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Scoping Report

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Abbreviations

General

ADB	Asian Development Bank
AFCAP	African Community Access Programme
ASCAP	Asia Community Access Programme
CIDA	Canadian International Development Agency
DFID	Department for International Development
DP	Development Partner
EC	European Commission (of the European Union)
EU	European Union
GDP	Gross Domestic Product
GIZ	[Deutsche] Gesellschaft für Internationale Zusammenarbeit
IDA	International Development Association (of the World Bank)
IFRTD	International Forum for Rural Transport and Development
ILO	International Labour Organisation
JICA	Japan International Cooperation Agency
KfW	[Deutsche] Kreditanstalt für Wiederaufbau
IFAD	International Fund for Agricultural Development
INGO	International Non-Government Organisation
NGO	Non-Government Organisation
ODA	Overseas Development Aid
PIU	Project Implementation Unit
PPP	Public Private Partnerships
RTA	road traffic accident
SANDEE	South Asian Network for Development and Environmental Economics
SDC	Swiss Agency for Development and Cooperation
TRRL	Transport and Road Research Laboratory (now Transport Research Laboratory)
UNDP	United Nations Development Programme
UNICEF	United Nations Children's Fund
UNOPS	United Nations Office for Project Services
USAID	United States Agency for International Development
WB	The World Bank

Afghanistan

ARTF	Afghanistan Infrastructure Trust Fund
AIRD	Afghan Institute for Rural Development
AREU	Afghanistan Research and Evaluation Unit
ATEC	Afghan Transportation Engineering Centre
ARAP	Afghanistan Rural Access Project
ANDS	Afghanistan National Development Strategy
BRAC	Bangladesh Rural Advancement Committee
CNTF	Counter Narcotics Trust Fund
GoA	Government of Afghanistan
HARDP	Helmand Agriculture And Rural Development Programme
IRD	International Relief and Development Inc.
ISAF	International Security Assistance Force
MoF	Ministry of Finance
MOI	Ministry of the Interior

MPW	Ministry of Public Works
MRRD	Ministry of Rural Rehabilitation and Development
MOTCA	Ministry of Transport and Civil Aviation
MOUD	Ministry of Urban Development
MADERA	Mission d'Aide au Développement des Economies Rurales en Afghanistan
NEEP	National Emergency Employment Program
NERAP	National Emergency Rural Access Project
NABDP	National Area Based Development Programme
NRAP	National Rural Access Program
NRIRCI	National Regional Integrated Resources Corridor Initiative
NSP	National Solidarity Programme
OSDR	Organisation for Sustainable Development & Research
PDCU	Programme Development and Coordination Unit
PRT	Provincial Reconstruction Teams

Bangladesh

BIDS	Bangladesh Institute for Development Studies
BRTA	Bangladesh Road Transport Authority
BRAC	Bangladesh Rural Advancement Committee
BIWTA	Bangladesh Inland Water Transport Authority
BUET	Bangladesh University of Engineering and Technology
GCM	Growth Centre Markets
GoB	Government of Bangladesh
LGED	Local Government Engineering Department
NOBIDEP	Northern Bangladesh Integrated Development Project
RRIMP II	Second Rural Road and Maintenance Project
RTIPII	Second Rural Transport Improvement Project
RTIRN	Road Traffic Injuries Research Network
UR	Union Roads
UZR	Upazila Roads

India

CRRI	Central Road Research Institute
DRD	Department of Rural Development
GoI	Government of India
IMS	Institute for Healthcare Informatics
IRC	Indian Roads Congress
MGNREGA	National Rural Employment Guarantee Act
MRD	Ministry of Rural Development
PMGSY	Prime Minister's Rural Road programme
PWD	Public Works Department

Myanmar

DRD	Department of Rural Development
FESR	Framework for Economic and Social Reform
GoM	Government of Myanmar
MoBA	Ministry of Progress of Border Areas, National Races and Development Affairs
MoHA	Ministry of Home Affairs
MLFRD	Ministry of Livestock, Fisheries and Rural Development

MDRI-CESD	Myanmar Development Resource Institute's Centre for Economic and Social Development
MMIID	Myanmar Institute for Integrated Development
NCDDP	National Community Driven Development Project
NCDP	National Comprehensive Development Plan
NDP	National 20 year Development Plan (2011-30)
NMTPF	National Medium Term Priority Framework 2011-2014
RTAD	Rural Transport and Administration Department

Nepal

DDC	District Development Committee
DTO	District Technical Offices
DoLIDAR	Department of Local Infrastructure Development and Agricultural Roads
DOR	Department of Roads
DTM	Department of Transport Management
GoN	Government of Nepal
IOE	Institute of Engineering of Tribhuvan University (TU).
KEP	Karnali Employment Programme
LRN	Local Road Network
MoFALD	Ministry of Federal Affairs and Local Development
MoHA	Ministry of Home Affairs
MoLTM	Ministry of Labour and Transport Management
MPIT	Ministry of Physical Infrastructure and Transport
NDRI	Nepal Development Research Institute
NHRC	National Health Research Council
NTDRC	Nepal Transportation and Development Research Centre
RAIDP	Rural Access Improvement and Decentralization Project
RTIPII	Second Road Transport Improvement Project
RTIRN	Road Traffic Injuries Research Network
SRN	Strategic Road Network
SNRTP	Strengthening the National Rural Transport Program
VDC	Village Development Committee

Pakistan

CPEC	China – Pakistan Economic Corridor
CPI	Community Physical Infrastructure
DPO	District Police Office
DRTA	District Regional Transport Authorities
FATA	Federally Administered Tribal Areas
GoP	Government of Pakistan
JPMC	Jinnah Post Graduate Medical
MoF	Ministry of Finance
NRSP	National Rural Support Program
NTC	National Trade Corridor'
NTRC	National Transport Research Centre (
PKR	Pakistan Rupees
PPAF	Pakistan Poverty Alleviation Fund
PR	Pakistan Railways
RDF	Research and Development Foundation

RDPI	Rural Development Policy Institute
SRSP	Sarhad Rural Support Programme
TITE	Taxila Institute of Transportation Engineering

Executive Summary

This report assesses the potential of the rural road sub sectors in Afghanistan, Bangladesh, India, Myanmar, Nepal and Pakistan to undertake ASCAP research that adds value to their ongoing rural access programmes. It draws on open source data to identify current development partner (DP) and institutional rural access interventions as well as potential research partners willing and able to undertake and take ownership of ASCAP supported research. The resultant synthesis applies the procedures and indicators used to establish a business case for AFCAP II and prioritise its interventions in Sub Saharan Africa. Its findings are summarised below:

- All countries experience a rural access/poverty nexus in which constrained access, particularly in the wet season, intensifies social isolation and economic marginalisation producing widespread rural poverty.
- The governments and DPs of Bangladesh, India, Myanmar and Nepal recognise the importance of this nexus and are investing considerable resources addressing the road component of rural access. Afghanistan and Pakistan do not appear to have a strong investment emphasis on the rural road sub sector. This suggests that ASCAP interventions will be welcomed in the first four countries but a more targeted and specific project-based approach will be needed in Afghanistan and Pakistan.
- A 15% rate of return on the financial investments being made points to significant potential added value afforded by ASCAP research, innovation and information sharing in engineering, maintenance management and intermediate means of transport. Some of the countries e.g. India and Nepal also recognise the importance of rigorous and defensible impact evaluations to justify the scale of investments being made.
- Institutional and research capacity constraints affect all countries to some degree. India, Bangladesh and to a lesser extent Nepal have well established rural road/local government institutions which have undertaken research in the past usually addressing the engineering concerns of rural access. Myanmar's Department for Rural Development has been recently relocated to the Ministry of Livestock, Fisheries and Rural Development and appears to have been badly affected, in staffing and capacity terms, by the economic and political isolation of that country. Afghanistan has similar capacity problems due to its continuing insecurity, while Pakistan has devolved the rural road subsector to the provincial level, where it appears to have been neglected.
- The internet search indicates that most rural access research has focused on engineering aspects of rural road provision. Research on rural transport services, rural road accidents and sustainability issues have been neglected to varying degrees in all six countries.

A synthesis of the findings has adapted the five country assessment criteria used by AFCAP II to prioritise its research effort in Sub Saharan Africa. Each Asian country has been scored (ranging from 1 to 6) for each criterion. These scores are summed to provide a ranking of countries in terms of the likely value and potential for ASCAP research to inform rural access policy and programming (Table 8-2). This ranking and the country studies suggest that it should be relatively easy to establish interest and develop an ASCAP research programme in Bangladesh and Nepal and these countries should be the initial focus of ASCAP engagement in the region. Thereafter, it will be less easy to engage with Myanmar and Afghanistan because of the newness of their institutional structures compounded by high levels of insecurity in Afghanistan. The decentralised government structures of India and Pakistan pose particular problems of the locating effective entry points or institutions that are able to work with ASCAP exacerbated by widespread political insecurity across much of rural Pakistan.

1. Objectives and Scope of Services

The objective of this assignment is to assess the potential for undertaking AFCAP-style rural transport research in six South Asian countries i.e. Afghanistan, Bangladesh, India, Myanmar, Nepal and Pakistan, referred to as ASCAP. This scoping exercise has drawn on open source data and background information obtained from researchers and rural transport specialists based in or with in depth understanding of the rural transport sector in the respective countries. It is envisaged that the country results and the final synthesis will guide both the choice of and likely approach to community access research in the new South Asian partners. The main questions to answer for the six candidate countries are:

- What is the potential for ASCAP research to add value to rural transport policies, strategies and programmes in the country?
- To what extent is the institutional environment amenable to receiving and taking ownership of ASCAP support and providing a long term home for ASCAP type activities?
- What level of impact can be achieved by rural transport research?

These questions are addressed in three sections for each country in the following six chapters.

After a short background to the country, the first section outlines the extent of the rural transport problem. This is followed by a summary of existing transport policies and strategies that might address these rural transport and access issues and a summary of on-going rural access and transport programmes and projects. It relies heavily on annual progress reports and summaries that are available for many of the six countries to identify levels of expenditure. Invariably this reflects the quantum of Overseas Development Aid (ODA) support being received by the country though in the case of Myanmar[1] and Bangladesh there appears to be significant government expenditure in the sub sector.

The relevance of this project/programme experience to ASCAP is then explored before an estimate[2] of the value of ASCAP research funds is made. This is achieved by applying a 15%[3] rate of return to the current levels of ODA and government investments spent in the rural road sub sector. This rate of return is half that estimated for Research and Development in the Engineering/Physical Science private sector in the UK[4]. It is even more conservative in that it ignores likely social returns from spill over effects[5] which are typically 2 to 3 times larger than private returns (Frontier Economics, 2014). It also disregards the possibility that ASCAP research will leverage other research interest and funding (Hughes and Martin, 2012).

The second section examines the institutional environment by identifying the main government organisations responsible for both rural transport and rural road construction. Four of the six countries i.e. Afghanistan, Bangladesh, Myanmar and Nepal have a unitary structure in which a central ministry has de-concentrated its managerial functions to the different levels of local government. Such a structure makes it relatively easy to introduce the aims and objectives of ASCAP but the resultant research programme and ownership

[1] It should be noted that the scale of government expenditure in Myanmar was reported informally through unpublished reports e.g. van Dissel, S.C and Starkey P report for the ADB in 2014.

[2] The actual rate of return achieved will depend on the nature and scale of ASCAP research undertaken

[3] The Redacted Business case estimates a 25% rate of return for AFCAP1 research investments (p.28).

[4] "Existing literature tends to estimate private rates of return to Engineering and [Physical Science Research Council] R&D investments of around 30% (mean) or 20 to 25% (median). There is no clear evidence that these average private returns differ according to the unit of analysis used to estimate the model (e.g. firm-, industry- or country-level data) (Frontier Economics, Executive Summary).

[5] The dissemination and adoption of research benefits across and outside the sub sector.

may be affected by poor “buy in” at the regional and district level. In contrast, India and Pakistan have a federal structure in which the state and provincial governments have been delegated governance functions for the provision and regulation of rural transport infrastructure and services. It is suspected that the promotion of ASCAP aims and objectives will be less easy in these two countries and strategic decisions on which provinces/states to focus on will have to be made.

The third section explores the likely impact of the research which will depend on the political commitment and capacity of the respective government organisations responsible for the rural transport sub sector. This is not easy to assess remotely but an objective attempt is made to do this. Similarly, a table is produced identifying other organisations that are likely to be interested in participating in the ASCAP research programme.

The final chapter uses the AFCAP II country assessment criteria to rank the six ASCAP countries and propose a timetable to engage with the respective institutions of each country in the development of a locally relevant research agenda.

2. Afghanistan

Afghanistan is a strategically positioned landlocked country between the Middle East and south/central Asia. It is largely mountainous with an estimated population of 30 million which has been subject to intermittent civil war and political instability since 1978. The UN-mandated International Security Assistance Force (ISAF) was established in 2001 to address this instability by replacing Taliban rule with a democratically elected government, accountable to its people and able to maintain internal security. The direct combat role of this mission formally ended in December 2014 when responsibility for Afghanistan's internal stability was passed onto national security forces. It is too early to assess ISAF's achievements and Afghanistan still remains a fragile state unable to exercise its authority across significant parts of the country.

The majority (80%) of the Afghan population is rurally-based and depends on agricultural and trading for its economic wellbeing. Its per capita GDP is about $665 making Afghanistan one of the poorest of the six potential ASCAP members. Its difficult geography and poverty limits the viability of many transport systems and means that roads are the principal means of transport for all but the wealthy who might fly to the regional airports across Afghanistan's poorly regulated air space.

2.1. Potential for ASCAP Research to Add Value

Afghanistan's reported road network comprises some 8,000 km of national and regional highways, 9,700 km of provincial roads and from 50 to 100,000[6] km of rural roads plus about 3,800 km of urban roads, including 1,060 km in Kabul (World Bank, 2012b). The highway network forms a "Ring Road" connecting the regional centres of Herat, Kandahar, Mazar-e-Sharif, Maimana, and Sheberghan to Kabul in the east with a number of highways linking the "Ring Road" to neighbouring countries. The whole network has been badly affected by the continuing instability. Thus, road network planning is dominated by the needs of government and its security forces to assert control while maintenance efforts are uncoordinated and characterised by emergency repairs in response to improvised explosive devices, landslides or extreme weather rather than the systematic amelioration of road surface deterioration.

Prior to the intervention of ISAF the road transportation system was unconnected, many structures were broken and road surfaces badly eroded making travel to the regions virtually impossible. Since then, multilateral and bilateral development partners have invested more than $4 billion in reconstructing the regional connections, particularly the Ring Road and its spurs to neighbouring countries notably to Pakistan, Tajikistan and Uzbekistan. The development outcome of this construction effort is reported to be positive. The Asian Development Bank (ADB) evaluation of its portfolio suggests that the reductions in road travel time have increased the frequency of personal trips and domestic trade stimulating economic growth and narrowing provincial income disparities. Cross border trade has also increased, particularly with Pakistan where there has been a 250% increase in exports/imports since 2003 (ADB, 2010).

