



Forum

News

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Climate Change and Rural Transport

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Building the Links

Climate change is no longer the preoccupation of environmentalists and scientists alone. In recent years it has become a critical consideration in any type of development work, with the development community increasingly aware of its significance and impacts in the fight against poverty. It is time for IFRTD to begin reflecting upon the significance of rural transport in this debate and to bring on board the wealth of experience and capacities among our diverse membership.

To date, the direct association of transportation with Green House Gas emissions has meant that urban transport takes centre stage, while the role of rural transportation in climate change has been largely ignored. In this issue of *Forum News*, IFRTD members break down some key climate change terminologies such as *mitigation*, *adaptation* and *co-benefits*, and explore their meaning in relation to rural transport. Our members shine a light on specific concerns such as the exacerbation of existing gender and transport issues by climate change, the profiling of rural transport in critical climate change documents, and where exactly our research priorities should lie. What emerges is a clear recommendation to broaden the existing sector vision from a focus on mitigating urban transport emissions to understanding the role of rural transport services and systems in facilitating adaptation to climate change by the rural poor.

While the impacts of climate change affect all countries, capacities to respond and adapt to climate change impacts differ substantially between industrialised and developing countries. This is due not only to the differentiated degrees of impact – positive or mainly negative – that changes in weather patterns may bring, but to the existing capacities, resources and institutions that enable countries to adapt to swift and increasingly unpredictable changes. It is becoming more and more evident that the poorest and most vulnerable countries will be hit hardest by the impacts of climate change, making this challenge a matter of survival and often a matter of life and death.

Increased concentrations of Green House Gas (GHG) emissions in the atmosphere due to human activity have altered our climate system and are causing an increased greenhouse effect in the atmosphere. The *United Nations Framework Convention on Climate Change* (UNFCCC), one of the key outcomes of the *UN Conference on Environment and Development* in 1992, is the key international instrument, ratified by 192 countries¹, through which industrialised and developing countries have been trying to address the mitigation and adaptation challenges posed by climate change. As the failed negotiations of the 15th Conference of the Parties (COP15) held in Copenhagen have recently shown, climate change is not just an environmental or scientific matter. Rather it has strong and complex



(c) 2008 Kyaw Kyaw Winn, Courtesy of Photoshare

A farmer and his daughter carry firewood back to their village in Myanmar. Across the globe we are likely to see climate change exacerbate the domestic travel burden as firewood supplies close to the home dwindle.

social, geo-political and economic implications which have been difficult to address with the urgency and the degree that they require.

The UNFCCC recognises the historical responsibility of industrialised countries whose development paths have contributed to the current alteration of the climate system. The parties to the convention agree that to address climate change both adaptation and mitigation are essential and recognise “common but differentiated responsibilities” to do so.

According to the Intergovernmental Panel on Climate Change (IPCC) which is the UN leading scientific body set up for the assessment of climate change, the transport sector accounts for 13% of GHGs and 23% of energy related CO₂ emissions. Transport is the fastest growing sector in industrialised countries and the second fastest growing sector in developing countries. Consideration of the transport sector is therefore essential to the climate change debate.

Mitigation of climate change refers to actions to limit the concentration of GHGs in the atmosphere. According to the UNFCCC Kyoto Protocol, industrialised countries must reach specific targets to reduce their GHG emissions. For the transport sector this translated into increased efforts to improve the efficiency of urban transport, improve public transport and reduce dependency on fossil fuels. One option, the development and promotion of biofuels, has led to heated debates regarding the trade offs and direct and indirect impacts that this creates for developing countries. The focus of mitigation activities in the transport sector has a strong urban bias.

