNET	Gender and transport network (hosted by IFRTD)
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit. German bilateral aid agency (formerly GTZ)
gTKP	Global Transport Knowledge Practice (Partnership), DFID-funded initiative, now hosted by IRF
ICT	Information and communication technologies
ie	that is to say
IFRTD	International Forum for Rural Transport and Development, UK
ILO	International Labour Organisation, Switzerland
IMT	Intermediate means of transport
IRF	International Road Federation, Switzerland
IT	Intermediate Technology (but IT Transport is now simply a name)
ITDG	Intermediate Technology Development Group (now Practical Action)
ITDP	Institute for Transportation and Development Policy
MDG	Millennium Development Goal
NGO	Non-governmental organisation
PIARC	Permanent International Association of Road Congresses, World Road Association, Paris
R4D	Research for Development, DFID-funded portal
RSS	Rich Site Summary (a family of web feed formats used to publish frequently updated works)
RTS	Rural transport services
SADC	Southern Africa Development Community
SDG	Sustainable Development Goal
SSATP	Sub-Saharan Africa Transport Policy Program
T2	Africa Transport Technology Transfer
TRISP	Transport and Rural Infrastructure Services Partnership (World Bank initiative supported by DFID)
TRL	Transport Research Laboratories, UK
UK	United Kingdom (of Great Britain and Northern Ireland)
USA	United States of America

2 Introduction

2.1 The study and survey

This is a needs assessment report of the demand for, and access to, knowledge in rural transport. It was carried out on behalf of the African Community Access Programme (AFCAP) by the International Forum for Rural Transport and Development (IFRTD). The IFRTD consulting team consisted of Paul Starkey, Farai Samhungu and Priyanthi Fernando. This report was prepared by Paul Starkey and Farai Samhungu. The Terms of Reference for this study are provided in Annex 1.

This study aimed to identify the most appropriate methods of storing and more importantly sharing and disseminating the research findings and knowledge generated in the sector. The IFRTD team submitted their inception report in January 2013 (Starkey, Samhungu and Fernando, 2013).

In preparation for the main theme of the final report (the storing and dissemination of knowledge within the sector), the team was expected to carry out a needs assessment survey. The team's Inception Report contained proposals for the survey to provide the information required for the needs assessment report. In early February 2013, the survey was made available online, through the Survey Monkey website. An email version (prepared in Microsoft Word) was also available for those without good online access. The word version of the survey is attached here in Annex 2.

The survey was publicised through email alerts sent out by AFCAP, by IFRTD and by the International Road Federation (IRF) that hosts the gTKP: Global Transport Knowledge Practice (was Partnership), the legacy of an initiative funded by the UK's Department for International Development (DFID).

The on-line survey received 74 responses from 29 countries. Respondents were based in Africa (13 countries), Asia (10 countries), Europe (6 countries) and the Americas (3 countries). This is illustrated in Figure 1. Countries with more than three respondents were South Africa (10), UK (8), Nigeria (5), India (5), Australia (4) and USA (4). About half (47%) of the survey respondents were from Africa. Most of African respondents were from eastern and southern Africa (from Ethiopia and South Sudan to South Africa). There were responses from Nigeria and Gambia in West Africa, but no respondents from French-speaking African countries. This was partly due to the announcements going out in English and the survey language being in English (the tight budget and timetable prevented French and Spanish translations being made in the time available). However, interviews with personal contacts ensured that views from Francophone Africa and Latin America were taken into consideration.

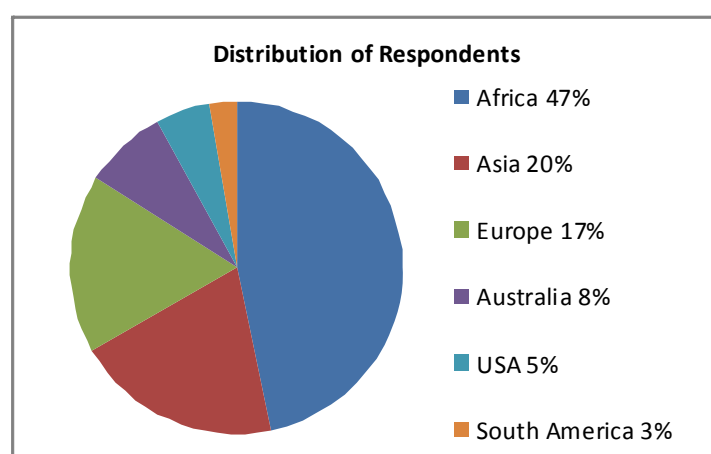


Figure 1: Distribution of respondents who took completed the online survey

In addition to the on-line survey, discussions were held with twenty-five 'key informants' involved with rural transport as practitioners in Africa (eg, roads boards, consultants, NGOs, universities) and resource organisations (eg, AFCAP, GIZ, IRF, IT Transport, TRL, World Bank). These were interviewed

in person or by telephone to allow more open and in-depth conversations concerning transport knowledge management. Although the number of interviews conducted was limited, the team is confident that these interviews provided adequate understanding of the current needs for transport knowledge in Africa, as well as some insights into what is happening outside the region. Various participants at the T2 transport stakeholders' meeting in Botswana were contacted in March 2013, to gather additional ideas, particularly in relation to future storage and dissemination options.

Both the survey and the telephone interviews included various questions relating to the future storage and dissemination of knowledge in the rural transport sector. These will be reported in the final report. This document will concentrate on the findings of the survey in terms of the needs of transport professionals for knowledge, the gaps they have identified and their preferred means of accessing knowledge.

