From Zero To Sixty:
The Context For Disability Inclusive Road Development In Papua New Guinea

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Abstract:

Despite the fact that at least 10 percent of the global population are disabled, people with disabilities are often excluded from consideration in development activities (Metts, 2000, p. 89-90). Road infrastructure is a recognized approach to poverty reduction in developing countries, and research from Papua New Guinea (PNG) has demonstrated positive changes in income and access to community services for people with road access (Gibson and Rozelle, 2002). As is common in developing countries, the primary means of transportation in PNG is walking (The World Bank, 2008). But in both developing and developed contexts, very few road projects involve community consultation or evaluation in terms of the real impact they make on community members' quality of life, let alone the prospects for people with disabilities (Estache, 2010, van de Walle, 2009). Roads are still assumed to primarily serve motorized vehicles, with deleterious environmental, social, and economic effects (Brown and Lloyd-Jones, 2002, Newman and Kenworthy, 1999).

***Disability Inclusive Road Development in PNG** is a three year research project (2010-2013) funded by the Australian Government Aid Program through the Australian Development Research Awards. Our key research question is: How can people with disabilities influence decision-making about road development in PNG? As the research is in its preliminary stages, this paper will focus on the theoretical and policy context for this work. After an overview of both the international and national context for this research, the paper will outline the qualitative methodologies being used (interviews, focus groups, photo elicitation, and community walkabouts) as well as the partnership principles behind the research.*

Keywords: Road planning; Papua New Guinea; People with disabilities; Disability inclusive development

Introduction

Investment in road infrastructure is a recognized approach to poverty reduction in developing countries, through improving community access to essential services, social networks and economic opportunities (Asian Development Bank et al., 2005). To give one example, an evaluation of the Bangladesh Rural Roads and Markets Improvement and Maintenance Project found that average school enrolment increased from 0.41 to 0.52 children per family, families with access to basic medical services increased from 54% to 99%, and the proportion of families with sufficient food increased from 30% to 92%, after the new roads were completed (Bamberger and Podems, 2002, p. 89-90). But the 'dark side' of road infrastructure development is also well documented. The World Health Organization estimates that over 1.2 million people die annually on the world's roads, and between 20 and 50 million suffer non-fatal injuries, including many who become disabled as the result of road injuries. Over 90% of the world's fatalities occur in low and middle income countries, double the death rate of high income countries, and half of those are 'vulnerable road users': pedestrians, bicyclists, and users of motorized two-wheelers (World Health Organization, 2009, p. vi-vii). Roads are still assumed to primarily serve motorized vehicles, with deleterious environmental, social, and economic effects (Brown and Lloyd-Jones, 2002, Newman and Kenworthy, 1999).

Community participation in identifying location and design of roads is crucial for sustainable, effective and efficient road infrastructure development, which should connect people and places appropriately, and benefit the poorest groups (Barrios, 2008). Studies demonstrate that addressing the needs of low income and marginalised populations such as people with disabilities at the planning and design phase improves the quality and effectiveness of infrastructure for all people, and is relatively low-cost in comparison to adapting or rebuilding an inaccessible system (Wiman and Sandhu, 2004). Despite this evidence, techniques and guidelines for eliciting user views on planned and existing roads are underdeveloped, particularly in poor countries where road infrastructure is advancing most rapidly. In fact, the most signal failure of the Bangladesh Rural Roads project described above was in engendering community participation amongst the potential road users, particularly female road users (Bamberger and Podems, 2002, p. 90).

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Poverty reduction, community engagement, and road development

Roads improve development opportunities, by removing barriers to participation in the social and economic activities of communities and individuals. Effective road development is believed to lower the costs of transportation, particularly for rural households, increasing their accessibility and mobility, and engagement in economic activities. For rural communities engaged primarily in farming or manufacturing, an effective road network will reduce the cost of production, by increasing availability of necessary materials and input, and increases profit through reduced distribution costs and greater market access. Road infrastructure has been linked to improved access to health and education services, supporting the fulfilment of human rights, and promoting human development and capital. Finally, the development of roads in rural areas can also stimulate other types of infrastructure development and diversification of livelihood opportunities (Barrios, 2008).

It is these theories of poverty reduction through development that has prompted considerable aid investment in road infrastructure in developing countries. And yet very few road projects are ever evaluated for the real impact they make on development, the quality of life of community members, or the situation of people with disabilities (Estache, 2010, van de Walle, 2009).