Adaptation refers to the capacity of natural or human systems to respond to the hazards or benefits delivered by climate change. For developing countries adaptation is a priority because climate change

¹The Convention entered into force on 21st March 1994

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impacts disproportionately on poor people, increasing their vulnerabilities. Initially the impacts of climate change may *undo* any progress made towards the achievement of the Millennium Development Goals (MDGs). The vulnerability of poor people is influenced by elements such as their: limited assets to withstand and recover from disasters; limited access and knowledge to adopt and adapt to new skills; limited access to institutions and policies; overdependence on natural resources for their livelihoods (which will be adversely affected by climate change); and their remoteness from services and information. Development organisations have been focusing on reducing vulnerability, building adaptive capacity or strengthening resilience as specific areas of work related to adaptation. For the rural transport sector this has meant focusing on assessing the risk and vulnerability of transport infrastructure.

However, aspects of mobility and accessibility that underpin vulnerability appear to have passed largely unnoticed to policy makers. Climate related disasters are on the increase and their impact on key sectors such as agriculture, education and health in developing countries is widely recognised. Yet this recognition has not translated into reflection or action on how the gender differentiated mobility and accessibility needs of the poor will be addressed. Women will probably be forced to walk further for basic access to drinking water and firewood as reserves dwindle; natural disasters will increase the frequency in which poor communities are cut-off from accessing basic services; and reaching poor communities affected by natural disasters either by land or water will be increasingly difficult.

Climate change will affect agriculture and will affect most those rural communities who rely upon agriculture for their lives and livelihoods. This will obviously increase the challenges of accessing markets but will also affect the productivity of small farmers and their capacity to feed themselves. In this context, important recommendations made by the International Assessment of Agriculture Science and Technology report (IAASTD) need to be considered. The IAASTD report emphasised the need to strengthen local markets ensuring biological diversity, self sufficiency and agricultural production models that are not dependent on fossil fuels among others.

In this new challenging context increased attention should be placed on the role of labour intensive road construction and road building approaches, as well as non-motorised transport (NMT) and intermediate modes of transport (IMT), in addressing the impacts of climate change and facilitating the adaptation of poor rural communities.

As we start to make the links between climate change and rural transport we see much more than just infrastructure. A new role for rural transport must be defined for a climate challenged development and IFRTD is very well placed to take this forward.

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Gender Dimensions of Rural Mobility under Climate Change

Climate change has had a gradual effect on people's lives in recent decades, and international attention is now shedding new light on the issue. As Brody *et al* (2008) said, linkages between climate change, transport and gender are still under researched, but it is recognised that climate change exacerbates many of the gender concerns already experienced in the transport sector.

For example, climate change affects women's existing travel burden. Water shortage can increase women's travel and workload to fetch water. Similarly, with less and less fuelwood available near their homes, women must spend more time travelling to collect supplies. It is not only the effect of climate change itself, but also a lack of proper interventions to support women and men to adapt to climate change that increase the burden for poor women and men. For example, women's travel burden to collect water and fuelwood can be eased if proper interventions are made to improve access to these resources.

Some effects of climate change can hamper women's mobility. Rising water levels can increase water borne diseases, and women, being in charge of caring for the sick, may be required to stay at home more than before, depriving them of their earnings and exposure to information. Again, this is exacerbated by not having enough access to medical facilities as well as other support to care for the sick and to prevent diseases.

Climate change can increase the frequency of natural disasters and, during disasters, women's lack of mobility can have serious consequences. During the 1991 cyclone and flood in Bangladesh, five times more women than men died because many women waited at home for men to come to take them to safety, losing the precious time needed to evacuate (Brody *et al* 2008).

Changes in climate can also make traditional livelihoods unsustainable, and one of the main adaptation strategies for rural women and men is to migrate. Both women and men migrate, but their migration experience can be affected by different access to transportation facilities and ease of travel. The restriction to mobility, both physically and administratively, leads to a higher risk for trafficking for both women and men. For those left behind, migration also means a reduction in shared labour to attend to household and community activities. For example, when men migrate, women are left behind to repair roads and bridges themselves after floods, sometimes with reduced labour resources and technical knowledge on maintenance.