2.2 Caveat on survey interpretation

The on-line respondents were a self-selected group of transport professionals from the public sector, national and international NGOs, the commercial sector (including consultants) and academia. They all probably had existing links with AFCAP, IRF and/or IFRTD who publicised the survey through their own mail server lists using English as the language of communications. They were all well-connected, having received an email alert and been able to complete the questionnaire on-line. While they may be representative of well-connected members of the 'community of practice' that AFCAP has been trying to support, they cannot be considered to represent all the stakeholders in the sector.

The number of on-line respondents was quite small. Seventy four people provided their names and organisations and some information. Of these twenty respondents skipped some questions, giving a sample size of about 54 for some questions. This sample size is too small for statistical significance and the difference between some responses relating to priorities was just a handful of people. Therefore the statistics presented as percentages must be treated with great caution.

Nevertheless, the survey team also spoke to many people, and they believe that the conclusions presented here do reflect the views of those stakeholders who contributed to this survey.

2.3 Declaration of interest

The contract for this assignment was awarded to IFRTD and the survey team members have long-standing relations with IFRTD. As a network of rural transport practitioners (managed as an NGO charity), IFRTD is clearly a major stakeholder concerning information exchange in the sector. IFRTD was one of three organisations that alerted its members to this survey (the others were IRF/gTKP and AFCAP). During the on-line surveys and key stakeholder interviews many people referred to IFRTD and its past, present and future roles in promoting information exchange. The authors believe they have reported such information accurately and reliably. While they do not believe there are any conflicts of interest involved in this work, they wish people to be aware of the situation.

3 Knowledge demand assessment for TRISP

The team reviewed the findings of a previous 'knowledge demand assessment' carried out for the rural transport sector in 2003. As the results of the 2013 survey are reported here, lessons and observations from the earlier survey will also be discussed.

The 2003 'knowledge demand assessment' had similar objectives but had a much larger budget, longer timeframe and more comprehensive in scope. It was carried out for the Transport and Rural Infrastructure Services Partnership (TRISP) funded by the World Bank and the UK's Department for International Development (DFID). A detailed analysis was prepared by Lloyd-Laney, Fernando and Young (2003). The TRISP knowledge demand assessment consulted over 200 stakeholders in the transport sector worldwide, carried out a literature review, held four workshops in the UK,

Zimbabwe, Peru and Senegal and sought responses to an electronic questionnaire. Although the TRISP survey was carried out a decade ago (and technologies are rapidly changing in the knowledge storage and dissemination sector) it remains highly relevant.

Given that the TRISP study was about good access to information, it is very ironical that the reports were never formally published. They remain examples of 'grey literature' that are difficult to access. In contrast, the inception report of this current (and much smaller) study is already freely available worldwide, thanks to the DFID-funded R4D website.

4 Survey findings

The survey explored a number of broad categories of need, focusing on the availability of information, and gaps within the rural transport sector, dissemination tactics and the formats of information that were readily available and most useful users. The different ways in which information is disseminated and accessed were explored and the preferences of users were recorded. As well as assessing the information needs, the survey also enquired from the different actors their views on how information and knowledge in the rural transport sector could be stored to make sure that all the information scattered in different places is readily accessible.

4.1 Highlights

'Setting up committees or task forces that bring people from different agencies together to work collaboratively on rural public transportation is probably the best thing to be done. You have to 'blow-up' the silos that act to separate people and hinder effective communications to get the people to come together and work together to solve key issues.'

- Government ministries and government-established institutions together with NGOs and private sector enterprises are the key players in transport especially in Africa.
- Most (99%) of respondents said that they produced and disseminated information on transport. Most of this related to research on a broad range of transport issues including the design and maintenance of roads and related infrastructure, means of transport, policymaking and implementation.
- The majority of respondents (80%) required information on rural transport infrastructure and community access and mobility needs. There was demand for information on disability and gender issues, but this was lower.
- Interestingly, users were not so much interested in new knowledge as in better access to, and engagement with, existing knowledge.
- Lack of knowledge of what information exists and where it is stored are major challenges in the transport sector.
- Along with technological advances in the last decade, there is greater use of the internet, with websites being the most popular sources of information.
- The findings point to the need for systems that collect available information in the transport sector. make it visible and provide open access to current and potential users.

4.2 Characteristics of the survey respondents

Figure 1 summarised the geographical location of the respondents and Figure 2 summarises their institutional affiliations. About one quarter (24%) of the respondents worked in government departments or parastatal agencies, such as road authorities. Another quarter (23%) of the survey respondents were from international and local NGOs. A slightly smaller percentage (19%) of respondents were from the private sector, including consulting companies. The rest were from universities, aid agencies, information services and the media. The balance of respondents seems to

be a reasonable reflection of some of the key stakeholders in rural transport sector, with influential public sector institutions and an active private sector.

The fact that the number of respondents working for NGOs (international and national) was higher than the number of academics was interesting and may reflect the practical, developmental interests of people wanting to engage in information exchange in the sector. In many sectors, self-selecting respondents to a survey about knowledge creation and access would probably contain a higher proportion of people from universities and research bodies. The contacts lists of AFCAP, IFRTD and IRF all contain significant numbers of academics and so the alert mechanism used is unlikely to be the explanation for the relatively low participation of academia.