2.1.1 Extent of the Rural Transport Problem

The rural road network has not been overlooked in this reconstruction effort but its objectives have fluctuated between the need to create employment and the need to provide access. Initially, rural road construction was one component of the National Emergency Employment Program (NEEP) in which labourers were employed to reconstruct rural roads with little technical training or supervision. Some 7,000 kilometres were restored in this way and there have been serious concerns about the quality and longevity of this intervention given the low maintenance resources available to local government (World Bank, 2007).

[6] Afghanistan Information Management Services (NRAP website) reports 50,000 kilometres, The NRAP GIS database reports, 101,364 kilometres (NRAP Annual Report 2011).

These weaknesses were thought to have been addressed as NEEP evolved into the National Rural Access Program (NRAP) in 2002, with the aim of strengthening technical standards and introducing better quality control. However, reports of poor road construction standards continue with the poor security situation being cited as the reason for poor works supervision. The client is therefore reliant on using mobile phones and geo-referencing to verify physical outputs (p.24 World Bank Evaluation 2012). By 2012 NRAP was estimated to have improved about 10% of the rural road network to a good standard but about half was still in bad to fair condition, and over a third barely accessible. The evidence is that this improved infrastructure enhances the access of rural people to economic and social facilities and stimulates traffic. Elsewhere poor road conditions limited the operation of transport services which were of low quality, and expensive.

Given this need to strengthen the rural road sector, a number of challenges remain. These begin with the almost total reliance of the sector on international funding, usually through grants. The sector has been seen as an essential means of accessing rural areas which have been the recruiting grounds for Taliban insurgents. Local involvement and participation in prioritising the network has been low. Similarly, central government involvement and funding has been limited by capacity constraints and little regard has been paid to the maintenance needs of the improved network. There have also been concerns about the design standards being applied to different parts of the network. Constrained field work and poor oversight has encouraged design consultants to adopt higher standards than those needed for basic access. The World Bank (WB), which has taken the lead in the strengthening of the rural road sector and has introduced and piloted a number of steps to address these challenges but they have yet to be consolidated and generalised within the Ministry of Rural Rehabilitation and Development (MRRD) and have yet to be decentralised to the lower administrative levels. In short substantial strengthening of the Government of Afghanistan's (GoA) ability to manage and oversee the rural road sector is needed.

2.1.2 Existing National Transport Policies and Strategies and their relevance to rural transport and access

The Afghanistan National Development Strategy (ANDS), launched in 2008 and refined in 2010, sets out government's development policy and poverty reduction strategy to achieve its vision of becoming a stable Islamic constitutional democracy by 2020. Not surprisingly, the first two pillars of ANDS are concerned with security and governance/the rule of law and it is Pillar 3 that sets out government's social and economic development strategy. The improvement of transport infrastructure formed an important part of this pillar with a major emphasis on the rehabilitation and maintenance of the national highway network and a target of 40% of villages being accessible via all-weather roads by 2013. These twin goals have been supplemented recently with the development of a National Regional Integrated Resources Corridor Initiative (NRIRCI) that focuses on the development of key highways and trade corridors. The rural road sub sector does not have an "explicit rural development strategy" and a "cohesive rural transport or an overall transport policy" (p. 63, WB Evaluation 2012). There has also been considerable blurring of responsibility and standards between the two ministries involved in rural road works i.e. the Ministry of Public Works (MPW) and MRRD.

The WB issued a rural access policy note to inform the preparation of a GoA rural access policy in 2007 but this did not happen and it wasn't until the NERAP was appraised that this policy gap was identified and addressed. It is not clear how far this initiative has proceeded, but according to the NERAP Implementation Completion and Results Report (World Bank 2014 Indicator 10) a draft policy has been prepared but has yet to be agreed.

ANDS strategic vision is the creation of an autonomous road agency that will manage the development and maintenance of the national road network through a system of road user charges collected by a Road Fund by 2020. Provincial and rural roads will be managed by provincial and/or local road authorities receiving adequate transfers of road fund resources.

It is also hoped that sufficient local contractors will have been trained to undertake most road works with a substantial amount of works being carried out using labour-intensive techniques. Most donors support this vision and development support has become more focused on capacity building and the development of planning and maintenance systems.

2.1.3 Current and On-going Programmes and Projects

Table 2.1 outlines the on-going projects being managed by the National Rural Access Programme. It is suspected that this data refers to the situation in 2011, the date of the last annual report available on this website. Both the World Bank and DFID report on the completion of their respective NERAP and HARDP components and have signed new agreements[7] that are not captured in the Table.

Table 2-1 On-going National Rural Access Programmes by Donor

Ministry	Donor	Project	Status	Commitment M$	Disbursement M$
MOPW	Afghanistan Reconstruction Trust Fund (ARTF)	National Emergency Rural Access Project (NERAP)	Ongoing	39	23.4
	IDA	NERAP	Ongoing	53.2	29.97
	Government of Italy	NERAP	Ongoing	3.02	3.02
MRRD	DFID	Helmand Agriculture And Rural Development Programme (HARDP):	Ongoing	16.25	16.25
	WB	NERAP	Ongoing	58.8	20.64
	ARTF	NERAP	Ongoing	11	6.6
	Counter Narcotics Trust Fund (CNTF)	NERAP	Ongoing	5.29	5.29
	Holland	NERAP	Ongoing	0.93	0.93
	CNTF	NERAP-(Labour-Based)	Ongoing	6	6
Total				193.5	112.1

Source: NRAP Annual Report for 2011 and Website http://www.nrap.gov.af/

The National Emergency Rural Access Project (NERAP) is the main project reported on in the table and it was implemented by two different ministries. MPW was largely responsible for implementing a programme of secondary rural road improvement (component A) while MRRD improved tertiary rural roads (component B). Both enjoyed a measure of institutional strengthening, capacity building and program development as component C. While NERAP expenditure is more or less evenly balance between to two ministries, Table 2-2 illustrates the different focus of the two ministries.

[7] DFID is allocating funds to the Afghanistan Infrastructure Trust Fund as well as directly funding the Roads Rehabilitation and Maintenance Programme. Both these programmes tend to focus on highways rather than rural roads.

Table 2-2 NRAP Achievements since its Launch in 2002

PIU	Road/KM	Bridge/RM	Structure/RM	Routine maintenance/ km	Labour Days
NRAP/MRRD	4,012	2,450	78,359	2,914	6,178,702
NRAP/MPW	8,322	2,842	93,923	0	10,297,550
Cumulative	12333.93	5,292	172,282	2,914	16,476,252

MPW has constructed far more roads and bridges than MRRD. Most of these were roads linking provincial centres to the important towns and markets of their hinterlands and they were built to a higher standard than the tertiary roads of the MRRD network. MPW is reported to have undertaken no routine maintenance and while it employed more labour it averaged only 1,200 labourers per kilometre compared with 1,500 per kilometre of MRRD road.

This emphasis has shifted in the new rural road projects being agreed with the two ministries. As the more important secondary roads are built there is a much greater emphasis on the maintenance of the newly created network as well as the greater use of labour-intensive techniques. This characterises the current Afghanistan Rural Access Project (ARAP) launched in 2013. It will follow the MPW/MRRD dual implementation mode but emphasises the need for sustainability by stressing maintenance as well as public and private sector capacity building to enable the local administration to take ownership of a decentralised tertiary rural road network.

In addition to NRAP, MRRD has implemented a number of other rural access programmes with funding from the European Commission and the Counter Narcotics Trust Fund (CNTF), and from DFID for the Helmand Agriculture and Rural Development Programme (HARDP). NRAP also reports that it has worked with many other actors in rural road rehabilitation and construction such as Provincial Reconstruction Teams (PRT)[8], International Relief and Development, Inc. (IRD) channelling USAID funds and other International NGOs.

In addition NRAP has undertaken a Gender Sensitive Rural Access Study which suggested stark differences by gender group and age in the use of roads and other services provided by Transport programs. The results corroborated that access and mobility patterns are highly gender-differentiated due to strict socio-cultural norms. NRAP also has active social inclusion units within Project Implementation Unit (PIU).

There are also a number of other programmes in the MRRD e.g. the National Solidarity Programme (NSP) and the National Area Based Development Programme (NABDP) that are constructing rural transport infrastructure with local government involvement. These seem to be poorly coordinated with the NRAP.

2.1.4 Relevance of Project Experiences to rural transport/access

The above project experience and the continuing instability suggest that the security situation is critical to the initiation of an ASCAP programme. As well as the direct risk to the staff involved, movement constraints affect their ability to interact, advise and visit the field as well as incurring extra security costs to protect the safety of those involved with the research.

[8] PRTs are small teams of military and civilian personnel working in Afghanistan's provinces to provide security for aid works and help humanitarian assistance or reconstruction tasks in areas with ongoing conflict or high levels of insecurity. Most PRTs have been disbanded as ISAF forces have withdrawn. http://www.nato.int/docu/review/2007/issue3/english/

Another concern is the transitory staffing and organisation of existing institutions. The NRAP and its PIU in the MPW and MRRD are staffed by well qualified personnel, often recruited internationally or by the United Nations Office for Project Services (UNOPS) with attractive salaries and benefits. In contrast, their Afghan counterparts have much lower salary levels and are likely to be poorly motivated to engage in ASCAP research that may require flexibility and commitment. Similarly, the current institutional landscape (**Figure 2-1**) is likely to change in the medium term as the sector is reformed in line with the ANDS.

In spite of these challenges, the scale of the rural access problem and the level of funding provide an opportunity for ASCAP research to add value. However, the effects of the recent withdrawal of ISAF may increase internal stability and it is recommended that a cautious approach to the introduction of ASCAP research is adopted. This approach might also be narrowly focused on change/research than can be introduced by sharing regional experiences in say the adoption of rural road design standards and specifications.

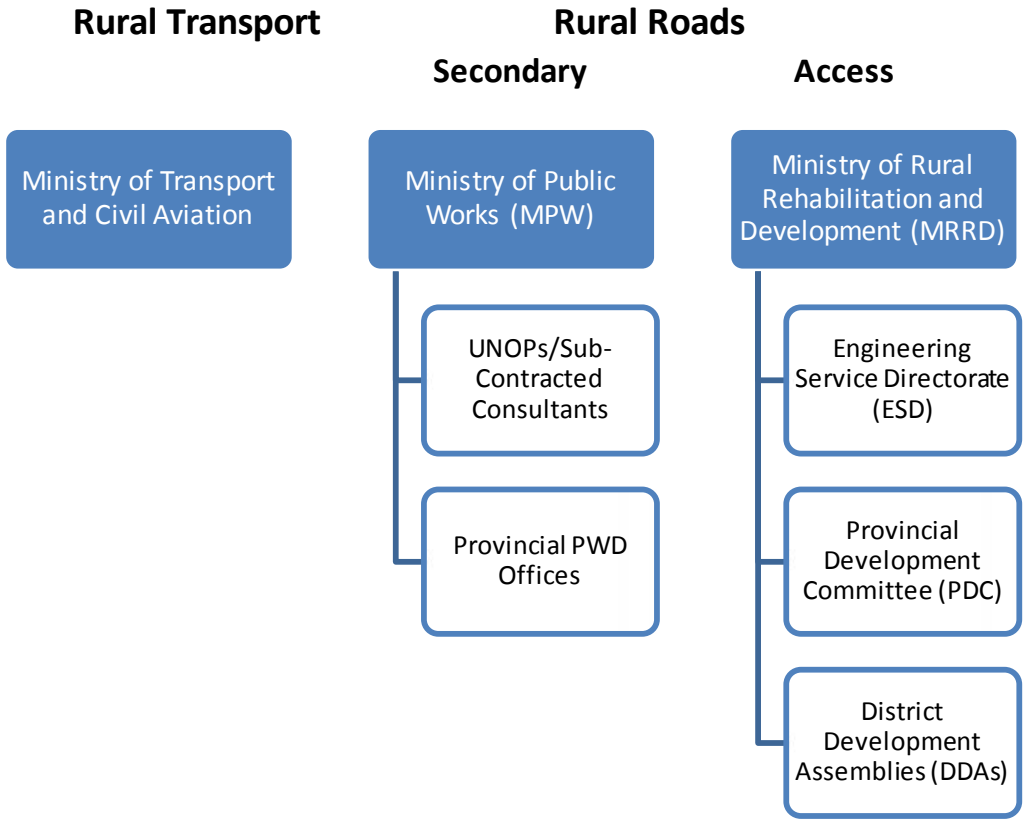
2.1.5 Potential Rate of Return on ASCAP Research

The National Rural Access Program (NRAP) Annual Progress report indicates that some 20% progress was made in 2011 on the implementation of the works programme summarised in Table 2 1. This is an annual expenditure of some $39 million, on which ASCAP research has a potential rate of return of up to $6 million.

2.2. Institutional Environment for ASCAP Research and its long term Sustainability

A number of ministries are involved in the operation and regulation of the transport sector, namely: the Ministry of Public Works (MPW), the Ministry of Transport and Civil Aviation (MOTCA), Ministry of Urban Development (MOUD), Ministry of Rural Rehabilitation and Development (MRRD), Ministry of Interior (MOI), and local authorities.

Figure 2-1 The Main Institutions Involved in Rural Transport in Afghanistan



NB The Afghan National Police is primarily concerned with national security/law and order.

As far as rural access is concerned, the MPW has been the leading civil engineering organisation responsible for the development, operation, and maintenance of regional and national highways and provincial roads in the country. The years of conflict have seen it lose most of its engineering staff and technical capacity so that its current focus is on administering aid-financed projects and executing GoA-financed minor construction and maintenance works. It has a rudimentary regional/provincial offices largely manned by poorly qualified staff and labourers.

MRRD is responsible for development of rural infrastructure, including rural roads and has less road engineering capacity. It has a stronger local government presence but there has been no national agreement to harmonise the number and range of sub national units working at the local level and it is unclear which local structure has been given rural road and transport responsibilities.

Both MRRD and MPW co-chair and jointly implement the National Rural Access Programme (NRAP), initiated in mid-2002 and now represented by ARAP and other donor-funded initiatives. The NRAP has a Programme Development and Coordination Unit (PDCU) in the Ministry of Finance (MoF); separate PIUs in each Ministry who monitor works through 9 regional and 34 provincial offices. .

MOTCA is charged with regulating the private sector transport industry. Currently, its main function is coordinating agreements between private sector and international transporters and establishing offices in neighbouring countries to facilitate international trade. Its other function is to collect licence/transit fees from private trucks and inter-provincial private buses at national or provincial borders or on the outskirts of major cities and provides some passenger and freight transport services using state-owned vehicles.

