IMPACTS OF RURAL ACCESSIBILITY ON WOMEN EMPOWERMENT: THE CASE OF SOUTH WEST BANGLADESH

Saleh Ahmed[1] and Kh Md Nahiduzzaman[2]

ABSTRACT

Poor accessibility usually has a large toll on development in South Asia. It deters people from various livelihood opportunities, such as employment, access to rural markets, health and educational services. It is critical for countries like Bangladesh, where millions of people live in rural areas and receive limited services and other livelihood opportunities. With a regional focus on southwest Bangladesh, this article ctitically analyzes the impacts of rural accessibility on poor and marginalized women. Based on an empirical research, this article provides insights on the importance of rural accessibility on poverty reduction and overall community development. Even though it has a geographical focus, the findings have a strong relevance to other countries in the Asia-Pacific region with similar socio-economic conditions. The study suggests that in addition to the benefits among poor and marginalized women, improved rural accessibility can help achieving pertaining targets of the United Nations Sustainable Development Goals.

Keywords: Women; Rural accessibility; Rural infrastructure improvement; Southwest Bangladesh

INTRODUCTION

Although poverty may occur due to several factors, poor accessibility is particularly critical (Sarkar and Dash, 2011). The lack of transport accessibility in rural communities has been identified as one of the main causes of poverty among rural people in various countries and regions in developing parts of the world (Lebo and Schelling, 2001). Adequate transport networks play an important role in enhancing employability in rural areas and in helping to improve social networks. It also contributes to improve peoples' capacity to absorb natural and economic shocks (United Nations, 2016). Due to poor or inadequate accessibility, developing economies, particularly in South Asia, often experience lower agricultural productivity leading to poor economic growth (Hussain and Perera, 2004). This suggests that transport infrastructure improvements in rural areas can be one of the major defining factors for poverty reduction and enhancement of peoples' quality of life and living standards (UNESCAP, 2003). Even though rural transport and accessibility receive substantial attention in literature, in practice there was limited effort to understand and analyze gendered aspects of rural accessibility into the knowledge domain of development (Rivera, 2007).

With a population of approximately 180 million, Bangladesh is one of the highly populated countries in the Asia-Pacific region, and it is facing various development challenges, such as poverty, inequality, food insecurity and climate-driven disasters (The World Bank, 2015; UNESCAP, 2015). Here, the rural population is experiencing far adverse realities, as extremely poor women, with incomes of less than a dollar a day, face heightened deprivation from rural accessibility. They continue to hold traditional roles of rearing children, taking care of other family members and maintaining household-centric affairs that are deeply rooted in social, cultural, and religious traditions (Ahmed, 2008). Their societies demand of them to spend large shares of their daily time with cooking, cleaning and family-related matters. However, these women aspire to play an important role in labor-intensive jobs in and around their communities to gain economic prosperity. The aspiration often gets hindered due to a lack of rural transport infrastructure and services that would have insured access to available jobs.

[1] Saleh Ahmed, Arid Lands Resource Sciences & Graduate Research Associate, Joint University of Arizona & Columbia University International Research and Application Program (IRAP) , The University of Arizona , Tucson, AZ 85719, USA. E-mail: ahmeds@email.arizona.edu

[2]Kh Md Nahiduzzaman, Assistant Professor, Department of City & Regional Planning, King Fahd University of Petroleum & Minerals, Dhahran 31261, Saudi Arabia, E-mail: nahid@kfupm.edu.sa

Poor accessibility has an immediate impact on rural communities, more particularly for the livelihoods and perceived opportunities of women. The more time they spend every day on collecting water, firewood and other necessities, the less time they have to improve their income potential and standard of living through skill development opportunities and social interactions. Routine tasks often consume almost the entire day, if there are acute shortage or absence of basic infrastructures, such as clean drinking water, safe cooking fuels, electricity and local transport (Edmonds, 1998; Ahmed, 2008; Khandker et al., 2009). Therefore, the adequacy of rural accessibility appears to be critical not just for the local women, but for the entire rural community.

Despite a number of development projects in the southwest of Bangladesh addressing various local development components, few identified extremely poor and marginalized women as the primary beneficiaries. These women are highly vulnerable, because of limited employment opportunities in addition to other socio-economic and cultural deprivations. The recent worsening of climate-induced risks is making their lives even more challenging (Huq and Ayers, 2007; Dasgupta et al., 2014), since rural accessibility considerably affects individual's capacity to adapt to changing climate pattern (United Nations, 2016).