From the outset, the survey team knew that most respondents would be professionals concerned with transport and development. Members of the AFCAP's 'community of practice' are the immediate stakeholders in terms of information needs and access. Transport users, operators and infrastructure contractors were not well-represented in this survey. The proxy's for them will have been the various professionals working in NGOs, aid agencies, consultancy firms and public institutions. While there were many professionals concerned with infrastructure construction (road agencies, consultancy firms) there were few, if any, concerned with commercial transport operations (eg, transport services agencies, transport operators' associations). This is a reflection of the current state of the rural transport sector in which national and aid budgets and professional resources are mainly allocated to transport infrastructure and transport services and operations are left to the private sector.

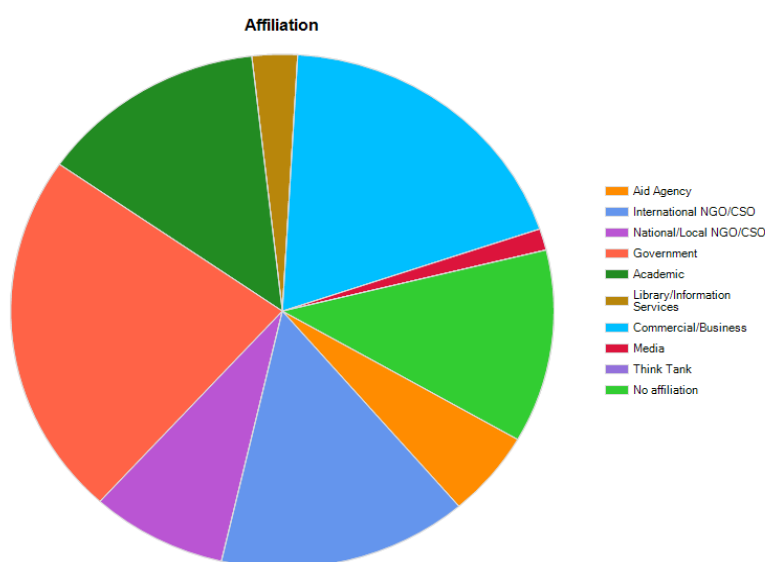


Figure 2: The affiliation of respondents

4.3 Information being produced

The survey revealed that most respondents (99%) were generating information concerning rural transport, with a diverse range of topics. Organisations produced information that included manuals and guidelines for the design, construction and maintenance of transport infrastructure. There was research relating to mapping supply and demand, transport services and intermediate technology options. Documents were being produced relating to developing transport businesses and guides to assist policy making, informed by case studies. One respondent from a bilateral donor indicated that the development agency published relevant information itself and also provided funding to allow its counterpart organisations to publish information on rural transport. The amount and range of the information being produced by survey respondents was impressive. The challenge that remains is to make this information visible and easily accessible to those that need it.

4.4 The main types of information that people need

The survey asked what rural transport information people needed to facilitate their work. Eleven broad topics were mentioned, with an open-ended response option as well. The people were asked to include as many topics as they needed. The requirement for information was high in all areas, with no topic being needed by fewer than about half the respondents. The main requirements were for information on rural transport infrastructure and on community access and mobility needs. These were needed by 80% of the respondents that answered this question (see Figure 3). Other topics in high demand were rural transport services (70%), transport technologies and intermediate means of transport (67%) and economic and financial (63%) issues. Information on gender, disability and governance was required by about half the participants. Respondents had the option of providing an 'open-ended' response about the information they needed. Among the additional topics people required were entrepreneurship, private-public linkages, integrating information technologies with transport, urban transport and capacity building through mentoring.

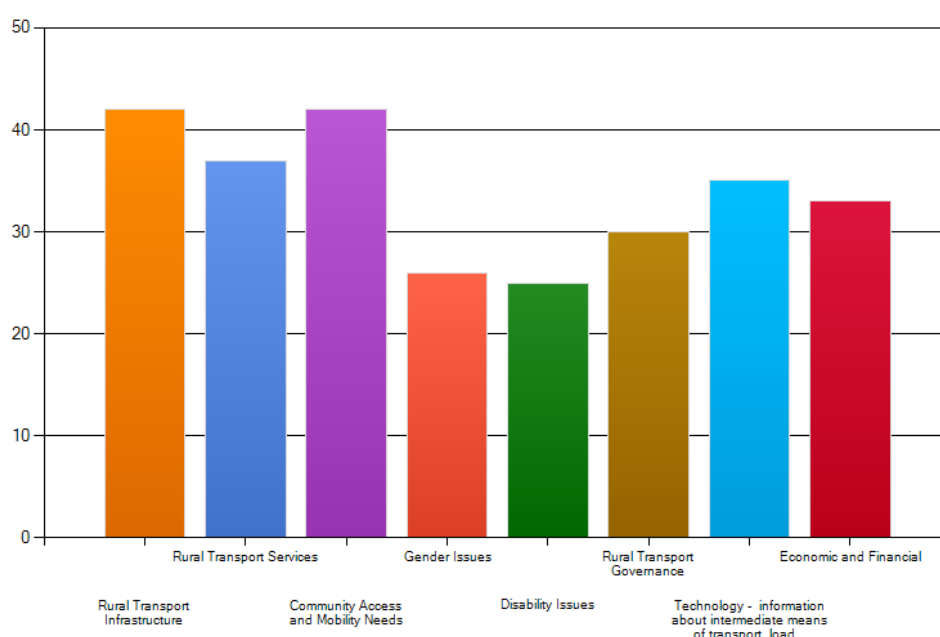


Figure 3: Information needs identified by survey respondents (numbers of respondents)

A complementary question on knowledge gaps showed that people were concerned by the lack of information on a large range of topics, with information on disability issues being particularly lacking (see Figure 4). Other gaps included rural transport services, gender, governance and economic issues. The topics with the greatest satisfaction on information availability were rural transport infrastructure, technologies and intermediate means of transport (IMTs) and community access and mobility. However, even in these areas, one third of respondents thought the information was insufficient and another third thought it was only fairly sufficient.

