

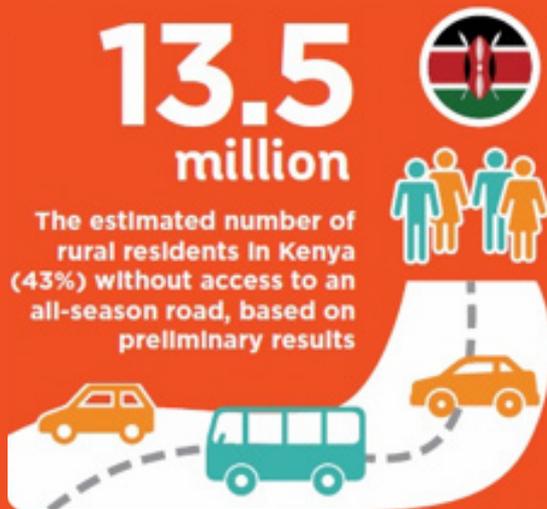


## ISOLATION AS A PRIMARY DRIVER OF RURAL POVERTY

### What is Rural Isolation?

58% of developing country populations live in rural areas, yet 78% of the extreme poor are located in rural areas. In his seminal work, "Rural Poverty Unperceived," Robert Chambers linked rural indigence firmly to isolation. "If a rural area cannot be easily reached, if people living in the rural area cannot easily travel, if the flow of goods and services in and out of that area is physically difficult, unreliable or expensive ... these are the characteristics of isolation."<sup>1</sup> Presently, one billion people worldwide lack access to an all-season road and thus live isolation. Poor people recognize isolation as a major contributor to their poverty and marginalization.

Figure 1. Number of rural residents in Kenya without access to all-season road



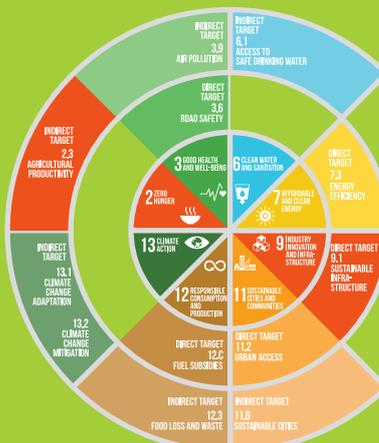
### Isolation Causes Poverty

Isolation constrains rural economic development, makes access to markets difficult and expensive, lowers producer prices and thus rural incomes. It has negative impacts on productivity because the access to agricultural extension services is hindered and few incentives are provided for farmers to increase production. Isolation also hampers the access to sources of non-agricultural income.

Poor access to schools and health services lowers educational levels, fosters diseases and increases child mortality. Thereby a vicious circle is induced where lower education and health standards will entail a lower level of productivity and thus generate smaller incomes, less savings and lower capital formation.



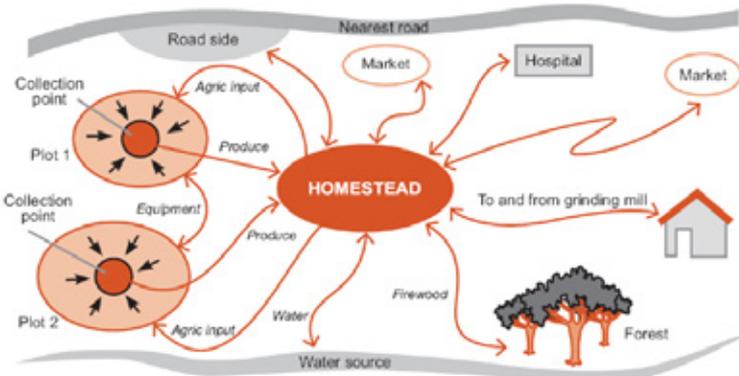
Figure 2. Rural Transport Contribution to Sustainable Development Goals



## Internal access within the village

From the viewpoint of a rural inhabitant, most transport activities are undertaken within the village, mainly to satisfy subsistence needs such as accessing energy and water supplies, tasks which are achieved within seconds in industrialised countries. In Africa it is common that domestic transport tasks consume 30% to 60% of the travel time of rural households (Barwell 1996). Agricultural products are collected at the plots, transported to the homestead or storage facility and from there directly to the roadside, to buying points or to local and regional markets. Women often carry more than 80% of the transport burden.