In developed countries, women have a lower carbon footprint than men, as seen in the Swedish study of Johnson-Latham (2007). Women

walk more, use public transportation more, fly less and own private vehicles less. Similarly, women in developing countries have a lower carbon footprint than their male counterparts, with less use of private vehicles. It should be noted that facilitating rural women's mobility in developing countries can lead to lower carbon footprints, creating a win-win situation. Improving feeder roads rather than highways, will facilitate rural women to access markets and health centres without increasing the traffic of large trucks that will bypass small villages along the road. The improvement of public transportation in both rural and urban areas will improve women's mobility, while also encouraging men to shift to using public transportation. Women's travel burden to collect fuelwood can be reduced, for example through the introduction of fuel saving stoves, which can at the same time reduce carbon emissions.

Although we need more research to link the issues and show the extent of these phenomena, we can still safely argue that climate change in relation to rural mobility is experienced differently by women and men. It is important that rural poor women participate in the planning and design of climate change mitigation measures specifically, and development as a whole. This will ensure that mitigation measures will not exacerbate gender inequality but instead provide a win-win situation for both women's mobility and the climate.

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Further Reading:

Brody, A., J. Demetriades and E. Esplen (2008) *Gender and climate change: mapping the linkages, a scoping study on knowledge and gaps*, Bridge, IDS, UK.

Johnsson-Latham, G. (2007) *A study on gender equality as a prerequisite for sustainable development*, The Environment Advisory Council, Ministry of Environment, Sweden.

Discuss:

Subscribe to the list serv of the Gatnet – Gender, Transport and Equity Community: <http://dgroups.org/worldbank/GATNET>



Between the Cities

A recent CAI Asia study across 29 cities in India shows that only approximately 22% of CO₂ emissions from land passenger transport is attributed to intracity (within city) movement.

While air pollutant emissions are largely an urban problem and attributed to increasing private motorisation and demand for mobility, CO₂ emissions from the transport sector are also largely attributed to inter-city movement, particularly freight and logistics in urban and inter-city operations. So, to reduce future CO₂ emissions in developing countries, it is important to look at policies and projects that promote *co-benefits* at both the national and local level.

The Clean Air Initiative for Asian Cities (CAI-Asia) Centre and its country networks from China, India, Indonesia, Nepal, Pakistan, Philippines, Sri Lanka and Vietnam have been actively promoting a *co-benefits approach* to deal with air quality management, sustainable transportation and climate change mitigation in their programmes and

projects. With support from other organisations, the CAI-Asia Centre has been analysing and estimating current and future air pollutant and CO₂ emissions to enable policy makers to make informed decisions in selecting appropriate policies and actions in the transport sector.

The CAI-Asia Centre has developed the **CitiesACT website** www.citiesact.org to further promote information sharing on air quality management, climate change and energy, and transport issues. Following a DPSIR framework, information on the drivers, pressure, state, impacts and responses are available on the website.

IFRTD Asia Pacific and CAI Asia are interested in your perspectives on the climate change implications of inter-city movement. To join in the discussion please visit the IFRTD blog: www.ruraltransport.blogspot.com

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Research Priorities for a Climate Change Responsive Transport Sector

Global movement to tackle the adverse impacts of climate change

Today the world is making a collective effort to address the negative impacts of climate change. The success of climate change mitigation using carbon trading and the Clean Development Mechanism (CDM) has been criticised by developing countries for not being able to push industrialised nations to contribute significantly to reduction of global GHGs. We should look for a better option to ensure that policies agreed at previous Conference of the Parties (COP) and other high level meetings are implemented and governed more effectively on the ground.

The advancement of science has been instrumental in understanding the general cause and possible impacts of climate change in various sectors, i.e. agriculture, health. However, when it comes to finding out the effectiveness of measures to reduce greenhouse gases in GHG emission producing sectors or absorption sectors, we are still very nervous and should work harder to conduct analysis and research. The cost curve approach, for example, has been developed by various organisations, including the accounting firm McKinsey, to assess various GHG-reduction options.