The reliance on road infrastructure for poverty alleviation has been questioned by a number of authors. Estache (2010) conducted a survey of infrastructure project evaluations and concluded that whilst rural roads can benefit the poorest households in a community, significant inequities still remain in terms of whose lives are improved. Jacoby's (2000) study of rural road infrastructure in Nepal also demonstrated that whilst linking farmers to markets did result in the greatest benefits for the poorest households, these benefits were not enough to significantly reduce the inequalities in income within the population. Hence "rural road construction is certainly not the magic bullet for poverty alleviation" (Estache, 2010, p. 735) and one might question how they improve the lives of the people with disabilities given failures to address inequity within communities.

Yet there is some evidence that roads can have a larger impact on poverty than other types of infrastructure development. Barrios (2008) demonstrated that rural roads produced

the greatest impact on development in the Philippines, as measured by the rural income index and income growth, when compared with other initiatives, such as development of irrigation systems or community capacity development. Despite this evidence, farming households perceived that community capacity development, such as training on livelihoods, had the greatest impact on poverty reduction. This discrepancy may be the result of a lack of advocacy and engagement with farming communities in the development of rural roads. Subsequently, Barrios (2008) advocates that construction of rural roads should remain a central tenet of rural development, but be packaged with other development initiatives, such as capacity building or social services, to optimise the benefits of improved accessibility.

There are very few studies of the impact of roads on people with disabilities in developing countries. Only one empirical study found in literature searches by Mitullah and Makajuma (2009) investigated the impact of a road on the pedestrian movement of people with disabilities and older persons in Nairobi. They observed that a major road in Nairobi failed to adequately accommodate the needs of pedestrians and particularly people with disabilities. In their pedestrian crossing observations they found that the majority of people with disabilities and the elderly were stressed and nervous when trying to traverse the road which had inadequate crossings. This is in contrast to the non-disabled population of which the majority were relaxed or able to run across the road. The authors concluded that infrastructure agencies have not given adequate attention to the needs of pedestrians and non-motorised transport in road construction, and suggested there is a need for greater sensitisation and training in this area (Mitullah and Makajuma, 2009).

There is no available empirical research exploring the participation of people with disabilities in road infrastructure projects in developing countries, and only a limited number of studies analysing broader community participation. Barrios (2008) advocates for greater community participation in infrastructure planning because they bring vital knowledge about the environment and how it is currently used, as well as perceptions of successful outcomes. Participation throughout every phase of infrastructure development will promote ownership among stakeholders and users, and encourage their contribution to both construction and maintenance, in monetary and/or labour form (Barrios, 2008).

Historically road infrastructure planning in developing countries has been led by the State. The criteria established for selecting road networks for development determine the subsequent allocation of resources. Decentralisation and development of local governments is considered a strategy to promote community participation in infrastructure development,

particularly in the identification and planning phases, by bringing decision making closer to the community itself (Barrios, 2008, Leyland, 2003).

Leyland (2003) presents two potential methods for engaging communities in the ranking and prioritising of road networks for development. The District and Feeder Roads Project in Tanzania, used a stakeholder workshop to bring together district councils, technical staff and representatives of the communities in the project area, to select road networks for rehabilitation and development. An alternative example from the Western Uganda Road Maintenance Capacity Building Project involved a workshop with approximately 60 local leaders and road workers. Workshop participants were facilitated to collectively define criteria for assessing the importance of a road, including social and economic factors, and ranking the most important roads in order of priority. The rehabilitation or development of each of these networks could then be assessed and costed by the project team. The author reports that this process ensured consensus on the outcome, was viewed by local leaders as effective and transparent, and provided easy and effective dissemination of decisions to the communities (Leyland, 2003).

Another example of community engagement in road projects is from the National Rural Roads Development Agency in India. This Government Agency supported a pilot project to develop and test a methodology for citizen involvement in the Pradhan Mantri Gram Sadak Yojana road program. In this program community participation was undertaken from the first planning phases with the Village Panchayat (or village council) identifying a list of roads for rehabilitation which formed the basis of the core projects and annual proposals. The local community was then involved in selecting the road positioning and alignment through participation in transect walks with the village panchayat, engineers and other officials. Community Information Boards at each work site provided information of anticipated cost, expenditure, times lines, and contracted agencies. In addition to these activities the programme established Citizen Monitoring and Audit Teams to check technical standards (Paul and Katare, 2010). This project demonstrated that community members can be trained to lead monitoring processes relating to the technical quality of roads, but also suggests that structures which engage the community in this process may increase the overall awareness in the community and subsequent benefits from the road project.