Considering the information that people say they needed as well as people's opinions on the current adequacy, rural transport services and community access and mobility needs appeared to be areas where many people said they needed information but it was seriously lacking. While respondents considered that disability issues had the worst availability of information, such information was not deemed a requirement for the work of many respondents.

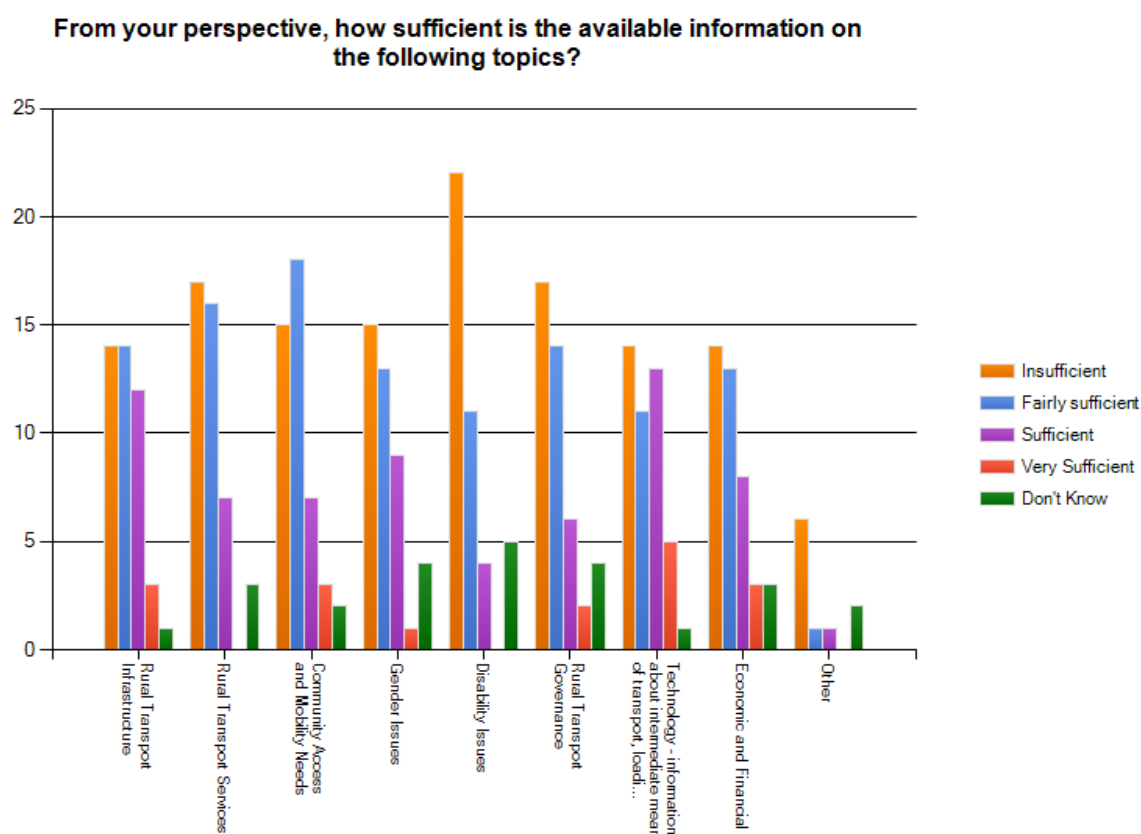


Figure 4: Survey results on the sufficiency of information on various topics

Gaps that exist between policy makers, researchers, implementers and users were seen as impediments to effective information and knowledge exchange. Tools for measuring impact were seen as lacking, as was available evidence linking rural transport development to poverty eradication. One non-African respondent felt that the information available was skewed in favour of Africa, noting: *“At the moment there is also more information about rural transport in Africa than in other regions, which is probably a reflection of donor interest”*.

The TRISP study found that there was no real consensus on what were the main knowledge ‘gaps’ within the rural transport sector. People’s need for information varied by region, profession, information usage and timing. Rural transport knowledge users were more satisfied with the accessibility of information on the technical aspects of road construction than with information on social and environmental issues. The paucity of monitoring and evaluation data and practical information on implementation were also identified as areas of frustration. National statistics from government sources were considered inadequate and governments were not seen to prioritise the generation and sharing of transport information. There was broad consensus that there was a lot of information available. Users were not so much concerned with the generation of new knowledge but better access to, and engagement with, existing knowledge. According to the TRISP study, most users wanted to be able to select information from a broad spectrum of sources, and were most interested in information that reflected local realities and was of practical use to them in their work (Lloyd-Laney et al, 2003).

4.5 Information sources used and the accessibility of information

The ease of access to current information within the rural transport sector was also explored. Respondents generally did not have the information they needed in the libraries or internal database of their organisations. In order to access this information, respondents used a variety of methods ranging from the use of search engines, personal contacts, specialist transport websites and development and research websites, newsletters, reports and other publications. There was minimal

use of regional information centres or national research structures, as proximity did not necessarily translate to accessibility. Resource centres within institutions were not always open for use by the public and the information held by these centres was not widely known, and in some instances even within the organisations. Some respondents felt that the growth and use of the internet had in some cases rendered libraries and information centres obsolete. The main information sources used by respondents are illustrated in Figure 5.