An effective global financing scheme and mechanism is still to be developed and agreed upon. Various initiatives have emerged, including the recently announced Global Fund for Disaster Risk Reduction (GFDRR), a facility

managed by the World Bank aimed at finding an innovative solution to deal with disaster issues. Climate change was added to this facility in addition to natural disasters.

Our opportunity to improve rural transport and address climate change issues

So far, discussions in the transport sector to address the adverse impact of climate change have centred around urban transport issues, focusing on reducing dependence from fossil-fuel consumption and easing road congestion. Rapid motorisation in developing urban areas is obviously a threat to sustainability, not only because it chokes the urban transportation network with congestion at a high-cost economy, but also because it emits CO₂ that increases the concentration of atmospheric green house gases. In rural areas, however, the demand for improved access often requires motorised vehicles to help alleviate the heavy burden of increasing rural productivity. Pricing policies which are found quite effective in rationalising travel behaviour in urban areas are problematic when applied in a rural setting. Conventional approaches focusing on cleaner vehicles and fuels, reducing motorised travel, and improving transport systems are certainly not sufficient to address climate change in rural transport measures.

To understand how adverse climate change impacts can be addressed by rural transport intervention, it is probably best to look at the

adverse impacts of climate change on health and agricultural productivity, as well as observing the rise of sea water level and the increase in flooding events. In other words, we should focus on adaptation rather than mitigation. The wider spread of tropical diseases and changes in patterns of agriculture cultivation are demanding better distribution of health and agriculture services. The more frequent occurrence of natural disaster caused by climate change requires better design of transport infrastructure and swift evacuation of disaster-affected communities. Unfortunately, there is little evidence and documentation to evidence how effective rural transport interventions can maintain or improve the health, livelihood and survival of communities affected by climate change.

There are currently no documented projects addressing adaptation to climate change in the rural transport sector. Current rural transport development has not put climate change into development planning practice. In these circumstances, it is therefore important for rural transport scientists and practitioners to begin to undertake collective research and learning to understand how we should mainstream climate change adaptation within the rural transport sector.

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Rural Transport Revisited

With the ever-growing threat from climate change impacts, rural transport professionals are back to the drawing board. For the last 15–20 years rural transport has grappled with two challenges, namely accessibility and mobility. Much of the work has centred on the question of increasing access and enhancing mobility. These concerns are still valid.

However, there is a growing realisation, not unlike in other disciplines, that 'business-as-usual' is out. But what is 'in' instead? It is tempting to follow the rest of the pack and conjoin rural transport to 'climate change'. While this might fly, we need to reflect on what climate change and rural transport could mean. How will rural transport change (or is it already changing) in light of climate change impacts? Where does rural transport fit in the 'larger-than-life' climate change discourse.

To locate rural transport in the climate debate, a relevant question to ask is: what adaptation and or mitigation options exist in rural transport?

Immediately, it becomes clear that the issue of vulnerability is closely linked to questions of isolation and lack of access, matters that are central to rural transport especially in the global South. Addressing isolation and increasing accessibility especially in rural Africa where the majority of the population reside will improve resilience. Doing so sustainably means designing and implementing projects and programmes that improve quality of life.

A sustainable rural transport system enables people and communities to live a dignified and happy life. It enables them to manage their affairs. It ensures food security by balancing supply and demand for diverse food products. It links dwellings to schools, hospitals and markets. It facilitates employment by moving workers to the job market. In short, it enriches people's lives from impoverishment towards greater

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resilience and capabilities to not only withstand a changing and variable climate, but more importantly to seize the opportunities that climate change represents.

Non-motorised transportation (NMT) has been promoted in many rural transport programmes as a low-cost appropriate means of personal transport. However, the health benefits of, for example, cycling, have gone largely unnoticed. The long-lived nature of NMT in the discourse on rural transport establishes a natural connection with the climate change agenda.