Disability Inclusive Road Development in PNG: the local policy context

Despite the fact that an estimated 10-15% of the PNG population, or 520,000 people, are living with a disability, the Minister for Community Development acknowledges that people

with disabilities "have been totally invisible in all areas and at all levels of the development processes of this country" (Department for Community Development, 2009, p. 5). There is evidence that improved road and bridge infrastructure in some parts of PNG has had a positive impact on income, access to education and health of the general population (The World Bank, 2008), and that improving access to schools in particular can result in large poverty reductions (Gibson and Rozelle, 2002). However, the impact of infrastructure developments on the social and economic participation of men, women and young people with different disabilities in PNG is unknown.

Poverty is both a cause and a consequence of disability. People living in poverty are more likely to develop impairments due to illness arising from poor living standards and lack of accessible and appropriate health care. Once the individual has developed impairment, they may be marginalised within society, reducing their access to opportunities which would improve their socioeconomic situation. Such opportunities include education, work, health and other services. The exclusion of people with disabilities in the education and employment sectors, and the additional costs incurred from managing illness and impairment, has wider implications for their families and communities, and precipitates the cycle of poverty (Elwan, 1999, Yeo and Moore, 2003). Hence, inclusion of people with disabilities in development activities is essential to not only break the cycle of poverty and disability experienced by that individual, but also to ensure poverty reduction for the entire community.

In PNG, surveys demonstrate that the most common impairment reported by people with disabilities is difficulty moving, followed by difficulty seeing and then difficulty hearing. Most people with disabilities also report experiencing more than one type of impairment. Psychosocial impairments are reported by 19-28% of people with disabilities, with the higher rates being reported in urban areas (Thornton and Pirpir, 2008).

Among people with disabilities, those living in rural areas are significantly disadvantaged with less than 25% completing secondary schooling, compared with 50% in urban areas. Two thirds of people with disabilities living in rural areas are dependent upon subsistence farming, whereas a quarter of people with disabilities are committed to home duties in urban areas (Thornton and Pirpir, 2008). There is no data available, however, which compares these proportions with that of the non-disabled population.

PNG has not yet ratified the UN Convention on the Rights of Persons with Disability (CRPD), but it has its commitment to signing it within the next two years, requesting AusAID for support through this process (AusAID, 2010a). Article 9 of the CRPD specifically requires States to take appropriate measures to identify and eliminate any barriers which people with

disabilities face in accessing all types of infrastructure and services, and with particular mention to roads. Additionally Article 32 provides a clear stance that people with disabilities must be included in international development cooperation (United Nations, 2006).

The PNG Government also has a National Policy and Action Plan on Disability. The objective of the PNG National Policy and Action Plan on Disability is to create a barrier free physical and social environment for all. The government recognizes that "inaccessibility to the built environment is still a major barrier, which prevents people with disabilities from actively participating in social and economic activities" (Department for Community Development, 2009, p. 35). The Department for Community Development has therefore justified investment in the removal and prevention of architectural and design barriers, particularly in areas most critical to social and economic participation, such as transport, housing, education, employment, health care, cultural and religious activities. This would be implemented through awareness raising, advice to key service providers and review of existing policies, regulations and laws. Methods for implementing the proposed strategy include inter-governmental and civil society collaboration with the PNG Department of Works, and Department of Lands and Physical Planning in order to improve access to existing buildings and public transport for people with disabilities, as well as to identify access concerns in key public areas and other infrastructure developments (Department for Community Development, 2009).

Infrastructure remains a key sector for investment of Australian overseas development aid with the 2010-2011 budget committing $562 million towards infrastructure programs in developing countries. Approximately 40% of infrastructure expenditure is targeted towards improving transport infrastructure, primarily roads (AusAID, 2010b). The Australian Government Aid Program has also pledged through their Development for All strategy that all infrastructure activities within the Australian aid program will be inclusive of, and accessible to, people with disabilities (AusAID, 2008). Whilst there are some broad guidelines and tools to assist architects in designing accessible buildings (European Commission, et. al., n.d., Snider and Takeda, 2008, United Nations Economic and Social Commission for Western Asia and Ministry of Social Affairs National Committee for the Disabled, 2003-2004), there is a lack of documented evidence or best practices to support the road infrastructure sector in disability inclusive development.

The World Bank has been supporting road maintenance and rehabilitation in six provinces of PNG. A socio-economic survey conducted in 2007 demonstrated positive changes in income in 50% of sampled provinces, with up to 25% increased income for

villages near road or bridge improvement projects. Additionally the survey demonstrated reduced travel time to schools and health clinics for village members, and a subsequent reduction in school drop-out rates (The World Bank, 2008).