The Highway/traffic police unit of the Afghan National Police has been disbanded and presumably will only be reconstituted when the security situation is normalised.

2.2.1 Relationship between different actors, implementers and researchers

The ADB has assumed responsibility for lead donor in the transport sector but its main funding programme is focused on developing railways and the national highways. The World Bank is therefore the main multilateral donor involved in the rural road sector where it is providing both IDA grants and AFRTF management services to the ARAP. Bilateral interest in the rural road sub sector has dwindled as DFID, the Japanese Social Development Fund and the European Commission (EC) focused their attention elsewhere. The EC for example has focused on the development of rural livelihoods and governance in the north and east of the country.

There is a formal reporting/coordination process for the transport sector as a whole, which in turn reports up to the Infrastructure Development Cluster Secretariat.

2.3. Likely Impact of the Research

The impact of the research will depend on the political commitment of the GoA to the reorganisation of the transport sector. A strong centrally-based rural road agency within MRRD could be the institutional home for applied engineering research. It in turn would be responsible for disseminating any findings to the provincial level. At the moment, this agency function rests with the PIU of the NRAP, which is likely to be reformed before the end of the ANDS time frame.

Social science research in the universities and ministries is poorly developed. However, a market for research, monitoring and evaluation has developed but the sector supplying expertise is quite small.

Table 2-3 Research Organisations likely to be interested in ASCAP research

Government Institutions	University Sector	Policy/Research Bodies	NGO's and others
MRRD/Rural Road Agency Afghan Institute for Rural Development (AIRD) set up in MRRD in 2002 to undertake research to support rural development and training of government officials.	The Afghan Transportation Engineering Centre (ATEC) - part of the Engineering Partnership Research and Service Organization (EPRSO) at Kabul University [linked with Ohio and Kansas State Universities	Afghanistan Research and Evaluation Unit (AREU) is an independent research body (set up by donors in 2001). It undertook research on How Villages Differ and Why? Which considered access among other variables?	Bangladesh Rural Advancement Committee (BRAC), CARE International and the Mission d'Aide au Développement des Economies Rurales en Afghanistan (MADERA) are involved in the implementation of roads and structures in the National Solidarity Programme.
		Organisation for Sustainable Development & Research (OSDR) undertakes field surveys and research in, monitoring & evaluation, disaster risk management, sustainable development and agriculture capacity building.	Afghan Public Policy Research Organization researches in the areas of aid effectiveness and the political economy.
		South Asian Network for Development and Environmental Economics (SANDEE) is a regional network that uses economic tools and analyses to address South Asia's environmental challenges	

3. Bangladesh

Bangladesh is one of the least developed countries in the world and has the third lowest GDP per capita i.e. $958, of the six potential ASCAP countries. It is a low lying densely populated country of some 160 million people, two thirds of whom live in the rural areas intensively cultivating up to three crops per year. It experiences an intense monsoonal climate and is prone to a number of natural disasters ranging from rain-fed or river flooding to tidal surges driven by cyclones emanating from the Bay of Bengal.

Historically, Bangladesh formed the East Bengal wing of post-colonial Pakistan but became an independent country in 1971, after a short civil war. It occupies the confluence of the Jamuna (Brahmaputra) and Padma (Ganges) and their joint delta in the Bay of Bengal and is almost completely surrounded by India except for a short border with Myanmar in the south east. Bangladesh's transport has historically been dependent on its rivers and the complex network of waterways of the delta. This waterway network reaches its maximum size in the monsoon rains, when some 6,000 kms is navigable to small mechanized boats, shrinking to about 4,000 kms in the dry season.

Road transport dominates travel away from the river system and has become increasingly important as government has focused its infrastructure spending on this sector, neglecting rail and water transport. So much so that roads now carry 88% of passengers and 80% of freight being transported across the country (Jaman, 2012).

3.1. Potential for ASCAP Research to Add Value

3.1.1 Extent of the Rural Transport Problem

Bangladesh now has the highest road network density of the ASCAP countries, with more than 1.66 kilometres of road per square kilometre[9]. This has been achieved by focusing the majority of the transport development budget[10] on expanding the road network. This has meant that the planning and quality of the network has been poorly coordinated. Thus while the Roads and Highways Department has improved the quality and condition of the National Roads, it has neglected Regional and Zila Roads, which are poorly built and maintained. This condition gap constrains access to the Local Government Engineering Department (LGED rural road network (OPMAC Corporation, 2009).

This explains why nearly two thirds of Bangladesh's rural population is without access to the national road network during the monsoon season. Communities without all season access suffer from poor accessibility and road connectivity, higher vehicle operating costs and transport costs and face isolation during the rainy season. In addition, LGED has only received about a quarter of its maintenance needs and this further deteriorates connectivity and accessibility while rural road maintenance requirements continue to grow.

In addition, it is estimated that there are almost 70,000 (drainage) gaps, i.e. about one gap per kilometre, remain on the Upazila and Union road network. This is equivalent to 670,000 meters of bridges and culverts that are needed to allow rural access to all-season roads (RTIPII Appraisal Document).

The RTIPII Appraisal Document also states that the road safety situation in Bangladesh is serious and deteriorating, with the more vulnerable road users – pedestrians, poor people and children being affected the most. It has been supporting LGED to set up a Central Rural Road Safety Unit to manage ad coordinate road safety issues.

[9] http://knoema.com/atlas

[10] It is estimated that transport has taken some 15% of the countries annual development budget over the recent past

3.1.2 Existing National Transport Policies and Strategies and their relevance to rural transport and access

National Transport Policy

The National Land Transport Policy was drafted in 2004 with fourteen objectives most of which concerned government's role in regulating and managing the land transport sector to create a "proper physical and institutional infrastructure to achieve national development". The policy places a lot of emphasis on the national road network, its organisation and economic importance. For the rural road sub sector, it identifies a) the need to increase rural incomes through employment for road construction and maintenance, b) to provide paved connection between economic growth centres and the country's road network and c) to create closer linkages between rural development programs and rural transport as important objectives (IFRTD, 2010). The rationale for the latter closer linkages stems from the World Bank and the Bangladesh Institute for Development Studies (BIDS) impact evaluation of LGED's Rural Road I and Maintenance Project (RRIMP II) (BIDS, 2009; Khander, et al. 2011). These studies found that rural road investments helped reduce poverty significantly through higher agricultural production, higher wages, lower input and transport costs and higher output prices.

This inevitably links rural transport to Bangladesh's poverty reduction strategy where improving access to rural roads, irrigated water, fertilizer, electricity and credit is seen as important strategies in the government's current 2011-2015 Five Development Plan (Planning Commission, 2011).

3.1.3 Current and On-going Programmes and Projects

There are a number of on-going donor-funded rural transport projects addressing Bangladesh's rural transport issues Table 3-1. Also in its capacity as Technical Adviser to local government Pourashava, Upazila and Union councils, LGED engineers are involved in improving water management, urban and rural buildings, schools etc. throughout Bangladesh.

Table 3-1 New Projects Approved for Implementation in FY2012/13

Project Name	Implementation Period	Cost (Taka million)	Source of Funding
Sector: Rural Development and Institutions			
Feasibility Studies and Design of Bridges in 8 districts	July 12 to June 13	96.60	GoB
Rural Transport Improvement Project II	July 12 to June 17	33,430.50	IDA
Coastal Climate Resilient Infrastructure	July12 to June 18	12,300.00	ADB
Construction of Submersible Road in Kishoreganj District	Jan. 13 to Dec. 14	245.20	GoB
Construction of Bridge in Kishoreganj District	Jan. 13 to Dec. 15	448.90	GoB
Feasibility Studies and Design of Bridges in 2 districts	Jan. 13 to June 14	17.30	GoB
Rural Infrastructure Development Project Begum Rokeya	Jan. 13 to June 15	170.00	GoB
Northern Bangladesh Integrated Development Project	2012/13 to 2018/19	27,059.40	JICA
Road Improvement in Chapai Nawabganj District	Jan. 13 to June 14	207.90	GoB

Feasibility Studies and Design of Bridges in 3 districts	Feb. 13 to July 13	21.70	GoB
Barisal Rural Infrastructure	July 11 to June 16	6,380.00	GoB
Sector: Physical Planning, Water Supply and Housing			
Coastal Towns Infrastructure Improvement Project	2012/13 to 2016/17	433.40	ADB
Transit Orientated Development and Traffic Management in Gazipur	Jan. 13 to Jan. 15	102.70	ADB
Sector: Agriculture: Irrigation			
Capacity Development for Participatory Water Resource Management	Sept. 12 to Sept. 17	568.50	JICA
Sector: Transport			
Improvement of Roads and Bridges in Sylhet	2000- 2012/13	54.70	GoB
Sector: Primary and Mass Education			
Reconstruction and Repair of Primary Schools (Phase 2)	July 12 to June 13	13,962.36	GoB
Development of Non-Government Primary Schools (Phase 3)	July 12 to June 13	9,157	GoB
Establishment of New Primary Schools	July 12 to June 13	6,906.10	GoB
Establishment of New Primary Teacher Training Institutes	July 12 to June 13	2,562.30	GoB
3rd Primary Education Project	July 11 to June 16	60,840.92	various
Primary Education Project	July 12 to June 16	1,693.30	Islamic DB
Model Primary Schools	July 12 to June 13	150.00	China
Overall Total		176,808.77	

Source: LGED Year Book 2012/3. Exchange rate. BDT80 = 1US$

The World Bank is funding the Rural Transport Improvement Project II (RTIP II), one of the larger projects in the sub sector. The project started in 2012 and aims to improve rural accessibility in 26 districts as well strengthen institutional capacity to maintain the rural road network. It has three components:

1. Accessibility Improvement (budget US$338 million):
This sees a shift from building new roads to maintaining with some 49% of the budget being devoted to the latter compared with 43% to the former. In addition, some funds are set aside for improvements to rural waterways/river landing stages, Growth Centre Markets (GCMs)

2. Institutional Strengthening, Capacity Building and Governance Enhancement (US$11.9 million):
The institutional strengthening aspect aims to improve LGED's functioning through the implementation of an agreed Management Improvement Plan aimed at strategic enhancements in LGED's capacity, effectiveness, governance and accountability.

3. Rural Transport Safety (US$3.5 million):
The Component will include measures to integrate road safety in road design construction and public awareness 32. The project will also assist LGED to strengthen the recently established Central Road Safety Unit (CRSU) in its steps to develop road safety related guidelines and manuals and collect traffic accident data.

The Asian Development Bank has several infrastructure loans and grants consistent with the Bangladesh Country Partnership Strategy (2011-2015) that target assistance to vulnerable coastal areas in adapting to the risks of climate change. The Coastal Climate Resilient Infrastructure project outlines an integrated strategy and engineering approach, which is then implemented with key investments in water supply, sanitation, drainage, urban roads and bridges, solid waste management, slum improvements, and transport facilities for the vulnerable coastal towns (http://adb.org/projects/details?page=details&proj_id=44212-012).

The project in Gazipur forms part of ADB's Greater Dhaka Sustainable Urban Transport Project, and reflects the reliance of Gazipur Pourashava on LGED engineering expertise, which may prove to be short-lived as this Dhaka suburban town is merged to form an additional City Corporation (http://www.adb.org/sites/default/files/linked-documents/42169-013-ban-oth-03.pdf).

JICA are funding the Northern Bangladesh Integrated Development Project (NOBIDEP). This approach improves rural infrastructure as well as the administrative and financial capacity of local governments in the 14 upazilas or districts. This will improve access to social infrastructure for people living in the northern areas with a view to reducing rural-urban disparities.

All other projects are funded by the government of Bangladesh and deal with rural roads and water crossing structures that are bottlenecks to accessibility.

3.1.4 Relevance of Project Experiences to rural transport/access

The above project experiences suggest that there are a number of concerns/constraints that might benefit from research support from ASCAP:

The World Bank, ADB, JICA documentation highlights the importance of drainage and/or the absence of crossing structures for both connectivity and passability. Bangladesh's riverine geography means that crossing structures are important. LGED are also piloting the use of submersible roads as a climate change/flooding adaptive measure and further research might be appropriate here

LGED is receiving only about 25 percent of its actual maintenance requirements according to the RTIP II Appraisal. There should be an appropriate planning response to this shortfall is road asset values are to be preserved.

Finally, ADB is leading the way in alerting LGED and its ministry to the need for Climate/Hazard Proofing of its infrastructural investments. It is not clear how much of this future proofing has permeated the institutions and people affected.

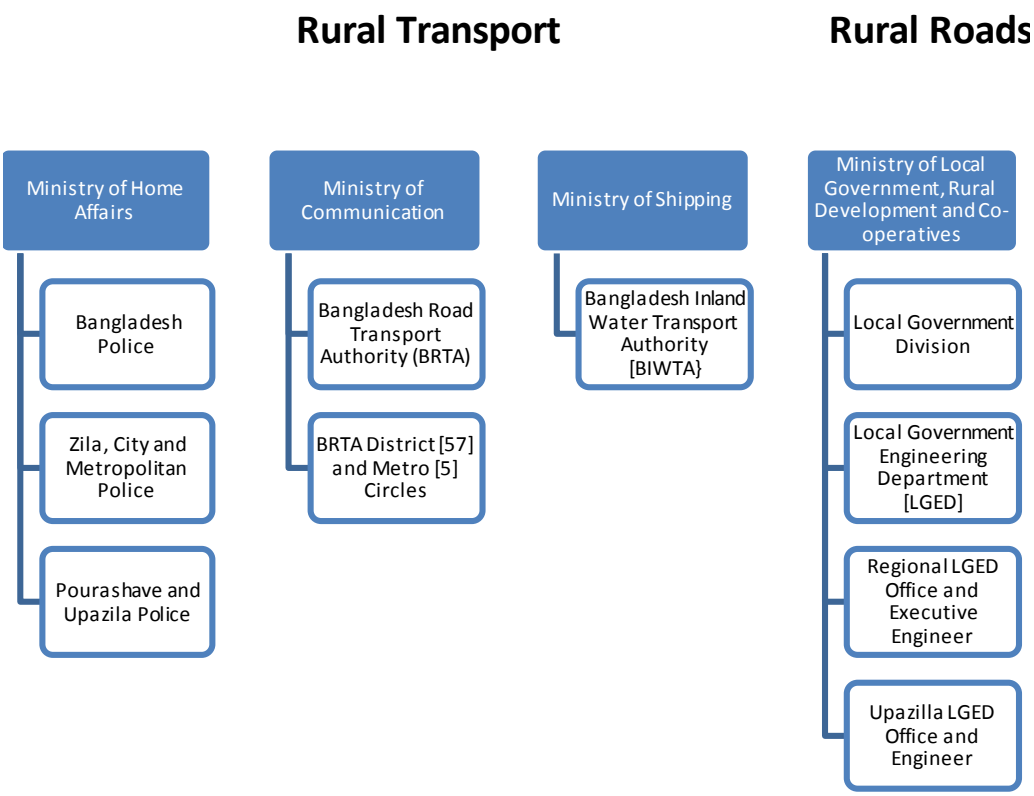
3.1.5 Potential Rate of Return on ASCAP Research

The LGED 2012/13 Annual Progress report indicates that some Taka 36,452 million was spent on road infrastructure and maintenance in this financial year (p.27). This is equivalent to an annual expenditure of $455.65 million, with a potential rate of return of up to $68 million depending on which ASCAP research is taken up in Bangladesh.