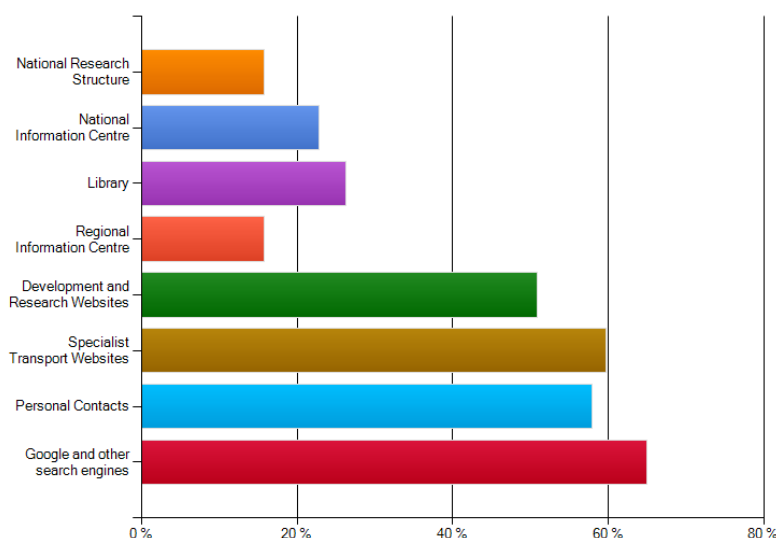


Figure 5: Summary of the ways respondents obtained the information they needed

Despite the availability of information from a variety of platforms, about half the respondents considered it somewhat difficult or very difficult to access the information they needed. The other half found information fairly accessible or easily accessible (see Figure 6).

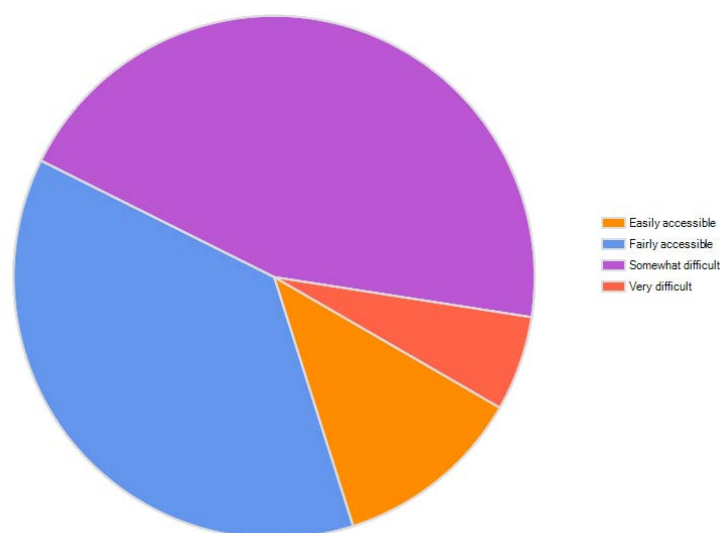


Figure 6: Survey results on the accessibility of information in the rural transport sector

In addition, most respondents considered that information from original sources was significantly more beneficial than information that had been repackaged by intermediaries. The implications of these findings reveal a need for information within the rural transport sector to be stored in a more comprehensive, easily accessible database that stores information in its original form as well as repackaged, condensed information from intermediaries. While most practitioners used both sources of information for their research, 83% of respondents preferred information that had not been repackaged or condensed. Information from original sources was seen as being authentic, the basis of rigorous analysis and more reliable as it contained data and statistics to support the

conclusions. Nevertheless information from intermediaries was still seen as useful for targeting particular stakeholder groups that needed information that was not as detailed.

Several respondents and interviewed stakeholders pointed out that the perception of information gaps and 'lack of information' did not necessarily mean that information did not exist. Without a comprehensive picture of what information was available and where it could be accessed, the 'gaps' might be due to the problems of poor access to existing information. It may be that people did not know how to access the information, or sift through existing knowledge to pull out what was relevant. That being said, the respondents were self-selected, motivated transport professionals, who, by the nature of the publicity for the survey, were probably well aware of current trends in the sector. If these people were concerned about knowledge gaps and the difficult access to existing information, there are probably many more less-connected transport professionals who have even greater problems of accessing the information they need.

4.6 Reaching people with information

In the survey, respondents thought the main ways they gained information were through websites, reports and events such as conferences and workshops. Most of the organisations with which the respondents were associated shared information through reports and websites.