Although based on data which is now over 15 years old, Gibson and Rozelle's (2002) study of poverty and access to infrastructure provides the most detailed analysis of the distribution of poverty in PNG relative to infrastructural developments. The authors analysed data from the first PNG Household Survey conducted in 1995 – 1996 and found a strong correlation between poverty, school attainment and access to roads. The incidence of poverty doubled for household living more than 60 minutes from a road compared with those living closer to a road. Hence, Gibson and Rozelle argue that reducing travelling time to the nearest road is an effective poverty reduction strategy in the PNG context, but that it needs to be targeted towards the most remote and poor communities (Gibson and Rozelle, 2002).

It is important however to recognise the impacts of road development on more traditional road functions, such as pedestrian movement and street trading. In most communities of the developing world these traditional functions of roads have become threatened by increasing motorization of vehicles. Traffic management and highway improvements that privilege motorized vehicle use may actually threaten these traditional functions of roads, with negative impacts on poor people (Brown and Lloyd-Jones, 2002, Finnroad, 2008). This is particularly important in places such as PNG where the primary means of transportation is walking (The World Bank, 2008).

Transport networks in PNG are limited in distribution and quality. As 85% of the population live in rural areas (AusAID, 2009), it is estimated that 35% live over 10 km from a road which would link them to a major urban centre, and 17% of the population have no road access at all. There is a total of 25,000 km of roads, with 7,600 km designated as national roads and under the coordination and management of the national government, and 17,000 km of feeder roads under the local level government responsibility (Mawuli and Sanida, n.d.) Up to 85% of major roads are impassable during the wet seasons (The World Bank, 2010). It is also important to note that 6 out of 19 provinces are classified as maritime provinces in which wharves and jetties are as important as roads, but which also remain underdeveloped (Mawuli and Sanida, n.d.).

National development planning in PNG has "left an accumulated trail of plans, with a history of unsatisfactory, poor, or non-implementation" and often neglected the maintenance of existing transport infrastructure (Mawuli and Sanida, n.d., p. v). Improving transport infrastructure in PNG, especially road rehabilitation and construction, is coordinated through

several national and sector specific policies and programs including the National and Provincial Medium Term Development Strategies (Government of Papua New Guinea, 2004) and the National Transport Development Plan.

The Department of Works, which is the government department responsible for the development and maintenance of national roads, has also identified in their Corporate Plan the need to improve their engagement with communities and key stakeholders, including greater communication on their needs and satisfaction with infrastructure access (Department of Works, 2009). There is however no clear process for consultation with the community on road infrastructure planning and development.

Disability Inclusive Road Development: methods for engaging partnerships

The Disability Inclusive Road Development in PNG project involves collaboration between stakeholders from the academic, disability and infrastructure sectors[1], with people with disabilities and their organisations playing a central role in project design, implementation and follow-up. A participatory methodology has been chosen for its "knowledge for action" qualities. This approach allows exploration of local knowledge and perceptions, whilst empowering people with disabilities and promoting their ownership in the research process (Cornwall and Jewkes, 1995). The four methods being used in this project are: interviews by people with disabilities of local road decision-makers; focus group discussions with people with disabilities about their positive and negative experiences of roads; walkabouts led by people with disabilities to show places that can be improved; and photo elicitation, or people with disabilities being given a 'week with a (disposable) camera' to take pictures of particular liked and disliked road environments.

These methods, that have previously been used to promote partnerships between grassroots women's organisations and local governments on making communities safer for women and everyone, are being transferred for use in developing partnerships in making roads more accessible for people with disabilities and everyone. For over 20 years, 'women's safety audits' or walkabouts led by female local residents, that identify unsafe public and semi-public places and how they can be improved, have been used to elicit views and lead to positive changes in urban and rural environments (Whitzman et al., 2009, Women in Cities International, 2008). In recent years, these have been combined with interviews with local

[1] Research partners are the CBM-Nossal Institute for Disability Inclusive Development, Faculty of Architecture, Building and Planning at the University of Melbourne, Divine Word University, PNG Assembly of Disabled Persons and Cardno Emerging Markets Australia.

policy decision-makers and focus group discussions with particular sub-groups of women (including women with disabilities) to form a set of tools used in all continents to value perspectives and ideas from marginalised groups, and to move towards positive changes that can reduce violence and poverty in developing nations (Jagori and UN Women, 2011, Whitzman, 2008, Women in Cities International, 2010). The fourth method, photo elicitation, is frequently used as part of the 'women's safety audit' process, and has also been effectively used with children to identify local environmental likes and dislikes (Whitzman and Mizrachi, 2009).