3.2. Institutional Environment for ASCAP Research and its long term Sustainability

There are a number of government institutions that could be involved with and benefit from ASCAP research See Figure 3-1.

Figure 3-1 The Main Institutions Involved in Rural Transport in Bangladesh



The Bangladesh Traffic Police are a department of the main police force which falls under the Ministry of Home Affairs. Their main function is to maintain traffic flows and check that vehicle and driver standards and documentation conforms to current legislation. As part of this function the traffic police collect and record road traffic accident data, using a standard form prepared by BRTA, who are then responsible for analysing the data.

BRTA, under the Ministry of Communication is the main regulatory body to establish the legal instruments to control, manage and ensure discipline in the road transport sector. BRTA prepares an Annual Report of Road Traffic Accidents using the above reported police data. It is analysed using MAAP (Micro-Computer Accident Analysis Package) but one of its shortcomings is that many accidents, particularly in rural areas are not reported (http://www.brta.gov.bd/index.php/road-safety). The website does not indicate whether this data is used for road safety engineering and auditing purposes by RHD and LGED but the National Road Safety Strategic Action Plan recommended this course of action (BRTA, 2011).

The Local Government Engineering Department (LGED) under the Ministry of Local Government, Rural Development and Cooperatives is responsible for some 37,819 km of Upazila Roads (UZR), 44,752 km of Union Roads (UR) and retains an advisory function for 215,774 km of un-adopted village roads. In addition, LGED is notionally responsible for some 24,000 km of rural waterways as well as other local government infrastructure notably more than 8,000 markets, 2,100 of which have been selected by the Planning Commission as priority Growth Centre Markets (GCM). In addition LGED undertakes infrastructure implementation projects on behalf of the Ministries of Agriculture, Water Resources, Primary and Mass Education and the Chittagong Hill Tracts Affairs.

BIWTA is responsible for all matters related to development, maintenance and operation of inland water transport and of inland waterways in Bangladesh. This responsibility mainly focuses on the 6,000 kilometres of main river channels and waterways that is navigable to mechanized boats in the monsoon season, shrinking to 4,000 kilometres during the dry

season. BIWTA claims that inland waterways carry over 50% of all arterial freight traffic and one quarter of all passenger traffic.

It has been noted that these different ministries and government agencies tend to adopt a narrow sectoral approach with no or very little coordination of their planning and implementation activities among themselves (Mahmud, 2005). LGED seems to be an exception to this since it is the main implementation agency working at the lower levels of local government community and s able to effectively design, manage and supervise works at this level.

3.2.1 Relationship between different actors, implementers and researchers

Table 3-1 indicates that the World Bank and ADB are the main multilateral donors currently involved in the road sector, supported by one bilateral --Japan/JICA. In the past, many more bilaterals were involved including DFID and all have supported the main objective of the Bangladesh's National Land Transport Policy to ensure that a) sustainable maintenance of roads and b) governance and corruption issues are addressed (ADB, 2011). In spite of this commitment, a number of bilaterals, including DFID have withdrawn from the sector and the recent passing of the Road Fund Board Act has not been matched by increased maintenance funding (ADB, 2014) suggesting that government is not yet fully committed to maintaining the road network.

Many of these donors and LGED have established good links with local NGOs and civil society, in the form of road user committees etc. all of whom would be interested in appropriate ASCAP research

3.3. Likely Impact of the Research

The widespread nature of rural poverty and the rural populations access needs has stimulated LGED to undertake a number of small-scale research projects. Two, the construction of concrete rollers and interlocking bricks are of relevance to the road sector and indicate that ASCAP research is likely to be welcomed in this government organisation. There are also a wide number of other research organisations that might be brought in to support and disseminate research findings. Table 3-2 below gives a preliminary list of organisations that may be interested in conducting ASCAP research.

Table 3-2 Research Organisations likely to be interested in ASCAP research

Government Institutions	University Sector	Policy/Research Bodies	NGO's and others
LGED has considerable in house research capacity, facilities and interest.	Bangladesh University of Engineering and Technology (BUET)/Accident Research Centre	Bangladesh Institute for Development Studies (BIDS) has undertaken a number of rural road impact studies.	Road Traffic Injuries Research Network (RTIRN) promotes research on road traffic injuries in low and middle income countries.
Central Rural Road Safety Unit (newly created in LGED under RTIPII)		TRRL has worked in Bangladesh on a range of research e.g. materials, traffic accidents etc.	Bangladesh Rural Advancement Committee (BRAC) has undertaken Traffic Accident Research and is campaigning for change/reform.
Bangladesh Road Research Laboratory is part of RHD and mainly involved in material testing		South Asian Network for Development and Environmental Economics (SANDEE) is a regional network that uses economic tools and analyses to address South Asia's environmental challenges	

4. India

The Republic of India has the largest economy and population of the six ASCAP countries and is a global as well as regional power, directly bordering Pakistan, Nepal, Myanmar and Bangladesh. The average GDP for its 1.2 billion people is some $1,499 per year. It has a federal constitution with devolved government to 29 states and seven federally administered union territories. These states and unions differ widely in their geography, culture and socio economic characteristics making generalisations about national rural transport changes and trends difficult to generalise. Thus, India has undergone an economic liberalisation programme over the last twenty years but its benefits have been mainly felt in the urban areas and rural poverty levels are still around 30% with much higher rates in some of the northern states. In spite of expanding automobile and motorcycle industries, both car and motorcycle ownership levels are relatively low and the majority of people are still dependent on public transport. This particularly applies to the less economically active states and across most of rural India where poorly maintained road and transport infrastructure constrain economic growth and development.

4.1. Potential for ASCAP Research to Add Value

4.1.1 Extent of the Rural Transport Problem

Rural transport is important in India as over two thirds of the country's population live in rural areas and rely on agriculture for their livelihood. The current rural transport problem facing these people revolves around three characteristics of the transport system – the provision of road access, the sustainability of that access and the volume of rural transport services using that access.

Rural road access can be said to have been addressed to a very high level. This is due to the implementation of the Prime Minister's Rural Road programme (PMGSY). This programme was initiated in 2000 with the objective of providing year round road access to all habitations of more than 500 people in general reducing to 250 people in hilly or mountainous areas. Since its inception the programme has constructed or rehabilitated more than 400,000 km of high specification rural roads and provided access to some 180,000 habitations. The overall cost of the programme is budgeted at $25 billion. It has been implemented in all States of the country with funding from the Federal Governments Central Road Fund with additional financial support from the World Bank and the Asian Development Bank.

When completed, the PMGSY will have rehabilitated/constructed close to 500,000 km of rural roads, some 20% of the total rural road network.

The programme is designed and financed from the federal level in Delhi through the Ministry of Rural Development (MRD). The operationalising of the programme is the responsibility of the National Rural Road Development Agency set up under the MRD. The implementation of the programme at the State level is under the management of the Public Works Departments or the Departments of Rural Development.

The programme is efficiently and effectively implemented and is a model for rural road programmes elsewhere. Nevertheless, it is unable to work on a major part of the rural road network that is in a poor condition.

The sustainability of the rural road network is however a problem. Funding for maintenance of roads is a States responsibility. The majority of the funds are sanctioned from the State budget[11] Recent studies carried out by the ILO Rural Road Project have shown that only limited resources from the overall maintenance allocation is provided for rural roads. This

[11] In recent years additional funds have been provided by the Finance Commission for the maintenance of State roads

lack of funding is reflected in the state of the rural roads which are not part of the PMGSY. Many of these roads have already fallen into disrepair and are in need of rehabilitation.

Finally, the provision of Rural Transport Services has been generally neglected by both the State and Federal government. Some studies have been carried out on the range of motorised and non-motorised modes of transport and on the socio-economic impact of rural road programmes and projects. However these studies were often donor driven and did not form part of any overall strategy by the government to foster transport services.

The development impact of these rural road improvements have only be address in a limited manner usually in the form of simple correlations which show that poverty levels are correlated with rural road density. However, these studies have not been widely recognised and there is little understanding on the role that improved access plays in the reduction of poverty and there is little concrete evidence of a positive association and the processes by which access address poverty.

4.1.2 Existing National Transport Policies and Strategies and their relevance to rural transport and access

Whilst there are a whole series of acts, regulatory instructions and legal decrees for the road network, there is no road policy as such. There is a Road Safety Policy developed by the Ministry of Road Transport and Highways. There is also a Rural Roads Maintenance policy developed by the Ministry of Rural Development.

4.1.3 Current and On-going Programmes and Projects

Table 4-1 Rural Road and Rural Road related Projects for 2014 & 2015

Ministry	Project/Programme Name	Funding Agency	Value of Funds to be disbursed in 2014/15
Ministry of Rural Development	Prime Minister's Rural Road Programme (PMGSY)	GoI	$4,150 million
		World Bank	$300 million
		Asian Development Bank	$245 million
Total	Prime Minister's Rural Road Programme (PMGSY)		$4,695 million
Ministry of Rural Development	Mahatma Ghandi National Rural Employment Guarantee Act	GoI	N/A
Sector Total	*It is n*ot possible to estimate the amount each State spends on rural roads since the overall road expenditure figures are not disaggregated.		

Table 4-1 indicates that the PMGSY is the main government response to the need for improved rural access in support of the Government's poverty reduction strategy. In addition, the MGNREGA (National Rural Employment Guarantee Act) is a country-wide programme constructing rural roads as part of its employment generating activities for the rural poor. The MGNREGA provides a guaranteed wage and a hundred days of unskilled manual employment for every "poor" household every financial year. This employment generating activity is tasked with creating sustainable social assets, including rural roads. It is generally recognised that the quality of the roads implemented by the programme is low. However, measures are now being taken to provide technical support to the local government offices responsible for programme implementation. Moreover the programme is developing improved methods of infrastructure selection to better reflect the needs and wishes of communities.

The 12th National Development Plan (2012-2017) emphasises the role of the PMGSY in improving rural access. However, it also notes that there is a large portion of the rural road network requiring improvement and that additional funds are needed for rural road maintenance. Currently the Finance Commission provides funds annually to the States to augment their maintenance coverage but this funding is not restricted to rural roads.

There are several nationally funded rural development programmes which are implemented at the State level. One limitation is that these programmes emanate from different central ministries and, in consequence, there is the risk of lack of coordination between these programmes at the State level.

4.1.4 Relevance of Project Experience to rural transport/access.

There has been a considerable body of local knowledge developed on the detailed technical aspects of rural roads engineering and construction materials. However, research on rural accessibility impacts, maintenance and rural transport services are hard to find. This suggests three knowledge gaps for possible ASCAP support:

1. ***Impact Evaluation***: Whilst access is being improved by the PMGSY and MGNREGA, little has been done to assess the impact of improved access. Studies on the PMGSY impact, for example, have been based on post construction qualitative research[12] without the benefit of a base line. Well-constructed research on impact is important for both programmes to justify continued funding for the programmes.
2. ***Rural road maintenance***: has only recently become an important topic[13]. Particularly there has been too little done on asset management. This would be especially useful to provide ammunition for both the States and the National governments in convincing politicians of the relevance of providing resources to this much neglected issue.
3. ***Rural transport services*** are an issue that has been generally ignored. It has been assumed that the growth in these services would automatically develop through the private sector because of improved access. This may be true in some cases but in poor areas other issues contribute to their development. The demand for transport emanates from the household and there is a need to better understand the household demand for rural transport. In addition, there is little understanding to the legal and administrative regulations governing rural transport services and this leads to constraints on potential service providers.

4.1.5 Potential Rate of Return on ASCAP Research

Table 4-1 indicates that over $2.3 billion is being invested in the rural roads sub sector annually. This is significantly more than any other potential ASCAP candidates and implies that a potential rate of return in excess $350 million, the highest of the six ASCAP countries. This means that there is significant economic potential for any ASCAP research that increases the implementation and targeting efficiency of Indian rural road sub sector.

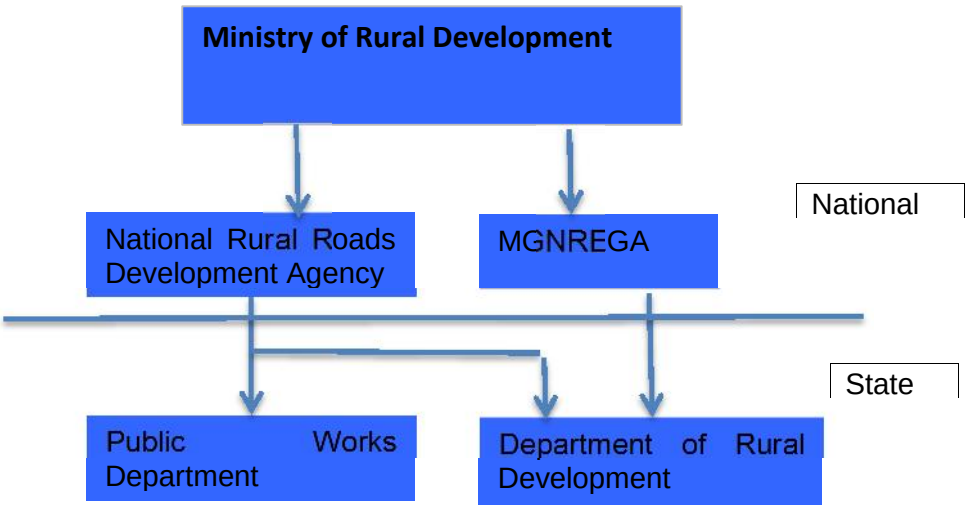
[12] In June 2014 the World Bank's report "Rural Road Development in India: An assessment of distribution of PMGSY project benefits in three states by gender and ascribed social groups". The report concluded that the PMGSY had brought significant benefits to the rural population. However it also noted that the government should direct policies towards maintaining existing rural roads rather than opening of new roads.

[13] Azad's article on rural road maintenance is one of the first to recognise the importance of this issue but his research was only carried out in Madhya Pradesh, the only State where there has been a full assessment of rural road maintenance.

4.3. Institutional Environment for ASCAP Research and its long term Sustainability

The overall structure of the management of the rural road sector is presented in Figure 4-1.