As a non-polluting mode, NMT should be supported both for its health, economic and environmental co-benefits. International financing and technology transfer mechanisms need to recognise the role of rural transport in the adaptation to and mitigation of climate change. The value proposition of a rural transport industry is an important component of stimulating the rural economy, which must diversify in the face of a changing climate. This offers one way of addressing the dilemma of urbanisation without industrialisation. Besides, there are additional and wider benefits of investments in rural transport infrastructure that should accrue from choosing the right scale and employing appropriate technologies, such as the development of footpaths and tracks using labour-intensive works.

However, to realise the full potential of a sustainable rural transport system requires the definition of new areas of research and policy work that would push the frontiers of rural transport knowledge decades ahead. In particular, rural transport must be integrated into science innovation and technology systems if it is to become a vehicle for the kind of transformations that societies will need to undergo to deal with the climate threat.

As a corollary, rural transport must also come out from the fringes of national policy debates and into the centre in the transition to a low-carbon future. Many of the technologies and solutions that have been developed in rural transport can find wider applications as the world tries to deal with the energy and climate crisis.

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Examining the Rhetoric

A review of a few key climate change and transport sector documents reveals how far the development agenda has engaged with climate change from a travel and transportation perspective. It also spotlights the transport sector's own relationship with climate change, particularly with respect to rural areas and concepts of mitigation and adaptation.

As with the Millennium Development Goals a decade ago, the transport sector appears to have been slow to make its case, and where discussion relating to transport and climate change can be picked out of the climate change texts, they are more often than not in reference to the mitigation of emissions rather than tackling more complex questions of adaptation.

The foreword of the 2010 World Development Report warns that "tomorrow's climate needs will require us to build infrastructure that can withstand new conditions and support greater numbers of people". The report calls for flexible strategies that will 'weather proof' transport, eg. paying the marginal costs of building a higher bridge or one that can withstand flooding.

The WDR goes on to focus more on the question of improving mobility without exacerbating climate change, how to bring the mitigation agenda in line with development. However, the potential role of transport in alleviating the increased pressures likely to be leveraged by climate change on health services and agricultural productivity is not fully explored. The report misses some opportunities to highlight the impact of climate change on mobility. A study in Cote D'Ivoire links rainfall patterns to school attendance but does not delve more deeply into the mobility factors implicit in these findings.

Closing The Gaps, the 2009 report by the Commission on Climate Change and Development, warns that adaptation is more than just 'climate proofing' development efforts, it is about improving capacity to manage risk to enable progress. Although mitigation is important, the

consequences of earlier actions must be adapted to for present and future generations. The report makes an interesting analysis of travel and transport for migration as an adaptive strategy in itself.

Meanwhile, the World Bank's current transport strategy leans towards the transport impact on climate change. 'Clean' in the title 'Safe, Clean and Affordable' refers to the environmental aims of the MDGs and the mitigation of climate change. Strategic Direction 5: Transport and Climate Change: Control emissions and mitigate impact, does reference adaptation in terms of infrastructure sustainability to climate change effects and the adaptation of current technologies to the needs of bank clients.

Key References:

Closing the Gaps: Disaster risk reduction and adaptation to climate change in developing countries. Commission on Climate Change and Development. 2009. www.ccdcommission.org

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World Economic and Social Survey 2009. Promoting Development, Saving the Planet. DESA, UN. New York, 2009. www.un.org

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IFRTD Executive Committee Meeting 2009

IFRTD's first Executive Committee Meeting (ECM) as an independent organisation took place in Berne, Switzerland in December 2009. The meeting, hosted by the Swiss Development Cooperation, featured a Networking and Learning day covering topics such as rural road security and safety; mobility and health; and climate change and rural transport.



Download your copy of the ECM 2009 Minutes here:

www.ifrtd.org/en/about/Network-Governance.php

or contact the IFRTD Secretariat for a print or email copy

About Us:

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

Membership of the IFRTD is free. All members receive Forum News and any other publications that are made available to the network. The IFRTD is facilitated by a small, decentralised Secretariat based in the UK, Cameroon, Kenya, Peru and Sri Lanka.

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