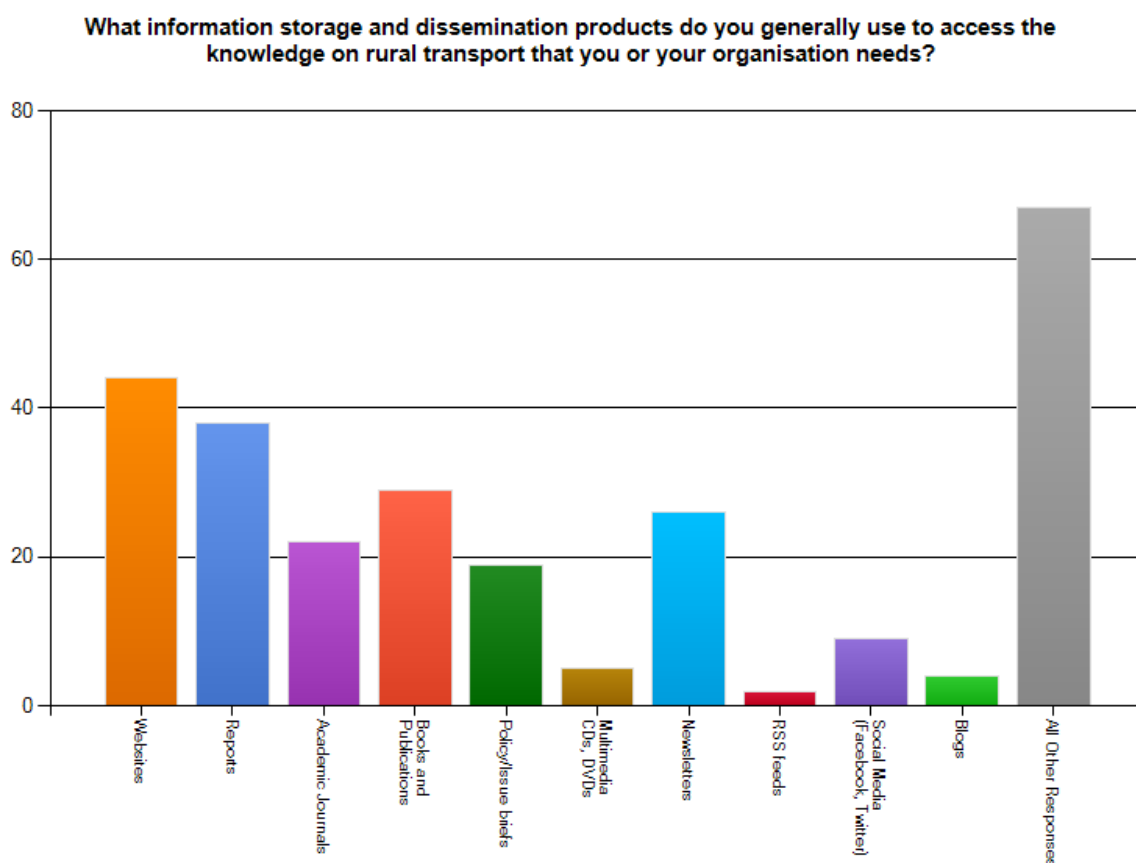


Figure 7: Survey results on the information products people access
(Note: the final 'other' bar mainly comprised information from workshops and conferences)

Figure 7 summarises the survey results for the information products people used to gain information. Most (87%) of respondents used websites and this suggested that internet-based documentation was extremely important for people wishing access information (and also for those wishing to share it). The survey suggested that use of the internet had been increasing rapidly and it is now the most important source of information for many transport professionals. The ways in

which people are using the internet is also changing. People explained how they used to go to particular websites to look for information, but increasingly they used search engines. Some people with good connections even 'googled' documents that they possessed in hard copies, as they said it was quicker to use the search engine than to go to their shelves.

The rapid spread of smart phones with internet access means that many people now look for information with their phones. That being said, people complained about slow speeds and high data costs and the problem of downloading large files such as reports and formatted newsletters onto their smart phones.

While it seems certain that the internet will increase in importance, and people will become more and more connected with computers, tablets and smart phones there are still major problems for many people, particularly in Africa. Although survey respondents would be among the better connected people (having received alerts and having been able to respond) they did stress the problems of poor and expensive connections. Their colleagues in more isolated locations, or with less well equipped offices, would have had even greater problems.

Despite the increasing importance of the internet and smart phones, the respondents did not make much use of social media, blogs and RSS feeds to access rural transport information. Perhaps people perceived these as unsuitable for serious information sharing. Nevertheless, ten years ago, these would not even have been options, and now 17% of respondents said they used social media to gain information on rural transport. Social media may be of growing importance to the rural transport sector. Some people interviewed felt that social media would become more influential for professionals. One respondent reported that during the AFCAP Practitioners meeting in Mozambique in 2012 it was suggested that social media be used as a means of dissemination of rural transport information.

The survey suggested that reports were a more important source of information for the respondents than academic journals. Seventy-five per cent gained information from reports, but only 42% from journals. This can be interpreted to be a characteristic of the respondents (more practical development actors than academics) but also a characteristic of the sector (most information on rural transport is published within reports rather than in academic journals). Also, people reported the difficulty of seeing hard copies of journal articles and the cost of downloading soft copies of papers.

After websites and reports, the respondents' next most important source of information were events such as conferences and workshops, with 64% citing these. Such events ranked above books and publications (58%), newsletters (52%) and journals (42%), although the small sample size does not permit accurate ranking. National and international workshops in the rural transport sector are relatively few and most people would not attend more than one a year. Nevertheless, the respondents clearly felt that workshops were a very important source of information. This was confirmed by several in-depth interviews. Websites had reduced the need for some 'hardcopy publications' but the opportunities for learning at workshops had not diminished.

Books and printed publications remained important sources of information for respondents. While it is difficult to accurately interpret this finding, it appears likely that people need access to reliable reference information.

Two thirds (67%) of respondents said they found alerts useful to let them know about the availability of new information. Of the rural transport alerts identified as being useful the most important were those of IFRTD (18 mentions). IFRTD Forum News used to be a printed newsletter but is now available electronically. This contained original material on various focus themes. IFRTD also circulates an electronic alert, which provides brief summaries of publications and events with links to the sources. The gTKP alert circulated by the International Road Federation was also found useful (7 mentions). These two sources stood out (but these sources had been used to attract respondents). There were several other alert sources with one or two mentions including ITDP, PIARC, R4D,

GATNET and TRL's Transport Research newsletter (mentioned as being very useful although it has not been published for some time).