Figure 4-1 The Main Institutions Involved in Rural Roads in India



At the federal level, the MRD is responsible for policy, regulation, monitoring and evaluation of rural roads in the country. It has oversight and financial management of the PMGSY programme and prescribes the design and technical and financial procedures in its planning and implementation. This includes providing for a five-year, post construction maintenance period. In addition, MRD is increasingly involved in the MGNREGA programme where a considerable and increasing amount of funds are being targeted at rural road improvements.

For the PMGSY, either the Public Works Department (PWD) or working with the Department of Rural Development (DRD) in each state is responsible for the programming, procurement and implementation of these programmes as well as the remaining unimproved sections of the rural road network. For the MGNREGA, the DRD is responsible. It has de-concentrated some of its administrative functions to the district, tehsil and village level.

The Road Transport sub sector falls under the responsibility of the Federal and State Ministry of Road Transport and Highways. This Ministry has two wings, Roads and Transport and its responsibilities for the latter include:

- Motor Vehicle Legislation
- Taxation of motor vehicles
- Compulsory insurance for vehicles
- Promotion of Transport co-operatives in the field of motor transport.
- Setting National road safety standards
- Compiling data on road accidents and evolving a Road safety culture among the people in the country
- Providing grants to NGOs in accordance with laid down guidelines.

It is unclear which functions these responsibilities have been devolved from the Federal to the State Road Transport and Highways administration.

4.3.1 Relationship between different actors, implementers and researchers

ADB is also providing major support to the PMGSY in five central States. Technical assistance is also part of their support.

Coordination between the PMGSY and MGNREGA is effected through the Joint Secretaries of the MRD responsible for the respective programmes. There does not appear to be a

formal coordination process and it is left to senior officials in the Ministry (at least at Joint Secretary level) to coordinate the different programmes on an ad hoc basis.

In addition the Rural Roads committee of Indian Roads Congress is an important informal information sharing and dissemination mechanism to the wide variety of federal and state stakeholders involved in the sub sector.

4.4. Likely Impact of the Research

The scale of resources being invested in the rural road sub sector and its expected objective of reducing widespread rural poverty provides a significant opportunity for ASCAP. Conversely, the poorly coordinated approach and the need to link federal policy with state institutions responsible for their implementation provides both a strong challenge. In particular, ASCAP will need to convince the MRD of the relevance of its research to the work of the Ministry[14]. Luke warm or acquiescent approval would have serious implications both for the involvement of MRD staff but also for any entry point and traction with the states. It is vital therefore at the outset to present to a well-designed research outline with clear objectives in terms of policy objectives. They will also need to know what is expected from them in terms of counterparts and other resources. In this regard it is worth mentioning that is interested in all the three areas proposed and are likely to be supportive of a research programme which has applicable strategic outcomes for the government.

It would also be important to be involved with the Rural Roads committee of Indian Roads Congress[15] to ensure that they are at the least supportive of the work. At best it would provide an opportunity to interact with senior officials involved in the rural road sector at a working level. It would also be helpful to discuss the research programme with the World Bank which is a key partner for the MRD in the PMGSY programme.

Table 4-2 outlines these primary stakeholders and other potential organisations that might collaborate with the ASCAP programme.

Table 4-2 Potential Research Collaborators

Government Federal Institutions	Government State Institutions	University Sector	Policy/Research Bodies	NGO's and others
MRD	State PWD	Institute of Technology in Bhopal.	Indian Roads Congress (IRC)	ArriveSafe. NGO working on all aspects of road safety
Ministry of Road Transport and Highways	State DRD	Indian Institute of Technology, Delhi	Central Road Research Institute (CRRI)	
		Birla Institute of Technology, Pilani	National Council of Applied Economic Research	
			IMS Institute for Healthcare Informatics	

[14] In general, for a programme to be successful in India it needs a godfather or patron at the national level. Without that a programme it is unlikely to have traction at the states level. In addition, MRT is involved with higher level bodies such as the planning commission and the finance commission; both are extremely influential for government policy.

[15] The Indian Roads Congress (IRC) is the pre-eminent roads organisation in the country. Its mandate is to prepare documents for the government on all aspects of road planning, design documents and specifications which become the standard documents for those involved in the road sector. It works through a series of committees whose members give their time freely. The members are asked to serve on the committees and it is considered an honour to be so requested. As part of its work the IRC has technical committees working on various areas. One committee is working on rural roads.

5. Myanmar

Myanmar is situated between the densely populated South Asian states of India and Bangladesh and the dynamic economies of the China and South East Asia. It has been governed over the recent past by a military junta which adopted an isolationist policy in response to sanctions and boycotts due to its poor human rights record. Since 2011, Myanmar has begun to liberalise its economy and transitioning its politic system towards a democratic responsive state. This has been welcomed by the West and its regional allies, who have slowly increased the flow of development aid and technical support. It has an estimated GDP per capita of $1,105, which is dependent on the export of minerals, oil and gas. This disguises the existence of widespread poverty in the rural areas exacerbated by ethnic conflict in a significant part of the country. The geography of the country is characterised as a central lowland of river and rain-fed rice lands along the Irrawaddy (Ayeyarwady) river the home of the majority Bamar people, surrounded by hills and mountain ranges populated by a number of ethnic groups from the Chin and Rakhine in the west, to the Kachin and Shan in the north and north east to the Karen and Mon in the east and south east.

The country is served by a mix of road, rail and river transport which was designed to connect all regions of the country. This has left a legacy of uneconomic road and rail extensions into remote areas of the country where there is little economic development and traffic. Since the recent reforms, there has been a rapid increase in imported vehicles so that road transport is now providing the most important means of passenger transport. In contrast, rail and river transport continue to compete with road transport for the bulk transport of goods[16].

5.1. Potential for ASCAP Research to Add Value

5.1.1 Extent of the Rural Transport Problem

Myanmar's total road network is about 190,000 kilometres long; 38,000 kilometres of this is classed as highways and secondary roads, designed and constructed under the Public Works Department of the Ministry of Construction. The remaining 150,000 kilometres is a mix of poorly maintained village and town roads and tracks, administered by a number of government agencies often with overlapping responsibilities and funding. Local district and other rural roads will generally fall under the responsibility of the Department of Rural Development (DRD) within the Ministry of Livestock, Fisheries and Rural Development (MLFRD).

It is claimed that some 25,000 villages, populated by nearly 10 million people, have no road access. This situation is a legacy of Myanmar's command economy, military rule and severe economic sanctions resulting in:

- the lack of an overall strategy for rural transport sub sector,
- a fragmented institutional management structure,
- inadequate local and central budgets,
- state control of rural road planning and implementation,
- poor quality control and maintenance.

The majority of the rural road network comprises earth, gravel or stone macadam surfaced roads with limited lengths of bitumen surfacing (locally termed "tar roads"), with only about *5 reportedly in good condition. Many local road bridges are of timber construction. DRD has constructed 3,685 km of earthen roads, and improved 2,125 km of village roads to macadam

[16] The last transport study was carried out in 1991 and it indicated that about 50% of passenger travel was undertaken by road and 44% by rail. For freight, about 20% was carried by road, 30% by rail, and 40% by inland water transport. Thus, in 2009/10 it is reported that inland waterways carried 4 million tonnes compared with 2 million tonnes by road (Nam and Win, 2014).

standard and 940 km to bituminous standard since 2011. These roads tend to have a standard 3.65m (12 ft.[17]) pavement (Han Soe, 2013) since data on likely traffic levels is usually not available. Similarly, roads for improvement are selected by a top down process in which regional connectivity seem to be more important than local demand, thus DRD has been constructing three long inter-district roads that parallel the highways from Yangon to the Chinese border. The reasons for this considerable investment seem to be strategic rather than local socio-economic in nature.

The generally poor condition of the remaining rural road network and the inaccessibility of a significant proportion of the rural population is a significant constraint on the economic development of the countryside and exacerbate the sense of exclusion in the areas of ethnic conflict.

5.1.2 Existing National Transport Policies and Strategies and their relevance to rural transport and access

National Transport Policy

The political, economic and administrative reforms introduced since 2008, when Myanmar began its transformation process have been integrated into the Framework for Economic and Social Reform (FESR). It was launched in 2013 and sets out Myanmar's strategy to achieve the long-term goals of the National Comprehensive Development Plan (NCDP). It identifies an "Employment Guarantee Scheme for Public Works" as a quick win for government arguing that many types of rural infrastructure e.g. village and district roads, watershed development and irrigation works, afforestation and reforestation, can be constructed and maintained by labour intensive methods.

Myanmar, with JICA support, has recently launched a National Transport Master Plan, which advocates Corridor-based Transport Infrastructure Development focusing on national and regional growth centres, agro-industrial centres and special function growth centres. The transport investment is prioritised with the central North-South corridor from Yangon to Nay Pyi Taw, and Mandalay/Sagaing and the Chinese border at Muse being the most important growth axis. This corridor is estimated to contain 50% of the Myanmar's population and generates 60% of its GDP. The rural areas and their need for access have largely been overlooked by this study which largely focuses on transport's role in supporting Myanmar's economic growth and its regional integration and stabilising effect.

Rural transport policy is therefore related to the Integrated Rural Development Plan, laid down in 2001 which set out five key rural development objectives:

- Ensuring smooth and better transportation in the rural area,
- Securing water in the rural area,
- Improvement of the education standard of the rural populace,
- Improvement of health care system and
- Developing the agricultural economy.

Rural transport improvements are also subsumed within the National Medium Term Priority Framework 2011-2014 (NMTPF), the first part of Myanmar's National 20 year Development Plan (2011-30) (NDP). This seeks to increase agricultural production and improve rural livelihoods by helping communities to harness their physical, natural and human capital. This requires investment in rural transport infrastructure to enable farmers to access inputs and markets. The NDP envisages that this will involve providing all weather access to all of Myanmar's villages.

[17] Myanmar currently uses Imperial Units and all design standards, specification and testing documentation use this system. It is the intention to move to Metric Units and some current infrastructure projects have an agreement to use this system.

5.1.3 Current and On-going Programmes and Projects

While most international sanctions against Myanmar have been lifted, the process of political and policy reform has been slow. Myanmar's transport institutions have also lagged behind in developing appropriate strategies which bilateral and multilateral financiers might support. As a result there are a limited number of aid-funded rural transport programmes and projects being implemented and most development partners have concentrated on addressing their own priorities or outlining a country strategy. Thus the ADB support to infrastructure has sought to identify priority areas in order to define a medium-term strategy and road map for the transport sector (ADB, 2012). ADB also envisages supporting investment in rural infrastructure to increase agricultural productivity and marketing but this has yet to be formalised as a specific project.

In contrast, the World Bank has used "emergency" measures to expedite an $80 million grant to fund a National Community Driven Development Project (NCDDP) (World Bank 2012). This project aims to assist poor rural communities to identify appropriate community infrastructure that promotes access to social and economic services. The Implementation Completion and Results Report (2014) indicates that a third of the sub projects being implemented are transport-related. This project is currently being piloted in three remote rural townships before being generalised to 12 other townships[18], one in each region of the country.

KfW are funding a Rural Development Project in the Taunggyi District of Shan State with a Euro seven million grant with an overall objective of contributing to the sustainable economic development of the project region The project mobilised in 2014 and has adopted a "training by doing" approach in which DRD district and regional staff are supported by counterparts to plan, design, implement and maintain prioritised all weather local roads.

International NGOs (INGOs) do not have a strong interest in the rural transport sector. Their main focus seems to be the health and education sectors, conflict resolution and relief to displaced people affected by ethnic conflict.

5.1.4 Potential Rate of Return on ASCAP Research

It has proved difficult to get expenditure data on the rural road sub sector from official websites. Nevertheless, van Dissel, S.C and Starkey P (2014) estimate that the GoM has budgeted some MMK202 billion i.e. about $200 million for rural road improvements in this current financial year. It is also likely that the World Bank and KfW programmes with spend $2.9 and 3.5 million on their respective rural road programmes. This indicates an annual road investment expenditure of just some $202 million and a potential rate of return of up to $30.4 million for ASCAP research.

5.1.5 Relevance of Project Experiences to rural transport/access

The above project experiences suggest that there are a number of concerns/constraints that might affect research support from ASCAP. The complexity of the institutional landscape makes it difficult to identify an institutional partner that is stable enough to sustain and build on any research efforts and findings. Similarly, there are as yet no externally funded projects which could support and scale up an ASCAP research programme[19]. Some relevant issues:

- The long years of isolation have affected the rural road sector's ability to keep up with and adopt current developments and good practise.
- This "knowledge gap" begins with the need for the current relevant institutions to "know", manage and prioritise the upgrading of its network

[18] There are 330 townships in Myanmar.

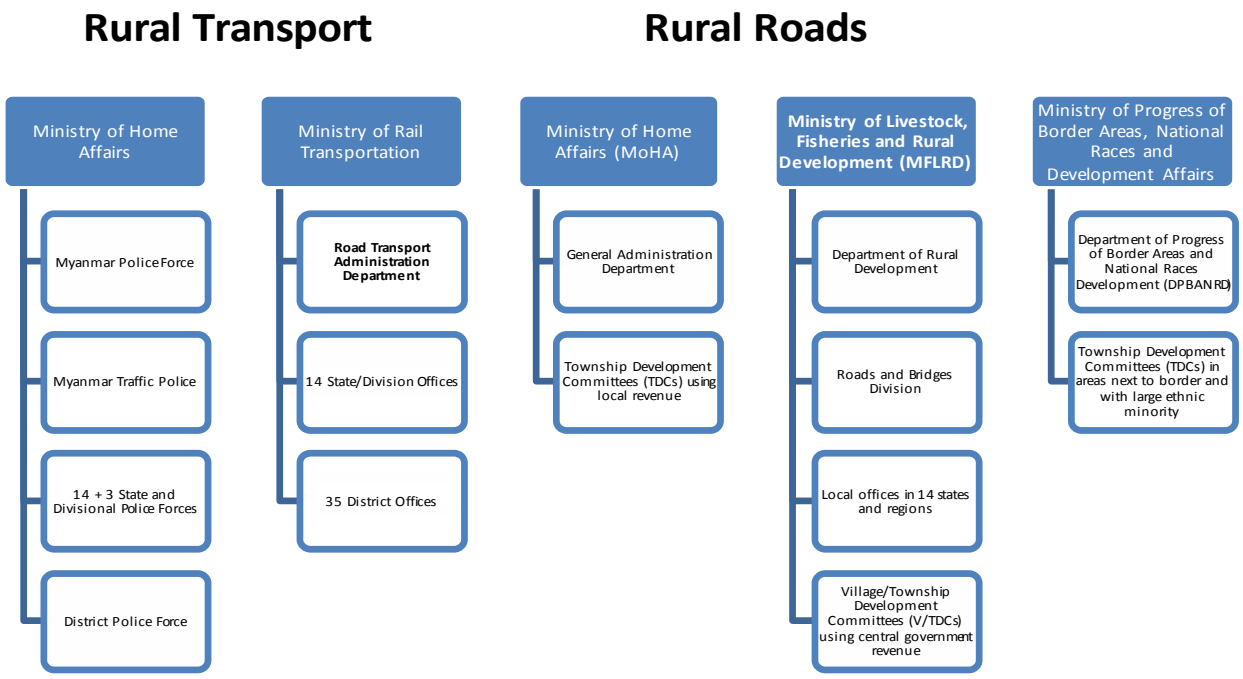
[19] It is understood that ADB and KfW will be initiating rural road projects in the near future and these may provide an opportunity for ASCAP research.