Based on the empirical research conducted on a rural infrastructure project in Bangladesh, this article analyzes the impact of rural accessibility on poor women. It also identifies the types of complementary social and health services that can make a positive contribution to the empowerment of women and rural communities. Finally, it addresses how improved accessibility can help reduce poverty and hunger locally and nationwide. Although this article has regional focus on southwest Bangladesh, its findings could be useful for other parts of the world with similar socio-economic traits and that are facing similar challenges.

In the following, a literature review and brief introduction of the project are presented. It further outlines long term and short term impacts of the project and finally conclusions will be derived.

LITERATURE REVIEW

In developing economies, rural accessibility is critical for poverty reduction (Chambers, 1980; Edmonds, 1998; Njenga and Davis, 2003; Fan et al., 2007). Better transport infrastructure creates opportunities for higher incomes and enhanced social well-being, while at the same time reducing vulnerability. Evidence suggests that food secutity increases as a result of better accessibility in remote areas. In general, rural accessibility contributes to making local livelihoods sustainable and resilient enough in face of slow onset climate variability as well as extreme climate events (United Nations, 2016). Other significant benefits from connecting rural regions is communities' higher independence from external support and the maintainance and/or enhancement of local capabilities and assets for now and for the future.

Traditional transport in remote rural areas has some distinct features, that are fundamentally different from its urban counterpart, as the socio-economic conditions of the beneficiaries of improved rural and urban transport differ as well (Donnges, 2001). Therefore, identifying the impacts of accessibility requires a broader understanding of rural people, their needs and development challenges. In rural life, the transport of goods is typically carried out on foot, whereas most of the journeys usually involve carrying some small loads on short distances (Donnges, 2001). Vehicle ownership among local people is low and in most cases the transport burden falls very disproportionately on women. The purpose of a large share of the trips undertaken by women are the critical tasks of procuring basic necessities such as water, fuel-woods, food stuffs as well as the growing and harvesting crops (Donnges, 2001; Edmonds, 2004). Consequently, women play the essential role in maintaining the wellbeing of their families. Any change in their living and wellbeing will affect the entire family accordingly. Therefore, in recent years there has been increasing interest and recognition of the importance of integrating gender into transport research, strategies and policies (Buiten, 2007).

Enhancing rural transport and accessibility is critical for economic growth and social development. It facilitates interactions between rural areas and external markets. A well planned labor-intensive rural accessibility project can be instrumental in creating local employment opportunities, particularly within construction and maintenance work. In addition, improved

accessibility helps people get better access to various social services, such as health and education (Asomani-Boateng et al., 2015). Since the early 1980s, major investment programs have brought about mixed results suggesting that infrastructure measures may not be very effective in improving local livelihoods (Ali-Najadfard, 1999). During that period, gender aspects were not fully integrated into the mainstream of the infrastructure debate, more precisely into the issues that cover rural accessibility (Fernando and Porter, 2002). However, despite women's contribution to families as well as in society, it is also important to remember that a large share of the world's very poor is made up of women (UNDP, 1995; Rivera, 2007; Global Poverty Project, 2012; Olinto et al., 2013). Without making a meaningful change and improvement in women's lives, it can be challenging to achieve substantial socio-economic development in rural regions.

In developing economies, the ability of the poor to engage in local and regional economic activities is often limited due to inadequate transport facilities and services. In line with this, a study has shown that poor accessibility is one of the major causes of local poverty and that it is a barrier to local development because it contributes to low productivity of land and labour (Ali-Najadfard, 1999). Investment into rural accessibility can, for example, be a catalyst for the establishment of small and medium-sized enterprises (Lokshin and Yemtsov, 2005). A rise of agricultural wages as well as the creation of employment opportuinities are among some of the major outcomes of improved rural accessibility (Khandker et al., 2009). Therefore, a reform of rural transport is crucial to meet the actual needs of affected populations in accordance with their real-life transport patterns (Ali-Najadfard, 1999). Several development agencies promote frameworks of labor-intensive rural road constructions and maintenance programs as primary tool for the creation of local jobs, particularly for impoverished rural women (Fernando and Porter, 2002; Ahmed, 2008).