In the first year of the project, a PNG Advisory Committee has been established to contribute to decision-making relating to the project and promote local ownership of the findings and how they are used. This advisory committee includes representatives from disabled people's organisations, including the network of women with disabilities, disability service providers and four representatives of road decision-makers, including PNG government departments and Cardno, a global infrastructure consultancy that is a research partner heavily involved in road construction in PNG. In the first series of workshops, road decision-makers and disability stakeholders were introduced to the project, and then decided on five 'case study' sites. Three of the five sites are rural and two urban, reflecting the low rates of urbanization in present-day PNG. Three of the sites are adjacent to roads that have been developed in the past five years, allowing local residents to reflect on the positive and negative differences these roads have made to their lives. Two of the sites are adjacent to roads in the process of being planned, which allows the researchers to gain more insight into how road planning and design can reflect the needs of people with disabilities.

The project has hired a Research Officer who is also a representative of the PNG Assembly of Disabled People (PNGADP). PNGADP is the national level disabled people's organisation in PNG with connections to local disabled people's organisations, from which two data collectors, one female and one male, will be selected in each of the five case study sites.

In the second year, after one week intensive training with the data collectors, including piloting methods, the data collectors will use the four methods in their sites. Road decision-makers will be interviewed about their communities, how the decision makers assume people use roads, and how they are consulting on road development. A series of group discussions will be held with local people with disabilities. Specific group discussions will be considered for specific groups, such as women, youth, people with intellectual impairment and people with hearing impairments, with appropriately adapted communication and facilitation

methods. It is anticipated that the dynamics between participants in group discussions will highlight where there is a common view or shared experience, as well as lack of consensus or a variety of opinions (Mack et al., 2005). People with disabilities will then lead a walkabout along a segment of the road, to show researchers and road decision-makers what works, what does not, and what can be improved. As described above, walkabouts have been successfully used to elicit and validate local expertise and experience, and to organize to bring about positive change (Whitzman et al., 2009, Women in Cities International, 2008). Finally, photo elicitation provides additional opportunity to explore the spatial features of barriers and facilitators in the environment for people with disabilities. The photographs are used in conjunction with group discussions and therefore act as a tool or guide for reflection and analysis. Photographic techniques have been commonly used in health and social justice research (Catalani and Minkler, 2010), and are increasingly employed as a community planning tool which enables engagement of diversity of people (Sarkissian et al., 2010, Whitzman and Mizrachi, 2009). A review of health research by Catalini and Minkler (2010) found that most projects utilising participatory photographic methods demonstrate follow-up actions to address the issues identified and discussed. Another outcome commonly reported by projects using such methods is an improved understanding of community strengths and assets, as well as needs. Finally, photo elicitation has been demonstrated to contribute to the empowerment of individuals and groups engaged in projects (Catalani and Minkler, 2010). Photographic techniques have also been used by people with intellectual impairments as a tool to analyse the barriers faced in their communities and to undertake advocacy for social action and change (Penrith Photo-voice Project, 2007).

In the final year, the data collected will be analysed, both by the researchers and by the PNG Advisory Committee, to determine common themes and ideas for change. This will feed into the development of guidelines and workshops for both disabled people's organisations and road infrastructure decision-makers in PNG, which we hope will be of use throughout the region and internationally.

Conclusion

Although billions of dollars continue to be poured annually into road infrastructure development by governments and international aid agencies, there is still much that is unknown about positive and negative impacts in relation to social inclusion and poverty reduction. Community participation in road development is lacking, particularly when it comes to the most marginalised and vulnerable road users, people with disabilities. The

limited evidence suggests that while road development does reduce poverty, particularly in rural areas, they do not necessarily reduce inequalities within communities. Furthermore, road development may increase road safety risks, particularly for people with disabilities. This evidence suggests that people with disabilities should be consulted at every stage of road planning and development, in order to achieve effective poverty alleviation and respect the rights of people with disabilities. However, there are not many examples of including the perspectives of people with disability, nor are there specific tools or methods to elicit their participation.

Disability Inclusive Road Development in PNG will be utilizing methods tried and proven in other contexts, with other marginalised population groups, to help create partnerships between disabled people's organisations and road infrastructure decision-makers. Despite its very considerable challenges, the Government of PNG is showing willingness to place the needs of its most marginalised citizens at the forefront of development. Developing tools that can evaluate impacts and generate positive changes in road planning and development for people with disabilities is part of a larger struggle to ensure that development reduces disparities and increases opportunities for those who are most marginalised within societies.

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