- There is a likely need to update the standards, materials and specifications being used to design and build rural roads and drainage structures (in conjunction with the move to Metric).
- There is the possibility of introducing low cost surfacing technologies that might supplement the current preference for macadam and bitumen surfaces.
- It is also reported that DRD has been allocated a maintenance budget for the 2013/14 financial year. Ideally this could be linked with a road asset management system that focuses on preserving the essential parts of the road network. Myanmar might welcome the introduction of advice and research on such asset management systems currently used in the ASCAP region.
- Finally, the vehicle population and motorcycles in particular are expanding rapidly and there does not appear to be a systematic system of collecting and analysing road traffic accidents, which is predicted to increase in line with the rapid increase of imported vehicles. Some research has been done on the impact of traffic accidents on the poor in Yangon (Thwe, P.P et al. 2013) but not on rural roads.

5.2. Institutional Environment for ASCAP Research and its long term Sustainability

Myanmar's transport sector is characterised by a complex and fragmented institutional structure (ADB, 2012) and there are at least five government institutions that could be involved with ASCAP research and they are highlighted in **Figure 5-1**.

Figure 5-1 The Main Institutions Involved in Rural Transport in Myanmar



The Rural Transport and Administration Department (RTAD) in the Ministry of Rail Transportation is charged with enforcing Myanmar's vehicle and traffic regulations and driving standards and while operations are decentralised to all the districts, vehicle registration is focused on the 14 regional and 3 additional regional offices.

It is assumed that the Traffic Police also collect and compile its road traffic accident (RTA) data but national safety policy and campaigns are managed from the RTAD.

This pattern of divided responsibilities also characterise the rural road sub-sector, where no less than three ministries are involved in developing and maintaining the network of local roads. The primary agency with overall responsibility for the rural road network is the Department of Rural Development (DRD) within the Ministry of Livestock, Fisheries and Rural Development. This Department provides technical support and central government/project funding to all regions and districts of the country. Its efforts are supplemented by local revenue raised by Township Development Committees under the Ministry of Home Affairs - a legacy of the need for self-reliance due to foreign aid restrictions in the recent past. In contrast, the Ministry of Progress of Border Areas, National Races and Development Affairs (MoBA) rural road construction reflects the need for access by government authorities and security forces to Myanmar's borders and areas of ethnic tension. This implies overlap and duplication in the 30% of the country covered by MoBA.

The rural road network appears not to be defined and there is no National Transport/Rural Access policy other than a stated aim by the National Development Plan of connecting all villages to the all-weather network by 2030. Current DRD estimates are that 40% of villages with 25% of the rural population have no road access, but there is as yet no planning process to prioritise this access need.

5.2.1 Relationship between different actors, implementers and researchers

After the initial establishment of multi-donor trust funds, donors to Myanmar seem to have embarked on a poorly coordinated approach to supporting the development of Myanmar. Riefel and Fox claim that there is an urgent need for donors to set up a coordination mechanism to discourage donor competition and "aid shopping" by ministries (2013).

The ADB seems to have taken the lead for the transport sector but it has yet to develop a programme of support to the rural road sector and a coordination mechanism with government and the other donors.

5.3. Likely Impact of the Research

The widespread nature of rural poverty and the intense nature of Myanmar's rural access needs means that ASCAP research has the potential to have a strong policy and programming impact in the targeting and implementation of current GoM expenditure. ADB considers that the transport sector will play a critical role in facilitating economic and social development in the country. An important priority is improved domestic connectivity through more efficient transport linkages between rural areas, markets, and urban centres.

There are however only a limited number of donors and other stakeholders to enable its results to be widely disseminated. Table 5-1 below gives a preliminary list of organisations that may be interested in conducting ASCAP research.

Table 5-1 Research Organisations likely to be interested in ASCAP research

Government Institutions	University Sector	Policy/Research Bodies	NGO's and others
Department of Rural Development in the Ministry of Livestock, Fisheries and Rural Development (MLFRD)	School of Economics and Finance, Yeungnam University	Myanmar Engineering Society	Myanmar Institute for Integrated Development (MMIID)
Ministry of Construction (Responsibility for National Standards)	Yangon Technological University	Myanmar Development Resource Institute's Centre for Economic and Social Development (MDRI-CESD) recently created "think tank"	
	Regional Universities and Training Colleges		

6. Nepal

Nepal is one of the least developed countries in the world and has the second lowest GDP per capita i.e. $694, of our six potential ASCAP countries. It is a landlocked country sandwiched between China in the north and India to the south. Historic ties and geographical conditions have orientated its transport system towards India and it uses India's eastern port of Kolkata as its main route to the sea. Nepal's largely mountainous terrain and intense monsoonal climate has restricted the extension of the Indian rail system into Nepal and as a result it is overwhelmingly dependent on road transport for the bulk of its freight and passenger movements in the southern lowland (Terai) and hill region of the country supplemented by air transport into the Trans-Himalayan and Mountains regions of the country.

6.1. Potential for ASCAP Research to Add Value

6.1.1 Extent of the Rural Transport Problem

Nepal's total road network is low in international terms and as a result less than half its population have access to all-weather roads. It is administered in two distinct ways. First, the Strategic Road Network (SRN), made up of the more important highways and feeder roads, is managed centrally by the Department of Roads (DOR) in the Ministry of Physical Infrastructure and Transport. In 2012, the SRN consisted of 25,115 km of roads linking the important urban and agricultural centres in the Terai and Hill areas of the country. The importance of this SRN is such that it receives the majority of Government and Roads Board of Nepal development and maintenance expenditure. Given these characteristics, the SRN largely falls outside the scope of ASCAP aims and objectives which are more in tune with the second network of decentralised local roads.

The Local Road Network (LRN) consists of some 60,000 kilometres of classified "district or rural roads" and unclassified tracks and trails plus a wide range of water and valley crossing structures, The responsibility for the LRN has been decentralised to the District and Village Development Committees (DDC and VDCs), which because of a limited local tax base rely heavily on central government transfers to fund any road development and/or maintenance. These organs of local government are technically weak and are reliant on the Department of Local Infrastructure Development and Agricultural Roads [DoLIDAR] for engineering and other technical support. Not surprisingly funding and capacity constraints fall short of the networks needs and the resultant condition of LRN is very poor with less than 20% being passable in the monsoon season (WB Appraisal).

The poor condition of the LRN, resultant high transport costs and poor connectivity with the SRN hampers the delivery of social services in the remote Hill and Mountain regions

6.1.2 Existing National Transport Policies and Strategies and their relevance to rural transport and access

National Transport Policy

The principal objective of the National Transport Policy drafted some 12 years ago was to develop a reliable, cost effective, safe, facility oriented and sustainable transport system that promotes and sustains the economic, social, cultural and tourism development of the Kingdom of Nepal as a whole. To achieve this, the Government of Nepal (GoN) separated central and local management functions and the Department of Roads (DOR) became responsible for the Strategic Road Network while the Local Road Network was decentralised to become the responsibility of the Ministry of Federal Affairs and Local Development [MoFALD] and the 75 Districts identified in the policy document. MoFALD in turn established DoLIDAR to become its technical service unit supporting the DDC and VDCs.

Current and On-going Programmes and Projects

There are a number of on-going donor-funded rural transport projects addressing Nepal's rural transport problem, which make up over 9% of the total ODA for 2014/15.

Table 6-1 List of On & Off Budget Rural Road Infrastructure Projects for 2014 & 2015

Ministry	Project/Programme Name	Funding Agency	Value of Funds to be disbursed in 2014/15 (US$)
Ministry of Federal Affairs and Local Development	Rural Access Programme Phase III	Department for International Development	45,189,669
	Local Roads Improvement Programme (LRIP)	Swiss Agency for Development and Cooperation	10,105,090
	District Roads Support Program (DRSP) Phase IV		154,426
	Motorable Local Road Bridge Program Phase I		10,650,362
	Trial Bridge Sub Sector Programme III		4,022,304
	Improvement of community access (Rural Road Bridge Program)	Japan International Cooperation Agency	6,202,749
	Second Phase of Decentralized Rural Infrastructure and Livelihoods	Asian Development Bank	2,428,973
Sub Total	Road Sector Development Project (SNRTP)	International Development Association	25,971,878
Sub Sector Total			104,725,451
Overall Overseas Development Aid for 2014/15			1,193,816,663

Source: Ministry of Finance 2014

The World Bank is funding the one of the larger projects in the sub sector – Strengthening the National Rural Transport Program (SNRTP). The project started in 2014 and aims "to enhance the availability and reliability of transport connectivity for rural communities in 33 districts". It consolidates and extends the gains made by the previous Bank funded Rural Access Improvement and Decentralization Project (RAIDP) by focussing on building up the capacity of the District Technical Offices (DTO) to construct and maintain their district roads, structures, trails and trail bridges. The project appraisal indicates that DTOs are struggling to upgrade seasonal roads and maintain year round access that communities demand and that this rural transport challenges is important to Nepal's development and poverty reduction.

The Asian Development Bank has extended its decentralized programme of infrastructural improvements into a second phase, consolidating what is considered to be a successful programme with an increased focus on road maintenance.

DFID are funding Rural Access Programme Phase III and the Karnali Employment Programme (KEP). The former has a significant rural roads program strengthening capacity to improve and maintain the LRN in 14 of the poorest districts of Nepal by labour intensive methods. The latter (KEP) is an important component of the Government of Nepal's social protection strategy in which, with RAP III and DoLIDAR support, local infrastructure is

constructed by labour-intensive methods in the poorer communities of Karnali region. One of its objectives is to construct some 500 kilometres of rural roads and maintain a further 3,700 km of roads in the five districts of Karnali.

The Swiss Agency for Development and Cooperation (SDC) -funded Local Roads Improvement Programme (LRIP) will help the Programme districts to annually maintain 750 kms of existing roads of high priority and importance, identified in the 'District Core Road Network' making them all weather; upgrade/rehabilitate 200 kms of existing roads and construct 100 kms of new roads to an all-weather standard.

JICA has selected rural transport infrastructure in five districts (Mahottari, Sindhuli, Ramechhap, Kavrepalanchowk and Sindhupalchowk) where it will reconstruct some 35 river-crossing structures washed out along 13 rural roads.

In addition there are a number of international NGOs with a long association with the rural transport sector. The most well-known of these is Helvetas which Swiss Development Co-operation funding pioneered the construction of suspension bridges and associated pack animal/porter trails in the remoter districts. This programme has largely been completed with the construction of more than 5,000 suspension bridges.

6.1.3 Relevance of Project Experiences to rural transport/access

The above project experiences suggest that there are a number of concerns/constraints that might benefit from research support from ASCAP:

The World Bank, ADB, JICA and SDC documentation highlights the importance of drainage and/or the absence of crossing structures for both connectivity and passability. Nepal's geography means that bridges are crucial as the hilly and mountainous areas feature many deep gorges and rivers that have to be crossed. SDC's long standing programme has funded the construction of more than 5,000 trail bridge and ropeways to address poor connectivity and isolation. However, once built these bridges suffer intense wear and tear, both from the climate and from frequent vehicle overloading. Seasonal rainfall can also subject bridges to enormous stresses, with many structures being damaged due to scour and the JICA project addresses this for five districts.

Project documents also stress poor and at time haphazard road construction techniques used on the less important Village and Agricultural roads. These often are not engineered and are not sustainable, inflicting significant environmental damage on unstable mountain slopes and valley bottoms.

The projects also indicate an importance shift away from development towards maintenance and the lack of local capacity to undertake sound maintenance works.

Examination of the popular press (http://www.nepalresearch.com/infrastructure/roads.html) highlights road accidents as another concern for potential ASCAP research.

Finally, many of the projects have undertaken a number of impact studies which provide insights into and affirm the importance of access to poverty and economic opportunities. These project-bound studies lack a longer term and independent perspective that ASCAP may be able to provide.

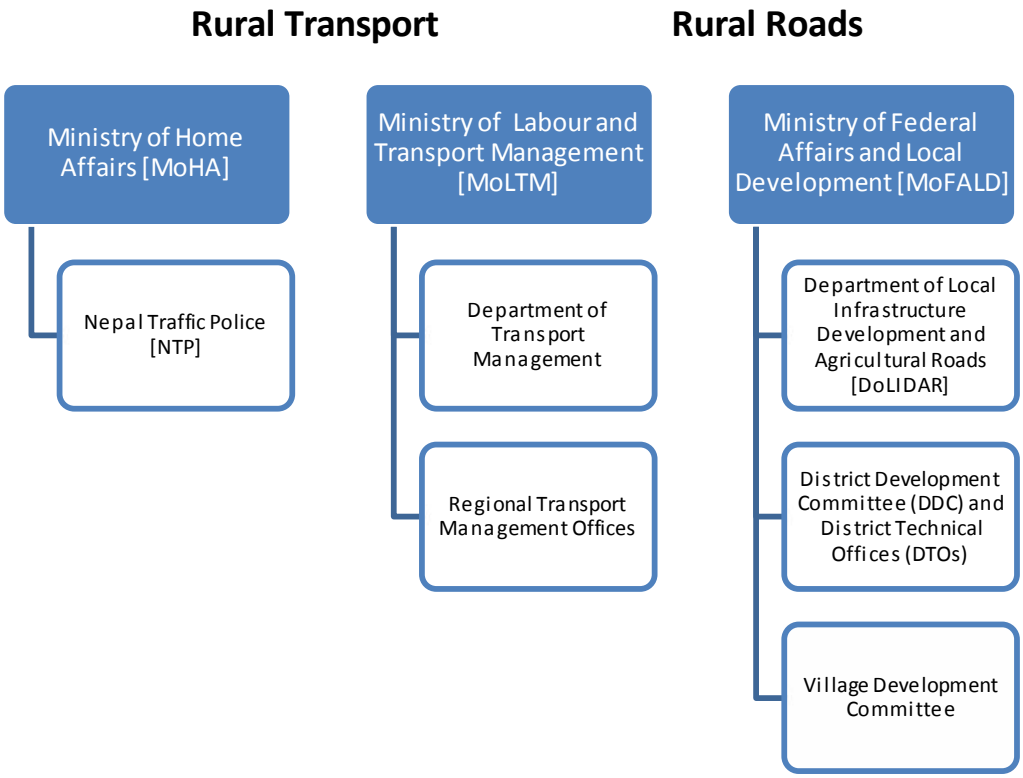
6.1.4 Potential Rate of Return on ASCAP Research

Table 6-1 outlines Ministry of Finance estimates of Overseas Development Aid expenditure on the rural road sub sector in the 2014 and 2015 Financial Years. This indicates an annual investment expenditure of some $596,908,332 and does not include the Nepali Road Fund maintenance budget or other central and local government expenditure. This suggests a potential rate of return of up to $$89 million depending on which ASCAP research is taken up in Nepal.