Figure 2. Internal access in the village



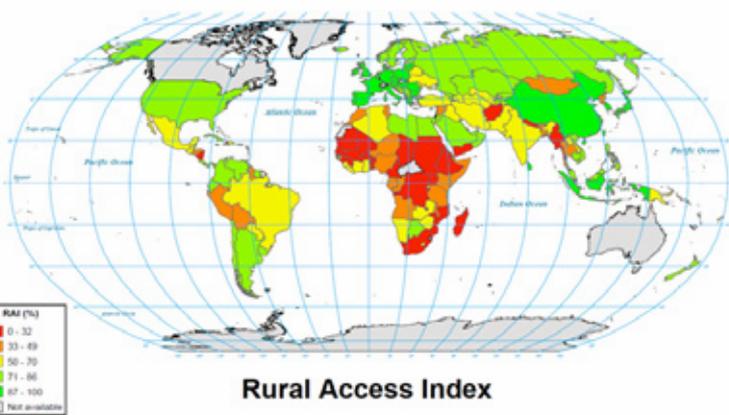
Source: Gebresenbet, O'Neill, Mutua, & Oram 1997

## External access from the village

Even though most trips are within the village, external access is crucial to reach markets, social services and places of employment. However, many villages can only be reached through footpaths, tracks or roads that are not passable during the whole year. A dirt road may be unpassable for days during rains or a water stream may prohibit the passage of motor vehicles.

The Rural Access Indicator (RAI), developed by the World Bank<sup>2</sup>, measures the number of rural inhabitants within two kilometres of an all-season road (i.e. one that is motorable year round by the prevailing means of rural transport), which is the equivalent to a walk of 20-25 minutes. Worldwide, more than one billion people do not have adequate access to transport. Regionally 90% of the rural population in East Asia and the Pacific enjoy sufficient access to transport as defined by the RAI, compared to only 34% of their counterparts in Sub-Saharan Africa.

Figure 3. Share of population within 2 km of walking distance from next all weather road



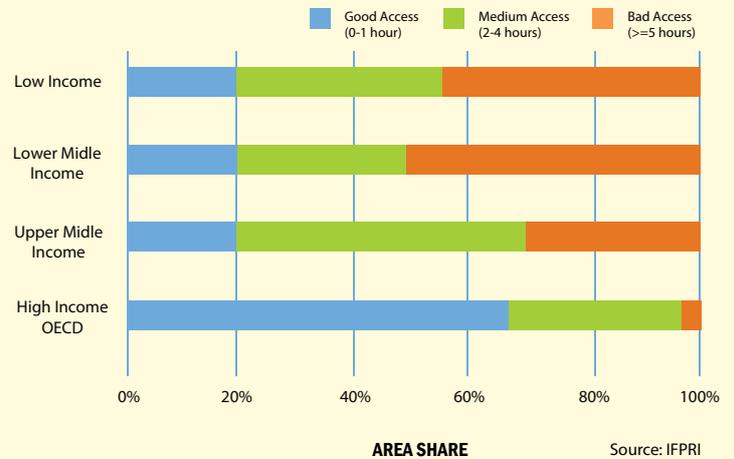
Source: FPRI: International Food Policy Research Institute <http://www.ifpri.org/>

## BENEFITS OF IMPROVED ACCESS

If farmers have poor or no access to markets, they are excluded from the monetary economy, which forces them to remain in a subsistence economy and thus in poverty. Access to markets is a condition sine qua non for rural development. 45% of the land area in low income countries (LIC) and 51% of the land area in the lower middle income countries (LMIC) is located more than five hours away from the next market.