4.7 Existing information sources and future responsibilities

When asked about good sources of information at national or regional level, most respondents felt there were none. A few people mentioned local organisations including road-based authorities in Ethiopia, Nepal, Nigeria, Slovakia, Tanzania and USA. The most common resources referred to were IFRTD (5) with mentions for SSATP/World Bank (2), IRF (1) and ILO (1). When asked about knowledge of good information systems outside the sector most people (78%) said they were not aware of any.

When asked who should be responsible for organising and consolidating rural transport information, most people (71%) favoured a consortium of organisations. Some favoured a single organisation (17%) while others felt no change was necessary (12%). Of the organisations who should lead this, there were four mentions of IFRTD, one mention of IRF and mentions of national-level organisations in the respondent's countries (5).

5 Discussion

5.1 Scope and relevance of survey

The surveys reported here (on-line and discussions with key informants) were quite small and involved selected types of people. The on-line respondents were self-selected from transport professionals who would have probably learned of the survey through the 'alert' systems of AFCAP, IRF/gTDK or IFRTD. The interviewed people were transport knowledge stakeholders whom the survey team considered relevant or whom had been recommended by other transport professionals. The samples cannot be considered inclusive of all stakeholders in the sector, but they do represent the types of people who have the great interest in the types of knowledge products that AFCAP has been trying to generate and disseminate. The fact that most of the findings were consistent with the more comprehensive TRISP study of 2003 allows increased confidence in the findings.

The study covered both people's need for information (demand side) and ways in which people and organisations share and access information (supply side). It was evident that there is a diverse range of needs for information and that many different organisations hold rural transport information.

5.2 Some issues relating to information provision

In 2002 and 2003, two influential DFID-funded reports were produced that led to the development of DFID's research communication strategy and the establishment of the R4D database and website (Surr et al, 2002; Dodsworth et al, 2003). Dodsworth et al highlighted four issues that led to major gaps in the flow of information between knowledge generators and users. The TRISP study confirmed that these gaps existed within the transport sector as well. These were:

- The distance between 'scholarly' research and development policy shapers, international media and international NGOs
- The gap between research carried out at a national level in developing countries and the broader international debates
- The lack of communication between the research community, both national and international, and the worlds of policy and practice
- Within developing countries, constraints in the flow of knowledge between the national level and the grassroots and vice versa.

How information providers should position information depends on how people access and use information, and the objectives of the information provider. For instance, increasing users' knowledge levels, challenging attitudes and changing behaviour all require different strategies of

engagement with users (Lloyd-Laney et al, 2003). However, the scope of this study is limited to making knowledge available, rather than using that knowledge to change behaviour.

People have a common set of 'filters' that they use when selecting information sources, though the importance of each filter could vary (Lloyd-Laney et al, 2003). The filters include awareness of the source; the credibility of author and/or institution; reliability of content; satisfaction levels from previous use of materials; trustworthiness of source; timeliness (ie, currency of the information and adequacy of responses to enquiries); cost (money, time, personnel); interactivity of source; and language (Lloyd-Laney et al, 2003).

Active networking can be one of the most successful strategies in engaging users and promoting knowledge uptake. But as the TRISP study found out, the transport sector is not very well networked – both in terms of connecting different transport stakeholders, or engaging with other development actors who could be interested in issues of mobility. Weaknesses in the sector include inadequate knowledge and sharing environments within transport organisations; choosing communications media that are appropriate to their own environments rather than those of their users; charging for information and choosing English as the dominant language of dissemination (Lloyd-Laney et al, 2003).

5.3 Increasing the availability of existing information

The importance of making information available in the public domain cannot be overstated as it allows for the strengthening of information exchange within the sector. Many people interviewed stressed the great amount of information that exists but is not shared. Much valuable information relating to transport is generated through research, appraisals, evaluations and technical studies. These may be conducted by staff of public sector, private sector, NGOs or donor organisations and/or by national or international consultants. This wealth of information is often read by one or two people and then is filed without being adequately shared within the organisation or with other people.

The lead author of this study estimates that the majority of the consultancy studies he has undertaken for national governments, for bilateral and multilateral aid agencies and for development banks have never been adequately shared. These outputs had all been prepared in such a way that the content and design were entirely suitable for sharing. However, many clients had not been interested in sharing the lessons. Most of the consultancy contracts had contained 'gagging clauses' preventing him from sharing the information or using it in other publications. It is believed that there is a widespread failure of organisations to share information and lessons. This will have resulted in the time and resources of other people being poorly deployed or wasted.

As has been noted, existing knowledge gaps may be due to lack of knowledge or lack of sharing of existing information. There is an important need to convert unshared 'grey literature' into accessible documents. This will require proactive initiatives to 'harvest' existing information and to encourage individuals and institutions to collaborate.

5.4 Increasing visibility of information

There is a need to increase the visibility of information. People need to be made aware of existing resources new information. As formal documents and grey literature become available, people need to be informed of these through alerts, including newsletters (electronic and printed). Respondents of the survey identified newsletters as a popular form of receiving information.

The gradual move towards electronic newsletters presents an opportunity for the rural transport sector to use alerts about recent publications to encourage debate and conversation within the sector. Passive newsletters are important, but if they are combined with interactive debate, people on the same list-server can provide feedback and share thoughts with others on the same list. In

such an environment of knowledge sharing it is quite difficult to strike the right balance between the silence of non-participation and the excessive noise of irritating chatter. However if the balance can be struck, there is great potential for people working in different disciplines and sectors to learn from each other.