6.2. Institutional Environment for ASCAP Research and its long term Sustainability

There are a number of government institutions that could be involved with and benefit from ASCAP research, but the three highlighted in Figure 6-1 stand out.

Figure 6-1 The Main Institutions Involved in Rural Transport in Nepal



In addition to enforcing Nepal's vehicle and traffic regulations and driving standards the Traffic Police also collect and compile its road traffic accident (RTA) data through a network of local, district and regional offices. These data are consolidated at the Traffic Directorate in Kathmandu into the five development regions of Nepal and summarised in terms of the age, gender, vehicle involved and severity of injury of the casualties involved. This geographical analysis is such that it does not lend itself to addressing accident causes or the identification of black spots. Furthermore, there is limited coordination or networking between the TP and DOR and even less with DoLIDAR, where "very little attention has been given to road safety" (Road Sector Assessment Study, Annex 9A).

The Department of Transport Management (DTM) was established in 1985 to register, regulate and manage vehicles and drivers using Nepal's road network. Its purpose as defined by the subsequent Vehicle and Transport Management Act of 1993 and Vehicle and Transport Management Rules of 1999, is to provide safe, reliable and easy transportation service to the public and goods carriers. It achieves this by the registering and annually examining and licencing public transport and private vehicles to ensure that they are safe and fit for purpose. It also examines and issues driving licenses for different categories of vehicles to ensure that their drivers have reached a high enough standard of skill to become proficient and safe. A review of the literature suggests that the DTM uses dated procedures and does not have the resources and manpower to meet the expanding population and is ill equipped for research. Thus, the national road safety action plan proposed that it developed institutional capacity to undertake "scientific transport management" and highlighted the low priority DTM attaches to research into public transport vehicle accidents and school bus safety (page 12).

The Local Road Network as defined by the National Transport Policy consists of five types of physical access:

1. District Roads.
2. Village-Roads.
3. Agricultural Roads-.
4. Main Trails/Mule Tracks.
5. Village Trails/Mule Tracks.

The Department of Local Infrastructure Development and Agricultural Roads [DoLIDAR] is given responsibility for developing and maintaining this network under the overall management of the Ministry of Federal Affairs and Local Development [MoFALD]. In other words DoLIDAR acts as MoFALD's implementing arm for all GoN and donors funds provided for rural infrastructure including the transport sector. DoLIDAR in turn works closely with District Technical Offices (DTOs) that act as the technical wings of local government bodies (known as District Development Committees (DDCs) overseeing the more important District Roads. In contrast, the Village Development Committees are left to manage the less important Village and Agricultural Roads. Recent reclassification of District Roads has seen a significant increase in the number and length of District Roads to be managed by the DTO's and DoLIDAR.

6.2.1 Relationship between different actors, implementers and researchers

As Table 6.1 indicates, the ADB and World Bank are the main multilateral donors involved in the road sector supported by DFID, Japan/JICA and SDC bilaterals. They have established an informal coordination process and reportedly undertaken a joint risk assessment of procurement, financial management, and quality monitoring and evaluation in rural roads, education and health.

Many of these donors have established good links with local NGOs and civil society all of whom would be interested in appropriate ASCAP research

6.3. Likely Impact of the Research

The widespread nature of rural poverty and the intense nature of Nepal's rural access needs means that ASCAP research will have an immediate and strong impact. DoLIDAR is a sufficiently mature and stable institution to welcome and build on any ASCAP research initiatives that are instigated. There are also sufficient donors and other stakeholders to enable its results to be widely disseminated.

Table 6-2 6-2 below gives a preliminary list of organisations that may be interested in conducting ASCAP research**.**

Table 6-2 Organisations likely to be involved in ASCAP research

Government Institutions	University Sector	Policy/Research Bodies	NGO's and others
DoLIDAR	Institute of Engineering (IOE) of Tribhuvan University (TU).	Nepal Development Research Institute (NDRI) partnered appraisal research on Kathmandu - Terai fast track toll road as a Public Private Partnership.	Helvetas
DOR	Nepal Engineering College	Nepal Policy Research Network provides a long list of research organisations (not endorsement)	Road Traffic Injuries Research Network (RTIRN) promotes research and investments for road traffic injuries in low and middle income countries.
		South Asian Network for Development and Environmental Economics (SANDEE) is a regional network that uses economic tools and analyses to address South Asia's environmental challenges	The National Health Research Council (NHRC) is an autonomous body under the Ministry of Health and Population (MoHP) and is responsible for policy formulation and priority setting for health research in Nepal.
		Nepal Transportation and Development Research Centre (NTDRC)	

7. Pakistan

Pakistan is one of the more developed countries of the six potential ASCAP countries with GDP per capita of $1,275, second only to India. Lying between Iran and India, it is the main gateway into Afghanistan and central Asia with a strong south-west to north-east alignment of its transport infrastructure. It has a population of some 155 million people, two thirds of which are rurally based, dependent on agriculture with a high degree of indebtedness and poverty.

Pakistan's transport infrastructure is reasonably well developed. Its two main ports, Port Karachi and Port Qasim, handle 95 percent of all international trade, a small proportion of which is carried on the Pakistan Railways (PR) to the primary production and population centres in central and eastern Pakistan. Elsewhere, road transport is the backbone of Pakistan's transport system and it is estimated that the 11,604 km long National Highway and Motorway network, only 4.4% of the road network, carries an estimated 90% of Pakistan's total traffic (Ministry of Finance, 2014). Over the past ten years, road traffic – both passenger and freight - has grown significantly faster than the national economy, suggesting a modal shift away from the rail network. Currently, roads are accounting for 91% of national passenger traffic and 96% of freight.

Government agencies still are important in the sector and all though they function; road transport inefficiencies exist in the form of long waiting and traveling times, high costs. This poor quality of road transport services is exacerbated by the poor maintenance of much of the provincial road network away from the federally funded national highways and motorways.

7.1. Potential for ASCAP Research to Add Value

7.1.1 Extent of the Rural Transport Problem

Overall, the total road network in Pakistan is estimated by the Federal Bureau of Statistics to be more than 260,000 km with more than 100,000 kilometres being deemed local/rural roads under the jurisdiction of the District Councils. There are in addition some 50,000 of irrigation tracks and other undesignated tracks and trails some of which may be functioning as rural access roads. There is usually no federal or provincial budget to maintain these roads and the responsible district council do not see road maintenance as a high priority and it is left to local communities and stakeholders to maintain their roads usually on an ad hoc basis. As a result it is estimated that one in every five rural communities does not have access to an all-weather motorable road, and three in every ten communities have no transport services at all (Essakali, 2005).

7.1.2 Existing National Transport Policies and Strategies and their relevance to rural transport and access

National Transport Policy

There is growing recognition within the Government of Pakistan (GoP) that the sustainability of economic growth is closely linked to the efficiency of its transport system. To support sustained growth and increase competitiveness, the GoP is taking a strategic and holistic approach to the transport sector and has launched a major initiative to improve the trade and transport logistics chain along the north-south 'National Trade Corridor' (NTC)[20] linking Pakistan's major ports in the south and south-west with its main industrial centres and neighbouring countries in the north, north-west and east. Together the ports, road and railways along NTC handle 95 percent of external trade and 65 percent of total land freight serving the regions of the country which contribute 80-85 percent of GDP. In addition, China and Pakistan have recently signed an agreement to develop a China – Pakistan Economic

[20] ADB has been funding significant sections of this corridor since 2007.

Corridor (CPEC) this supplements the ADB[21]'s support for the NTC by upgrading port facilities motorways/highways and railways to the Chinese border.

This trade corridor initiative was stimulated by the National Transport Policy drafted some 6 years ago to promote national economic development. This policy also had poverty alleviation, safety and security goals which were to be achieved by coordinated planning and decision making. In addition, each sub sector and mode was given a set of specific policies and principles that were to guide planning, implementation, operations and monitoring of their sub sector. For rural roads these are:

1. Actions to impose or construct new roads will be based on established accessibility indicators such as minutes to walk to improved roadways, equity criteria, local priorities and realistic traffic forecast data.
2. Adopt creative financing practices through PPPs to enhance mobility and access efficiencies in the farm to market context of the rural economy.
3. Rural bus fares to be deregulated.

This policy built on work by Essakali (2005), who analysed the 2001/2 Integrated Household Survey data to show that primary school enrolment rates, literacy and immunisation rates and use of trained birth attendants were all positively associated with access to an all-weather motorable road.

The main strategic framework for rural transport improvements is the Federal Governments Poverty Reduction Strategy, which sees integrated rural development as the way forward Its principal aim is to improve the quality of life of the rural people by improving the rural economy and living conditions by enhancing agricultural productivity, water resources availability, improving rural infrastructure, providing social amenities, undertaking productive projects to meet local community needs, besides creating gainful employment opportunities (PRSP II, 2007).

7.1.3 Current and On-going Programmes and Projects

The federal governance structure of Pakistan means that most rural transport projects are devolved to the provincial level and subsumed into a rural or agricultural development project/programme, where the provision of rural roads forms part of a suite of infrastructure improvements and/or value chain investments[22]. An exception to this is the Federally Administered Tribal Areas (FATA) in North West Pakistan and Khyber-Pakhtunkhwa which are politically unstable and have a strong military presence in response to Taliban insurgent activity. Here, the World Bank, ADB and a number of bilateral donors, including DFID, have contributed to an Emergency Infrastructure Trust Fund to repair and improve road infrastructure damaged by or strategically important to the military campaign and the stabilisation programme.

Another exception is the Poverty Alleviation Fund (PPAF), a not-for-profit company founded in 2000. PPAF is currently receiving World Bank, IFAD and KFW funds and international corporate support for its programme. Its 2013 Annual Report indicated that its Community Physical Infrastructure (CPI) Unit had implemented 15% of its PKR490.5 million expenditure on road/bridge improvements across the country (PPAF, 2014).

In addition, there are a number of donor and federally-funded initiatives that are on-going and addressing each provinces rural transport problem either indirectly through provincial NGO's e.g. The Balochistan Rural Support Programme (formerly GIZ/KfW), the Sarhad Rural Support Programme in Khyber-Pakhtunkhwa and FATA (which has received. EU, CIDA, DFID, UNDP, UNICEF funding) or directly through the provincial government budget.

[21] DFID is currently developing a business case to support ADB in co-financing this investment.

[22] These may include clean drinking water supply and sanitation, education, health and market facilities and village electrification (Vision 2030, 2007).

As an example, the Punjab Provincial Government 2013 Annual Development Budget identifies sectoral priorities for its road and transport sectors to achieve the following objectives:

- Preparing an Asset Management Plan[23] for the provincial road sector and undertaking planned rehabilitation of roads that have outlived their design life.
- Construction of missing road links.
- Developing province-wide secondary arteries (covering north-south and east-west corridors) linking national motorways / trade corridors to foster economic opportunities via meeting expanding domestic and international travel and trade demands.
- Improving average road densities to achieve optimal traffic density levels in consonance with increasing transportation requirements and targeted economic growth in the province.
- Implementing initiatives to improve road safety and axle-load conditions to achieve substantial reduction in road accidents and avert premature road distress.

Table 7-1 2012/13 Budget Allocations for Roads and Transport in Punjab Province (Million Rupees)

Infrastructure	Type	Capital	Revenue	Total	F. Aid	Total
Roads	Ongoing	18,134	1,000	19,134	0	19,134
	New	13,911	0	13,911	0	13,911
	Total	32,045	1,000	33,045	0	33,045
Irrigation, Energy, Public Buildings and Urban Development	Ongoing	6,169	2,481	8,651	4,730	13,381
	New	11,933	3,946	15,879	595	16,474
	Total	18,102	6,428	24,530	5,325	29,855
Overall Infrastructure Total	Ongoing	24,303	3,481	27,785	4,730	32,515
	New	25,844	3,946	29,790	595	30,385
	Total	50,147	7,428	57,575	5,325	62,900
Transport		0	20	20	0	20
		50	6,130	6,180	0	6,180
		50	6,150	6,200	0	6,200
Overall Development Budget	Ongoing	33,422	44,296	77,717	8,462	86,179
	New	56,797	103,013	159,810	4,011	163,821
	Total	90,219	147,308	237,527	12,473	250,000

Source: http://punjab.gov.pk/budget_2012_13 NB US$ Exchange rate ranged from PKR94 to 98 in 2012/3.

[23] It is not clear if the achievement of this objective is linked to ADB's support to Sindh Province Work and Services Departments (WSD) to set up a road asset management system (RAM).

Funding for this amounts to some 13% of the total development budget and seems to be exclusively from Federal Government source. Further, examination of the schemes/projects that make up this budgetary provision points to a pre occupation with the well trafficked provincial highway, urban and secondary road network. There also does not appear to be any provision for routine maintenance of this provincial network.

Provision for the rural road sector clearly lies elsewhere and Regional Planning seems to be the main "budgetary home for rural road improvements and maintenance in Punjab Province[24]. Here five strategic interventions are identified but only one of them (No. 4) specifically refers to the improvement/construction of rural roads comprising 6% of project expenditure:

1. Southern Punjab Development Programme for schemes of strategic nature in 11 districts of Southern Punjab, having immediate impact in the neglected areas within the districts, benefiting maximum area and populace, quick disbursement and pro poor-jobs creation.
2. DFID assisted Punjab Economic Opportunities Programme in Bahawalnagar, Bahawalpur, Muzaffargarh and Lodhran for Skill Development and Livestock& Dairy Development.
3. Water Resource Development (through construction of 200 Mini Dams along with command area development of Potohar and Barani areas of Punjab
4. Provision of necessary infrastructure like roads and water supply schemes in Cholistan area.
5. IFAD assisted Southern Punjab Poverty Alleviation Project (SPPAP) for Bahawalnagar, Bahawalpur, Muzaffargarh and Rajanpur for Livelihood enhancement through assets creation and Agricultural & Livestock.

The first and last presumably include rural roads as part of their infrastructure provision but this probably is not the case in the DFID-funded Economic Opportunities Programme or the Water Resource Development Project.