The level of accessibility in rural areas often shapes an individual's ability to participate in local and regional economic and social activities. It is dependent on the available means of transportation, temporal (time) dimensions and constraints due to spatial locations (e.g. spatial poverty trap) (Odoki et al., 2001). Being adequately connected ensures opportunities, through which an individual at a given location can participate in a particular activity or set of activities. Adversely, inadequate access creates structural challenges for the poor and marginalized population in every context (Odoki et al., 2001).

In Bangladesh, the moderately poor[3] are the major beneficiaries of any rural accessibility program. Locally, people differentiate between the poor and extremely poor by their food-intake ability, in a sense that those who can afford a plate of rice with some vegetables, along with perhaps some fishes are usually considered to be poor, and those who do not have this opportunity can be labelled as extremely poor (Dietzel, 2006). As for the group of extremely poor women, they had restricted access to employment opportunities until recently, which occurred due to the common stigmatized perception about their constrained physical ability for work and overall trustworthiness in any formal working process. Since the 1990s, however, some structural changes such as neoliberal policies contributed to the incorporation of more diverse beneficiary groups in rural development projects in Bangladesh (Asaduzzaman, 2007). The overall effect of these projects on the women's livelihoods was positive in overcoming uplifting embedded challenges and limitations.

Taken together, all this evidence suggests that enhancing rural accessibility provides the foundation for reducing rural poverty, through the provision of employment opportunities for the poor and marginalized women, who are often not part of major development interventions.

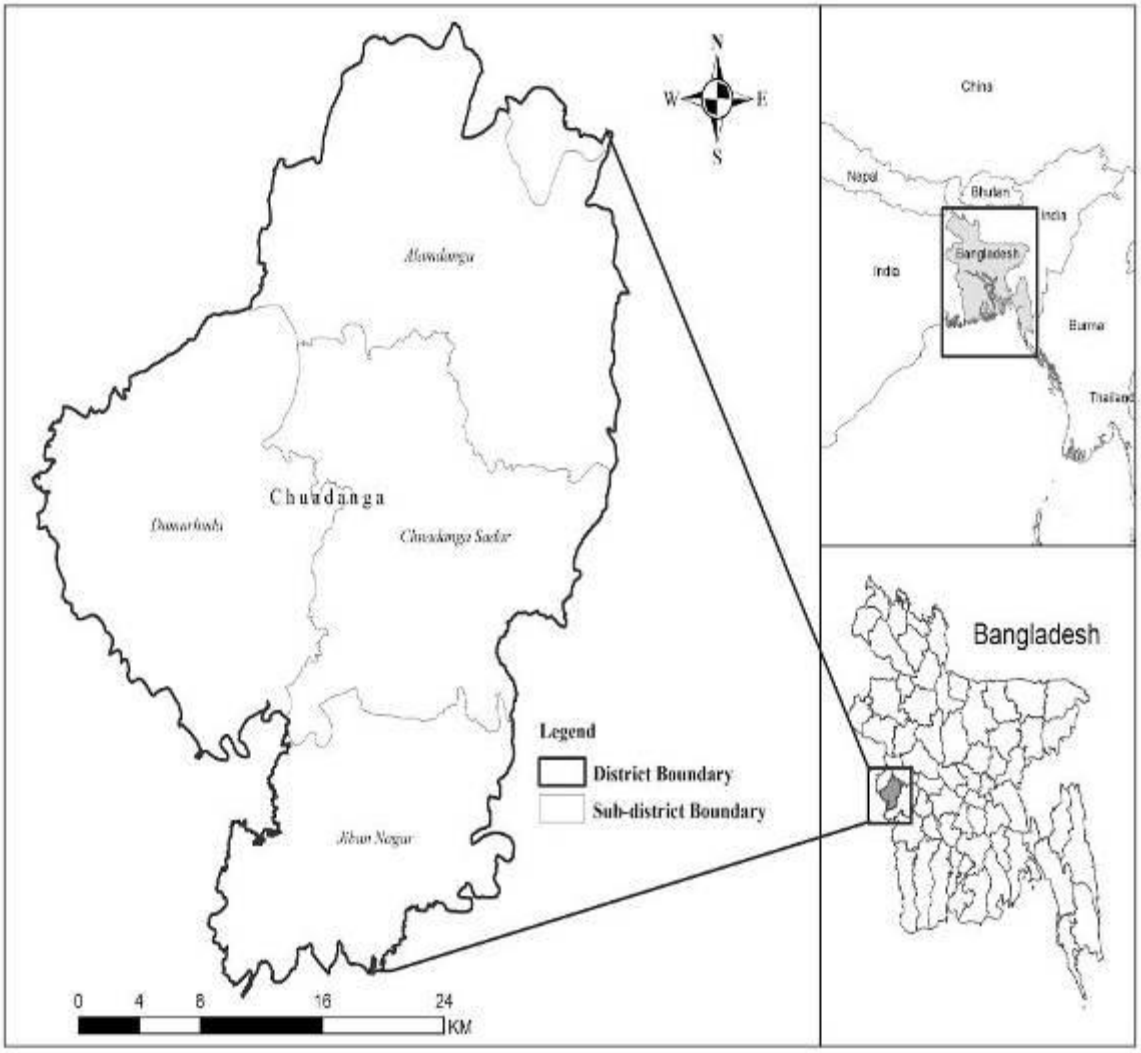
[3] with income between US $ 1.25 - 2 /day