## Impacts of improved access to markets

Figure 4. Market access in rural areas



Source: IFPRI



Photo: Niklas Sieber

Providing access to markets can induce a "Transport Induced Local-Market Development" (TILD) that helps rural people to escape the poverty trap (Mu and Walle 2009). World Bank research in Vietnam found significant impacts of a rural road project "on the presence and frequency of markets and on the availability of various services."<sup>3</sup>

## Impacts of improved rural access on employment and poverty

Rural road investments in Bangladesh reduced "poverty significantly through higher agricultural production, higher wages, lower input and transportation costs, and higher output prices"<sup>4</sup>. Research in Ethiopia<sup>5</sup> revealed that "access to all-weather roads increases consumption growth by 16% and reduces the incidence of poverty by 6.7%." Significant effects of rural roads are observed through the generation of employment in Nicaragua<sup>6</sup> through direct employment in road works and indirect employment in the non-farming sector. In Vietnam a significant number of rural households are switching from agriculture to service-based activities.<sup>7</sup>



Photo: Niklas Sieber

## Access to education and health facilities

A broad consensus exists amongst researchers regarding the positive effects of rural roads on accessibility to social services and places of employment. A survey<sup>8</sup> in Cambodia found that rural road improvements increase attendance in primary school (marginal change), lower secondary school (26%) and upper secondary school (16%). Research in Brazil<sup>9</sup> found that rural road improvements increased school attendance, particularly for girls. A study in Vietnam<sup>10</sup> confirms the “early and sustained impacts of improved access on primary school completion rates.”

Another important impact is improved access to health facilities. Between 40 and 60 percent of people in developing countries live more than eight kilometres from a healthcare facility. Babinard and Roberts (2006) reviewed many studies from around the world to highlight how poor access was a major cause of peri-natal mortality, with an estimated 75% of mortality resulting from inadequate transport to access basic health facilities and/or transport for referrals to hospitals. In Cambodia, a road rehabilitation programme increased attendance at rural health centres by 36%<sup>11</sup>.



Un centre médical rural au Mont Kenya  
Photo: Niklas Sieber

## Impacts of rural road improvements in Cambodia

The German Financial Cooperation (KfW) and the Government of Cambodia conducted a major impact assessment study on Cambodia's Rural Infrastructure Programme II (RIP II) and observed a number of positive effects.

- An average increase of 197% in annual household incomes, and a reduction of 37% in total annual household transport costs.
- A reduction of 15% in average unit transport costs, and a reduction of 56% on average transport time.
- An increase of 86% in average daily traffic along programme roads, and a 139% increase in motorized vehicles.
- Agricultural production increases for rice (11%), grains (4%), cassava (146%), fruits (16%) and vegetables (23%).
- 74% of respondents in the household survey perceived that improved roads have helped in the marketing of their products and in the improved flow of goods into the villages.



Le Cambodge  
Photo: Reiner Koblo, KfW

## STRATEGIES TO REDUCE RURAL ISOLATION

### Types of access infrastructure and means of transport

Most of the trips within a village are undertaken on footpaths, tracks, trails and roads. For travel outside the village, earth, gravel and paved roads, bridges and river jetties for water transport are used. Rural roads are often unpaved and narrow, often a single lane, and carry very low daily traffic volumes (generally below 200 vehicles per day). The quality of infrastructure may vary depending on weather, season, construction, and maintenance, and some means of transport require certain infrastructure standards to operate effectively.



La Tanzania  
Photo: Niklas Sieber

The most common mode of transport is walking and headloading a load of up to 20 kg at an average speed of 3 km/h. If larger quantities must be moved or longer distances must be covered, motorised means or Intermediate Means of Transport (IMT) may be used<sup>12</sup>. The poorer the rural area, the less motorised vehicles are available; therefore, “roads are not enough”.<sup>13</sup> The large majority of rural inhabitants is too poor to afford a motor vehicle and in extremely poor areas even a bicycle. More information may be found in SLoCaT's Rural Transport and Agriculture Factsheet.

### Improvement of Rural Transport Infrastructure

Access is often constrained by infrastructure that is not passable during heavy rains or potentially during the whole rainy season. In Sub-Saharan Africa and Latin America less than 15% of roads are paved and thus provide an all season access. The problem is exacerbated through inadequate maintenance of earth roads and tracks that results in rapid deterioration and increases transport costs tremendously.