Surprisingly, the Local Government and Community Development budget appears to be primarily concerned with urban centres and only two strategic interventions are identified:

1. The Punjab Municipal Improvement Services Project (PMISP). A World Bank's assistance Project sponsored by LG&CD for the provision of municipal infrastructure (water supply, sewerage, solid waste management, drainage, street lighting, roads, parks development, fire fighting and capacity building) in the selected TMAs.
2. Transforming Katchi Abadies into Social Housing. Funds have been allocated in ADP 2012-13 for transformation of Katchi Abadies into Social Housing through corporate sector.

Of these the PMSIP might offer opportunity to share design and implementation experiences for District Council roads.

Finally, the licensing and regulation of transport services provides a regular income stream that funds all capital budget needs of this sector and probably provides a surplus once the recurrent costs of the Transport sector are deducted.

This analysis of the Punjab Development Budget highlights the diffuse nature of rural road management and the marginalisation of District and Tahsil Councils in the flow of road development and maintenance budgets.

7.1.4 Relevance of Project Experiences to rural transport/access

The above project experiences suggest that rural roads are largely neglected by the mainstream Road and Transport sectors. Implementation and maintenance seems to have

[24] This administrative structure may not be applicable to the other three provincial governments or indeed the federally administered special areas.

been left in the hands of NGO's, the private sector, District/Tahsil councils and the communities themselves. The policy, design and planning needs of rural roads and transport seem also to be poorly catered for. These gaps represent possible entry points for ASCAP research within the provincial administration/sub sector stakeholders.

Other areas of concern include the sustainability of the investments, in terms of both maintenance funds and maintenance modalities and capacity.

Road safety and traffic accidents are also another knowledge gap that affects all levels of the network.

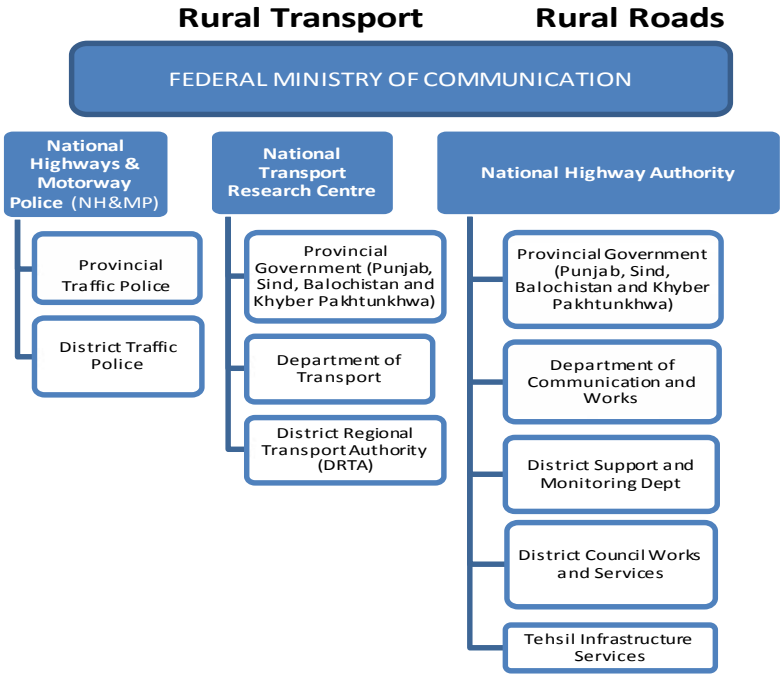
7.1.5 Potential Rate of Return on ASCAP Research

It has proved difficult to get expenditure data on the rural road sub sector from official websites. Nevertheless, Asghar, Awan and Rehman's analysis of government expenditure indicates that an annual average of PKR16.7 billion has been spent on rural development from 2002 to 2010. If we assume that 6% of this expenditure is spent on rural roads then this suggests an annual road investment expenditure of just over $10 million and a potential rate of return of up to $1.5 million. This is very low compare with the other ASCAP countries and it suggests an underfunded rural road sector, which may constrain ASCAP's ability to undertake research in Pakistan.

7.2. Institutional Environment for ASCAP Research and its long term Sustainability

The Constitution of Pakistan established the state as a federal parliamentary republic, comprising four provinces: Punjab (95 million people), Sindh (41.3 million), Balochistan (8.8 million) and Khyber Pakhtunkhwa (23.3 million). Each province has considerable autonomy and is responsible for delivering services in health, education, agriculture, and roads. The federal government's role is to make national policy and handle international aspects of these services, while the provinces can enact their own laws and delivery systems for each service. For the road sector this means that the Ministry of Communications is responsible for policing, establishing transport service standards and implementing works/maintenance on the motorways and designated national highways which service the economy and international trade along the earmarked trade corridors (highlighted in blue).

Figure 7-1 The Main Institutions Involved in Rural Transport in Pakistan



The four provinces are divided administratively divided into Divisions, Districts, Tehsils (sub-districts) and Union Councils, with each Union Council comprising a number of villages. This is an administrative structure which has failed to develop into a local government structure because both central and provincial government have not devolved any political, fiscal and administrative power to the Districts, Tehsils and Union councils (UNDP, 2014). This drive for decentralisation has been addressed by the passing of the 2013 Local Government Act by all four provincial assemblies. But this Act has yet to be operationalised by provincial governments and there has been no real devolution of power/resources as yet. Figure 7 1 outlines this federal, provincial and local structure with regards to the three main institutions that may be involved in rural transport research.

The organisation of the traffic police mirrors this governance structure in that the National Highways & Motorway Police are responsible for enforcing Pakistan's vehicle and traffic regulations and driving standards on the federal motorways and highways. The Provincial Traffic Police do the same for the provincial road network with the additional task of being responsible for issuing and collecting driving licenses. Both functions are de-concentrated across the province to offices established in each district (DPOs).

Transport services at the federal level are provided by the National Transport Research Centre, which has become the policy setting arm of the Federal Ministry and also undertakes appraisal and feasibility studies for federal road investments in the Trade Corridors etc. The provincial equivalents are the Transport Departments whose functions include the:

- Implementation of government policies for provision of affordable, comfortable and efficient transport services across the province
- Preparation and Implementation of Development Plans,
- Initiation of special public transport initiatives like subsidies, environment friendly transport etc. and
- Fixation and Regulation of Public Transport Fares.

The implementation and administration of these functions is de-concentrated to District Regional Transport Authorities (DRTAs) that regulate and monitor the provision and operation of public transport services in their respective districts. It is not clear what proportion of these services is using the rural road network.

Federal level road construction and maintenance is the responsibility of the National Highway Authority, while the Department of Communication and Works fulfils the same function at the Provincial level. This Department is responsible for planning and the execution, development and maintenance of all Provincial Roads and Bridges through an Annual Development Programme[25] funded by the federal government, crop cesses and foreign assistance. These functions are assigned to three Attached Departments: Highways, Architecture and District Support and Monitoring[26]. The latter is headed by an Engineer who provides technical support to the District and Tahsil councils as well as monitoring the financial and technical delivery of the works.

This structure effectively means that rural roads are developed and/or improved by Federal funds channelled through the Provincial Government usually in a top down process with little or no local participation. This federal/provincial funding is also responsible for maintaining the national and provincial roads but the maintenance of rural roads is left to District and Tehsil Councils. These latter two layers of administration have stated rural road service delivery and maintenance functions (Khan, 2006), but have no sustainable revenue stream to carry this out.

[25] Through a Medium Term Development Framework, currently set to run from 2012-2015.
[26] Note that this structure is taken from the Punjab Provincial Government website and it may not be applicable to the other provinces. http://www.punjab.gov.pk/communication_works

Finally, road safety awareness seems to be highest at the Federal and Provincial levels where both the police and engineering departments involved in highways and motorway construction have become sensitive of the need to prevent road accidents by public awareness campaigns and better road designs. There seems to be no systematic attempt to collect and analysis road traffic accident data and what research there is seems to be initiated from the hospital sector or on an individual interest basis (Cells 2 and 3 of the University Sector Table 7-2).

7.2.1 Relationship between different actors, implementers and researchers

The Federal government structure of Pakistan makes it difficult to identify a formal coordinating organisation and rural transport seems to have been overlooked by the federal and provincial organisations responsible for road construction and maintenance. Local government seems to be poorly resourced and many donors dealing with rural development/poverty seem to work through local NGOs. It is assumed that some of these are likely to be interested in appropriate ASCAP research

7.3. Likely Impact of the Research

The widespread nature of rural poverty and its linkage with the poor condition of rural roads augurs well for ASCAP research impact. The challenge will be overcoming the lack of coordination and diffuse way in which rural access needs are being addressed. Thus the Engineer in charge of the Attached District Support and Monitoring Department seems to be the main entry point to the rural road sub sector. Otherwise, there are indications that some NGOs and local organisations are capable of addressing this challenge and using research findings to champion Pakistan's rural access issues.

Table **6-2** below gives a preliminary list of organisations that may rise to this challenge.

Table 7-2 Research Organisations likely to be interested in ASCAP research

Government Institutions	University Sector	Policy/Research Bodies	NGO's and others
National Transport Research Centre (NTRC)	Taxila Institute of Transportation Engineering (TITE) active in road safety research	Pakistan Policy Research Network provides a long list of research organisations (no endorsement)	Sarhad Rural Support Programme (SRSP) is active in mobilising community involvement in infrastructure.
Attached Highways Departments of the Provincial Department of Communication and Works.	Road Traffic Injury Research and Prevention Centre involving the Jinnah Post Graduate Medical (JPMC), Aga Khan University Hospital, and NED University of Engineering & Technology		Rural Development Policy Institute (RDPI) lead NGO for IFRTD National Focus Group
	Dr Zahara Batool Department of Transportation Engineering and Management at the University of Engineering & Technology, Lahore	South Asian Network for Development and Environmental Economics (SANDEE) is a regional network that uses economic tools and analyses to address South Asia's environmental challenges	National Rural Support Program (NRSP) has been involved with community-based transport infrastructure (village roads, pathways etc.)
			Research and Development Foundation (RDF) active in community supervision of road works.

8. Proposed Research Timetable and Approach.

The six proposed ASCAP countries show a wide range of approaches to the rural road sector. This is a reflection of differing political landscapes and administrative set ups and as a result each country will present its own set of opportunities and challenges. At this stage it would be unwise to approach all the countries simultaneously and it makes sense to summarise the data in this report in order to identify those countries where the programme is likely to be welcomed. This draws on AFCAP I experience to identifying countries where there is:

- a significant need for improved rural access,
- a proven and voiced commitment by the partner country to address this and
- a commitment to low volume road and transport research.

AFCAP II has already done this for Sub Saharan Africa and identified five assessment criteria for the selection of partnership countries. These are:

Table 8-1 AFCAP II Country Assessment Criteria

S/N	Criteria	Rationale
1	Percentage of rural poor in the total population	Potential to impact on poverty reduction
2	Rural Accessibility Index (percentage)	Degree of rural access problem
3	Extent of unpaved rural road network	Potential to impact on construction and maintenance costs
4	Ongoing or planned investment programme in rural transport/rural roads sector	Potential for (a) leveraging other support and (b) research results to be applied
5	Partner Government ready to establish a research facility/centre and provide counterpart resources	Potential for sustainability

Source: AFCAP II Country Assessment Report

It is possible to adapt these criteria and score[27] the performance of each ASCAP country on them. The first two criteria are World Bank indicators derived from the website http://data.worldbank.org/indicator/ with the exception of Myanmar, where the poverty indicator (a UN estimate) was derived from the Indexmundi website (http://www.indexmundi.com/facts/). It was not possible to freely download the International Road Federation data for the third indicator: the extent of the unpaved rural road network, so indexmundi is used to get the percentage of the unpaved road network for each country. The use of this variable assumes that the rural road sector will mirror the national ratio of unpaved and paved roads.

The fourth indicator is drawn from an annualised estimate rural road expenditure reported under the Current and On-going Programmes and Projects heading for each country.

The fifth indicator is a subjective assessment of the institutional environment outlined for each country in the report. Here the LGED of Bangladesh scores highest because it is a well-established, dynamic organisation that has already undertaken research. It is followed

[27] Indicators 1, 3 and 4 with the highest value scored six, as did the lowest RAI value. The next highest, or lowest in the case of the RAI, scored 5 and so on until the lowest values were reached and given 1 point. The fifth indicator was a subjective assessment of the material downloaded from the website about the government institution responsible for rural roads.

by Nepal and India, who both have well established rural road institutions, albeit at the federal-level in India[28]. Myanmar scores 3 because of its complex institutional landscape and the blurred lines of responsibility and shifting institutional home of the Department of Rural Development. Afghanistan and Pakistan are scored equally because of their weak institutional "home" and the insecurity that affects the ability of rural road researchers to work in the countryside.

These scores are then be aggregated and ranked to highlight countries where ASCAP research is most likely to be welcomed and more easily sustained (Table 8-2). It is envisaged that the leading candidates (Bangladesh and Nepal) can be sensitised. and mobilised quickly compared with the low scoring less mature countries, where ASCAP will need to spend a lot more effort getting the programme mobilised.

In this regard, the federal governance structure of Pakistan seems to have produced strong national and provincial road sector institutions that overlook the needs of the rural road sub sector. So much so that Pakistan scores badly across many of the five criteria used in this analysis. The same bias presumably occurs in India but here a growing economy and the political drive to address rural poverty has seen the initiation of an ambitious rural road improvement programme the PMGSY programme. In spite of this favourable political environment it is difficult to identify an institutional home/entry point for ASCAP because most rural road planning and implementation decisions are made at the state level. Furthermore, it is suspected that national research institutions like the Indian Road Congress and Central Road Research Institute are more focused on federal policy issues and the federal road network rather than rural access.

[28] India has been given a lower score than Bangladesh and Nepal in spite of the fact that it has two large road "research" institutions i.e. the Indian Roads Congress and the Central Road Research Institute. It is possible that these organisations may afford an entry point for the next stage of ASCAP mobilisation but it is not certain how much of their research output is relevant to the rural road sub sector and indeed if ASCAP sponsored research will eventually feed into rural access policy, planning and implementation, which seems to be largely managed by India's state governments. Any revision of this low score does not affect the overall outcome of the ranking exercise.

Table 8-2 ASCAP Country Assessment Values and Scores

	Afghanistan	Bangladesh	India	Myanmar	Nepal	Pakistan
Percentage of rural poor in the total population	38.3%	35.2%	25.7%	32.7%	27.4%	27.0%
Score	6	5	1	4	3	2
Rural Accessibility Index (percentage)	0.22	0.37	0.610	0.23	0.17	0.61
Score	5	3	1.5	4	6	1.5
Extent of unpaved road network	71%	91%	51%	88%	46%	28%
Score	4	6	3	5	2	1
Ongoing or planned investment programme in rural roads (million $)	39	456	2,348	202	597	10
Score	2	4	6	3	5	1
Partner Government is established and has a research facility/centre.	1.5	6	4	3	5	1.5
Overall Score	18.5	24	15.5	19	21	7
Rank	4	1	5	3	2	6

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