THE STUDY AREA AND PROJECT

Study area

The study area is Chuadanga district, which is in the southwest region of Bangladesh and is relatively neglected in terms of government and non-government investments, livelihood opportunities and other social and economic determinants. It expands over almost 1170.87 square km (Bangladesh National Portal, 2016) has a population of approximately 1.1 million (BBS, 2011). The majority of the population is Muslims while a small portion is made up of Hindus. 49.95 per cent of all people are female (BBS, 2011). Even though the local societies are agro-based (BBS, 2011) a certain portion of framers are landless and they have very limited access to modern agricultural technology (Khan et al., 2009).

Figure 1: Location of Chuadanga District

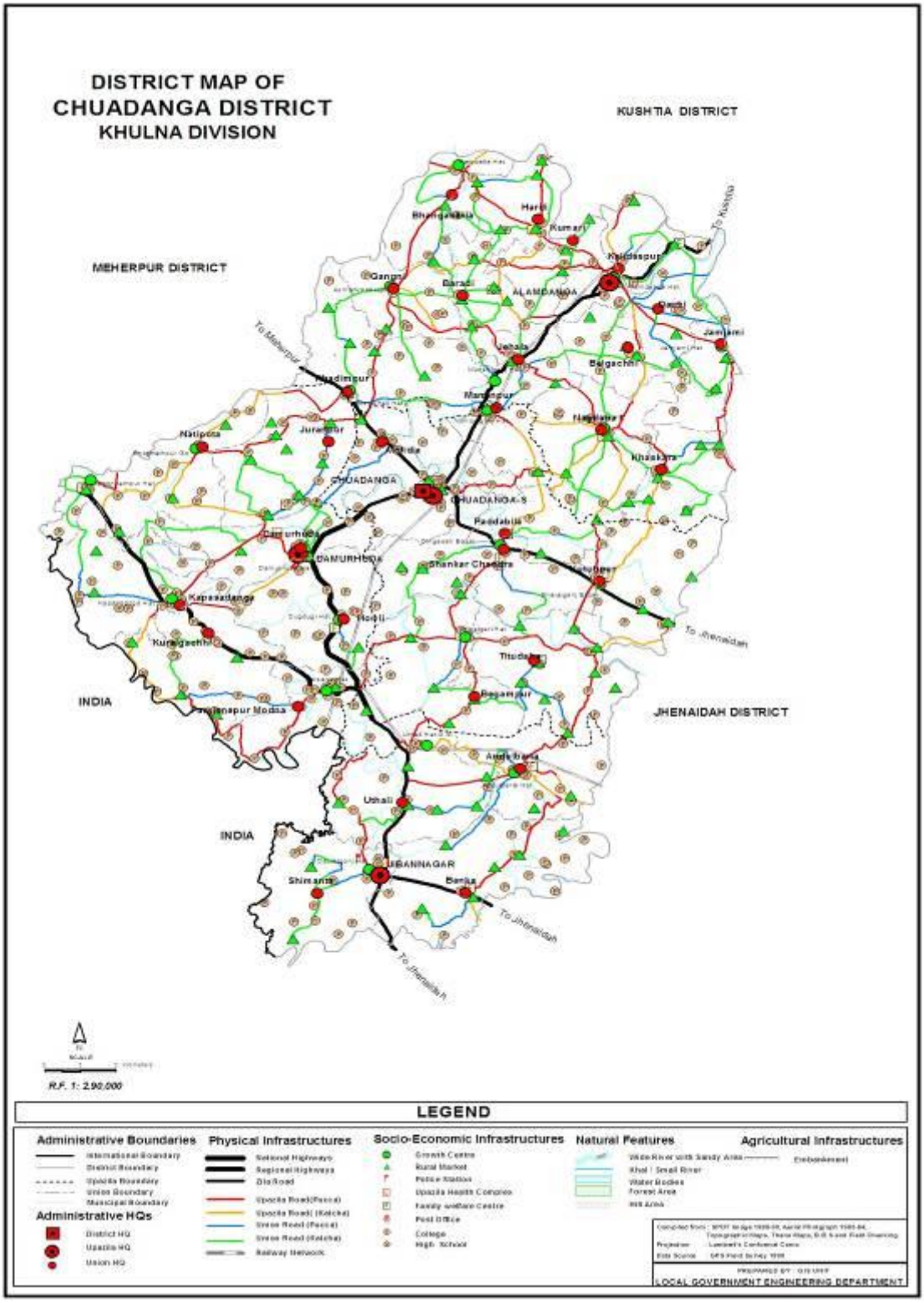


Source: Authors

Due to its proximity to the country's international border with India, a large portion of low-income people are involved in small-scale unofficial trading of cloths, and crops from India. Should border security be tightened, the poor would be left without their main source of income, which would make them even more vulnerable to food shortages. There has been a substantial lack of governmental and non-governmental attention to this issue, leaving unemployed or under-employed people behind with limited income opportunities (Ahmed, 2007; Ahmed, 2008). Several non-governmental organizations are working in Bangladesh with the communities to provide various services to local poor people. However, few work with the group of extremely poor women.

The district also suffers from a spatial poverty trap due to its distance from major regional and national cities. Market access has always been a challenge. Limited economic diversity contributed to low economic growth and restricted employment opportunities for women. In addition, lower public and private investments and limited political attention perpetuate the spatial poverty trap.