A first step in providing all-season access to the one billion people that live in isolation would be to improve maintenance systems to a standard that does not allow fast deterioration. This requires political will to provide the necessary public funds and improve maintenance systems. Additionally, the concept of basic access is appropriate since it provides “the minimum level of infrastructure network service required to sustain socioeconomic activity”<sup>14</sup>. This may be achieved through appropriate construction standards, where the majority of roadway comprises lower cost infrastructure, and higher cost investments are undertaken only in critical spots.



Kenya Pothole and Agricultural Transport  
Photo: Niklas Sieber



Since the provision of roads is not sufficient to provide rural access and private ownership of motor vehicles is low in developing countries, the role of transport services cannot be underestimated. "Efficient, reliable and affordable transport services play an essential role in promoting growth and reducing poverty"<sup>15</sup>. However, rural transport services in many developing countries show major deficits regarding speed, reliability, safety, comfort and affordability. Buses and taxis are often overcrowded, utilising often 150% of their capacities, driving at high speeds on bad roads (after letting passengers wait for hours to fill up the capacity)<sup>16</sup>. The growth of the usage of motorcycles poses additional safety problems.

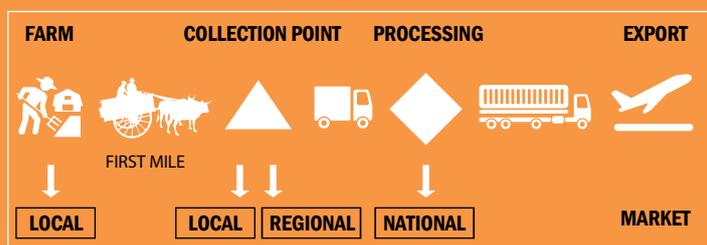
The most common passenger complaints, particularly in the more remote rural areas relate to a lack of services, especially a shortage of emergency transport and unaffordable transport fares. These problems are caused by low density of demand and bad road conditions, both resulting in low supply, little competition and an inefficient market that enables service providers to maximise profits while offering substandard services.

## Improved Access Through Modern Logistic Chains

70% of the population in Least Developed Countries is engaged in agriculture<sup>17</sup>. Modern logistic chains can help farmers to access new markets and thus increase their incomes. The diagram shows that the logistic chains start within the village where the goods are transported on the "first mile" to the collection point, which can make up to one fifth of the total transport costs. The costs may be reduced through the usage of Intermediate Means of Transport (IMT).

The rest of the transport chain is conducted with cooled vans or trucks to regional, national or international markets. Complements such as low cost cooling devices, grading sheds, safeguard of quality standards and organisation of producers is required to reduce food loss and increase farmers' incomes. Experience from Kenya shows that modern logistic chains, especially for high value crops, provide large benefits for small and medium scale farmers<sup>18</sup>.

Figure 5. Transport Contribution to Sustainable Development Goals



Source: KENDAT, IFRTD, TCP International (2013): Rural Logistics for Smallholder Farmers to Meet New Agricultural Market Demands: Analysis of various Horticultural Value Chains, Project AFCAP/GEN/060

- Hine, J. and P. Starkey (2014): Poverty and sustainable transport: How transport affects poor people with policy implications for poverty reduction, A literature review, ODI, UN-Habitat, SLoCaT.
- Roberts, P., K.C. Shyam and C. Rastogi (1996): Rural Access Index: A Key Development Indicator, Transport Papers 10, World Bank, Washington DC.
- Sieber, N. (2009): Leapfrogging from Rural Hubs to New Markets, Rural Transport in Developing Countries; Transport Toolkit, The World Bank
- SLoCaT Partnership (2015): Financing Rural Transport Services in Developing Countries: Challenges and Opportunities, Draft Discussion Paper
- SLoCaT Partnership (2015): Factsheet on Rural Transport & Sustainable Development <http://bit.ly/1n0HzeR>
- SLoCaT Partnership (2015): Factsheet on Rural Transport & Agriculture <http://bit.ly/1RmzkWA>
- Starkey, P. (2007): Rural Transport Services in Africa, SSATP Working Paper No 87-B, World Bank, Washington.