5.5 Managing rural transport information

Rural transport information requires a storage system that allows various organisations/groups to access and update information in a simple manner. Governments generate a substantial amount of information through their national road and transport agencies while private companies also generate considerable information through their consultancy work. The knowledge management systems that are adopted should allow these key stakeholders to share and access information that they have generated. In order for the rural transport sector to reap the benefits of the information that is generated in various organisations, universities should also be encouraged to engage more with rural transport like they engage with other sectors.

The key informants interviewed felt that the most appropriate system for managing rural transport information would be one that collects as much available information as possible, stores it in a central place and allows open access. Such a system would need to be sufficiently resourced to allow for information to be regularly managed, organised and disseminated in innovative and interactive ways. The survey also indicated a strong preference for a network of organizations, with clear and transparent roles and responsibilities. *‘A consortium would work best because it would allow for regional variations; would allow for pooling of funding among agencies; would be able to help develop new funding streams; and would bring together transport professionals, policy makers and academics to work on issues and concerns related to rural transport’- Survey respondent.*

6 Conclusions and recommendations

6.1 Needs assessment

The survey respondents expressed an overwhelming need for better access to knowledge and information on rural transport. Information within organisations and local resource centres is often inadequate. People increasingly use the internet to access the information they need although there are problems with connection speeds and costs. Mobile phones and tablets are increasingly used to access the internet, but social media are not yet widely used to obtain rural transport information. Search engines are commonly used, and transport resource sites visited include IFRTD and IRF (gTKP) and the old Transport Links site.

Transport practitioners do not generally have the resources or patience to sift through massive amounts of information to pick out what they need. This is true in physical libraries with paper publications and with electronic libraries and databases. User-friendly systems that can quickly and easily link information needs with accessible resources are essential. Users need clear information (guides, instructions and training) on what information is available, how it can be accessed and how the most relevant can be easily selected.

Practitioners required information on a wide range of topics, and there were many inadequacies, including disability issues, rural transport services, gender and governance. Key subjects where more information was needed by many practitioners but was inadequate were transport services and community access and mobility.

Practitioners like to have access to original documents rather than repackaged summaries. They like to be alerted to the existence of these, with newsletters being particularly important. Reports, rather than academic papers were the main sources of information for most respondents.

Although there are relatively few national and international conferences and workshops in the rural transport sector, people consider such events as one of their main sources of professional information.

6.2 Actions required

The internet is increasingly linking people with information resources that they could otherwise not access. There is need to establish appropriate internet information resources that stakeholders can easily access, bearing in mind the speeds and costs for accessing the internet in many African contexts.

Practitioners require accessible information on many topics including rural transport infrastructure, community access and mobility needs, rural transport services, transport technologies, economic issues, gender, disability and governance. There appear to be knowledge gaps in all these areas, but this may be due to inadequate sharing of existing information. Therefore, it is important that existing information is made accessible by putting as many reports and other documents as possible in user-friendly databases on the internet. This will not be easily accessible for everyone, but more and more people will be able to access such information in the coming years.

The information providers need to collect the information available in the transport sector, make it visible and allow open access to current and potential users. Information can be presented by theme (as IFRTD and gTKP/IRF websites) and/or in the form of searchable databases (as the multi-sector R4D and ELDIS websites). These and other examples will be discussed further in the Final Report.

Knowledge and information systems must be complemented by mechanisms that:

- Alert practitioners to this new information through emails, newsletters and websites. Use of social media should also be actively promoted.
- Links to knowledge resources that are easily available and relevant to the needs of the diverse actors in the rural transport sector.

Organisations need to turn their own grey literature into publications that are more readily available. This may require encouragement and possibly assistance from other sector stakeholders. National initiatives would be valuable that put existing documents on-line and also submit copies to international databases.

National and regional guidelines and benchmarks for information dissemination in the rural transport sector should be developed and shared. Institutions should develop a culture of sharing important information internally and within their networks. They should be encouraged to use their own list-servers to alert their internal and external contacts when useful information becomes available.

Governments and national transport and road authorities are responsible for much investment in transport infrastructure and the regulation of transport. They are major stakeholders in rural transport information, but often fail to recognise the benefits that could arise from better exchange of information. They often hold but do not share a great amount of information within their national road and transport agencies that could address some of the knowledge and information gaps highlighted in this study. They need to be encouraged and facilitated to take information access very seriously and allocate appropriate budgets for this. Other stakeholders can encourage such approaches. Donors and development banks can ensure that better access to information is included in funding protocols.

Universities can undertake valuable research and they are vital for providing appropriate education for future practitioners and policy makers. Their links with the rural transport sector are weak in many countries. University departments must be encouraged, and if necessary, facilitated to be involved in rural transport research, curriculum development and teaching.

Although internet access is important, transfer of knowledge is strongest when there is person-to-person contact. People really value the exchange of information provided by conferences and workshops. There is a need to encourage national and international networking, including

workshops, conferences, site visits and exchanges. Guidelines should be developed to maximise the value of such exchanges with appropriate professional exchanges, site visits and sharing reports, newsletters and other information outputs.

Mentorship programmes should be established for young practitioners in the rural transport sector. Much information and knowledge exists within the heads of older experts (both national and international). Much of this has not been adequately captured and risks being lost if there are not good systems to transfer this expertise to the coming generations.

The various actions required will require resources in terms of human work and budgets. The historic problem of short-term, non-sustained initiatives relating to rural transport information will be discussed in the Final Report.

6.3 Key stakeholders in information management in the sector

If rural transport information is to be improved, the great majority of respondents felt that this should be a collaborative venture, involving national and international resource centres.

Recommendations concerning rural transport knowledge sharing and management, based on this needs assessment survey and discussions with sector stakeholders, will be contained in the Final Report of this assignment.

7 References

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