Figure 2: Detailed District Map of Chuadanga



Source: LGED (2016)

Rural infrastructure improvement project

The Rural Infrastructure Improvement Project phase 1 (the project) was implemented between July 2003 and June 2010. Based on the success of phase 1, second phase was initiated in other parts of the country.

Figure 3: A Project Road

Source: Authors

The phase -1 was initiated to reduce rural poverty through local economic development, rural development and improved infrastructure. The project was conceived as an Employment Intensive Infrastructure Programme (EIIP), aiming at improving accessibility through rural road construction and deliberately incorporating opportunities for local employment during both construction and management. Based on local needs and future potentials, two rural roads were constructed under the project (Table 1) and major physical components completed are shown in Table 2.

Table 1: Roads' names and lengths

Upazila	District	Name of Road	Length (Kilometers)
Damurhuda	Chuadanga	Chitla-Bagirhat	11.48
Damurhuda	Chuadanga	Damurhuda-Karpasdanga	9.34

Source: GITEC/GTZ (2006)

Local women were involved in most of the project activities. Traditionally, rural road construction works fall in men's domain. However, since worldwide poverty among the women is higher than among men (Global Poverty Project, 2012), The project was designed in a way that particularly those poor and marginalized local women were involved in the construction and maintenance of the roads, which also included tree plantation and stewardship across the roadsides. This mechanism of female engagement in the process was promoted and ensured by the Labour Contract Sharing (LCS) Agreement of the Local Government Engineering Department (LGED). This was initiated to provide fixed-term employment for landless destitute extremely poor women, as they could get an opportunity to come out of their poverty traps.