## This fact sheet was developed by:



ReCAP is a research programme, funded by UK Aid, with the aim of promoting safe and sustainable transport for rural communities in Africa and Asia. ReCAP comprises the Africa Community Access Partnership (AfCAP) and the Asia Community Access Partnership (AsCAP). These partnerships support knowledge sharing between participating countries in order to enhance the uptake of low cost, proven solutions for rural access that maximise the use of local resources.



The Partnership on Sustainable, Low Carbon Transport promotes, through a multi-stakeholder membership, the integration of sustainable, low carbon transport in global policies on sustainable development and climate change.

<sup>1</sup> Ian Barwell's introductory speech at the First Africa Meeting of the Forum for Rural Transport and Development in Lilongwe, Malawi November 1993.

<sup>2</sup> Roberts, P., K.C. Shyam and C. Rastogi (1996): Rural Access Index: A Key Development Indicator, Transport Papers 10, World Bank, Washington DC.

<sup>3</sup> Mu, R. and D. van de Walle (2009): Rural Roads and Market Development in Vietnam, mimeo, PRMGE, World Bank, Washington DC. Policy Research Working Paper No. 4340, Development Research Group, World Bank, Washington, DC.

<sup>4</sup> S. R. Khandker, Z. Bakht, G.B. Koolwal (2006): The Poverty Impact of Rural Roads, Evidence from Bangladesh, World Bank.

<sup>5</sup> Dercon, S., D.O. Gilligan, J. Hoddinott and T. Woldehanna (2007): The impact of roads and agricultural extension on consumption, growth and poverty in fifteen Ethiopian villages, CSAE WPS/2007-01.

<sup>6</sup> Randa (2011)

<sup>7</sup> Mu, R. and D. van de Walle (2009): Rural Roads and Market Development in Vietnam, mimeo, PRMGE, World Bank, Washington DC. Policy Research Working Paper No. 4340, Development Research Group, World Bank, Washington, DC.

<sup>8</sup> KfW (2013): German Financial Cooperation with Cambodia, Rural Infrastructure Programme (RIP) II, Ex-Post Social Impact Assessment, Report.

<sup>9</sup> Iimi, A., E.R. Lancelot, I. Manelic, and S. Ogita (2015): Social and Economic Impacts of Rural Road Improvements in the State of Tocantins, Brazil, World Bank, Policy Research Working Paper 7249.

<sup>10</sup> Mu, R. and D. van de Walle (2009): Rural Roads and Market Development in Vietnam, mimeo, PRMGE, World Bank, Washington DC. Policy Research Working Paper No. 4340, Development Research Group, World Bank, Washington, DC.

<sup>11</sup> KfW (2013): German Financial Cooperation with Cambodia, Rural Infrastructure Programme (RIP) II, Ex-Post Social Impact Assessment, Report.

<sup>12</sup> Sieber, N. (2009): Leapfrogging from Rural Hubs to New Markets, Rural Transport in Developing Countries; Transport Toolkit, The World Bank.

<sup>13</sup> Barwell, I. (1996): Transport and the village, SSATP Working Paper No.23, World Bank, Washington DC.

<sup>14</sup> Lebo and Schelling (2001), Design and Appraisal of Rural Transport Infrastructure - Ensuring Basic Access for Rural Communities, Technical Paper 496, World Bank.

<sup>15</sup> Porter, G. (2013): Transport Services And Their Impact On Poverty And Growth In Rural Sub-Saharan Africa, AFCAP/ Durham University.

<sup>16</sup> Sieber, N. (2009): Leapfrogging from Rural Hubs to New Markets, Rural Transport in Developing Countries; Transport Toolkit, The World Bank.

<sup>17</sup> [http://www.uneca.org/eca\\_resources/news/200706unctad\\_launch-FACTS-aboutLDCs.htm](http://www.uneca.org/eca_resources/news/200706unctad_launch-FACTS-aboutLDCs.htm)

<sup>18</sup> KENDAT, IFRTD, TCP International (2013): Rural Logistics for Smallholder Farmers to Meet New Agricultural Market Demands: Analysis of various Horticultural Value Chains, Project AFCAP/GEN/060.