Table 2: Activities, planned under the project

Major Activities	Accomplishments
New construction or upgrading the poor conditioned roads	1325 km
Construction of bridges & culverts	7623 km
Tree plantation & maintenance	720 km
Improvement of rural markets/ growth centers	68 number
Improvement of rural ports on rivers (Ghats)	85 number
Construction of small ferries	3 number
Constructed of Union Parishad (Local Government) buildings	100 number

Source: GoB (2009)

RESULTS AND ANALYSIS

Impacts of rural accessibility on local economic development

The project contributed substantially to create and improve employability among the socially and economically marginalized women, who were previously left without any livelihood opportunities (Ahmed, 2007). Now they are engaged in various forms of micro, small, and medium-sized enterprises in their communities such as grocery shops, home-based handicrafts making, food catering services, etc. Their food consumption has also improved in addition to their expenditures on family health and education (Ahmed, 2009). The project contributed to raise the economically active population from 70.8 to 73.6 per cent. This also supported local communities in increasing their households' income by 109.5 per cent on project roads compared to baseline data (in constant 2004 terms) (LGED, 2009). In addition, evidence suggests that extremely poor women can play active roles in initiating entrepreneurial activities even in their households' premises, and they have the potential to gain meaningful financial returns after their own households'consumptions (Khandker at al., 2009).

Figure 4: Small entrepreneurships by local women

Source: Authors

Their wage working involvements are as follows (Table 3):

Table 3: Number of working days of the extreme poor women[4]

Number of Days	Per cent
200-365 Days	94 per cent
199-150 Days	4.5 per cent
100-149 Days	0 per cent
Unknown	1.5 per cent

Source: Ahmed (2008)

Two types of direct employment opportunities along with micro-savings have helped disadvantaged women as well as contributed to improve the local economy:

(1) Employment during the road and the supporting infrastructure development activities: The project required the direct engagement of local skilled, semi-skilled and un-skilled workforce for the construction and maintenance of the rural roads and other associated infrastructures. Road construction resulted in 40,037 person years of employment, where 22 per cent were female workers, and road maintenance will produce 42,000 person years of employment over the next 20 years, whereas 75 per cent of employees will be local poor women (GTZ, 2010; KfW, 2012). LCS of LGED

[4] Representativeness of this information could be arguable. Sample size was relatively small in comparison to the real population and selection was random, but with proper spatial representation within the region.

played an important role in ensuring their incorporation and employment opportunities under the RIIP-1.

Figure 5: Female workers in construction works

Source: Authors

(2) Employment through maintenance and tree plantation: The project offered relatively more stable employment opportunities for the targeted women. They are engaged in carrying out the routine maintenance of road embankment slopes and earth shoulders as well as plantation and caring of trees.

Figure 6: Female workers in construction works

Source: GIZ (2006)

Within the operational framework of the project, the generated number of labor requirements and the total income generation shown in Table 4.

In addition, these extremely poor women received various types of skill development trainings, such as basic accounting, and cooperative management. Moreover, they also receive various other trainings that link to micro, small, and medium sized enterprise development.

Local people experience challenges resulting from not having access to small loans or credits. In Chuadanga, access to traditional micro credit is not always available due to NGOs' regional and institutional preferences. For the extremely poor women, there are not many options available to access small credits for starting any small enterprise (Ahmed, 2007; 2009). Since they do not have stable incomes, personal savings for entrepreneurial activities are not available either. Within the framework of the project, extremely poor women were able to form small groups, which were designed in such a way that all the members save at least a tiny portion of their daily/weekly income. This helped them to start new ventures or small enterprises in addition to their engagements with the project (Ahmed, 2008). Within this self-managed micro-financial system, participating women selected

their own president and cashier. Members saved at least 2 Taka/day[5]. However, if anyone wanted to save more, that was highly appreciated. The president opened a joint bank account with the cashier, and savers received their money back by the end of the project or end of their contract with the project. It was also possible to specify a period, for example after 6 months, after which repayment would be effected. They were able to withdraw the money whenever they wanted, based on a mutual agreement.

Table 4: Direct employment and income generation[6]

Nature of Development	Barisal		Khulna		RIIP	
	Labor Requirement (Person days)	**Total Income Generation (000 Taka)**	**Labor Requirement (Person days)**	**Total Income Generation (000 Taka)**	**Labor Requirement (Person days)**	**Total Income Generation (000 Taka)**
Upazila Road	2 853 619	228 300	4 668 750	356 700	7 522 368	585 000
Union Road	-	-	619 583	47 300	619 563	47 300
Upazila Structure	482 057	38 600	290 472	22 200	772 529	60 800
Union Structure	-	-	26 410	2 000	26 410	2 000
Large Bridges	311 046	24 900	96 416	7 400	407 462	32 200
Growth Center	215 419	17 200	320 645	24 600	536 065	41 800
Ghat/Harbor	161 500	12 900	79 896	6 100	241 396	19 000
Union Parishad Complex	395 732	31 700	690 162	52 900	1 085 894	84 500
Ferry	-	-	-	-	-	-
Tree Plantation	319 988	25 600	479 441	36 700	799 429	62 300
Total	**4 739 361**	**379 100**	**7 271 755**	**555 900**	**12 011 115**	**935 000**
Total Employment (Person years)	**15 798**		**24 239**		**40 037**	

Source: GITEC/GTZ (2006)

However, due to the flexible nature of their savings and withdrawal, women were not always able to save enough money to start a new small-scale enterprise, which is largely because of the size of savings in addition to their daily challenges that demand more immediate attention (Ahmed, 2007), like payments for medical treatments and education. This financial savings-related challenge was identified and a new strategy of developing more robust plans for savings and re-investment in relation to entrepreneurship was proposed. It involved more economic and social support to beneficiary women in addition to skill development. They realized that if women cannot save sufficient capital to start their own businesses, they may continue to be disadvantaged within the poverty trap. Ultimately, increased employability, in addition to savings and improved rural accessibility contributed to making a meaningful change among the extremely poor women as well as in the community.

Moreover, once a week after their daily work, participating women usually discussed about the management, operation and prospects of their self-managed micro-financial system. Initially, LGED requested their supervisors, who were educated at least up to secondary school certification, to

[5] 1 US$ = 80 BDT (approximately)
[6] 80 BDT (Bangladesh Taka = 1 US$)

oversee the process. During their informal weekly discussions, possibilities for investments, associated required trainings and information were shared as well.

In summary, the project not only provided stimuli for the local economy through direct job creation, but it also improved rural development in multiple ways. There are now more economic activities, such as home-based grocery and handicraft shops. All these activities substantially improved households' consumption of local goods and services. Also, local entrepreneurs could increase their capacities to engage in gainful economic activities. The project improved economic opportunities for most of the rural poor and reduced their agro-based transports and marketing costs.

The project introduced five innovative practices and policies, which were the project's key success factors, particularly in terms of integrating the extremely poor women: (a) specific market sections' development for the disadvantaged women group; (b) participation in road construction, maintenance and tree plantation; (c) rural road infrastructure design through gender-sensitive approaches; (d) partnership with local government organizations; and (e) institutionalizing gender issues through project implementing agencies.

Access to market and development of rural growth center

Enhanced accessibility played a major role in boosting the local economy. The improvement of Upazila/Sub-district roads and of public facilities, such as growth centres and rural markets have a substantial positive impacts on agriculture production, socio-economic conditions and lead to poverty reduction (LGED, 2009). These local institutions play critical roles for the sale of rural productions and the distribution of agricultural inputs and consumer goods. Traditional rural markets are congested, unhygienic, dusty in the dry season and muddy in monsoon (LGED, 2009). The project improved rural transport and market places by developing rural feeder roads and unsurfaced roads connecting to local markets. It also developed market stands, pivotally aiming to reserve local women, and it improved the construction and management of these facilities with the collaboration of local stakeholders. The development of the growth centers and rural markets was very participatory in nature. The upazila parishads, local government units, contributed 10 per cent of the improvement costs from their own resources. Within the framework of RIIP-1, a total of 68 growth centers and rural markets were constructed and/or improved to ensure the safe trading environment in the communities (GITEC/GIZ, 2006). Visits to rural markets and nearby growth centers increased substantially after the project implementation (Table 5):

Figure 5: Visits to rural market and growth centers (per week)

	Trip to rural markets	Trips to rural growth center
Pre project	2.5	1.6
Post project	5.1	2.5

The market improvements and construction were accomplished through: employment of the LGED's established standards; paving and drainage of the market area; provision of internal roads and construction of covered selling sheds; open sales platforms; fish sheds; meat sheds; multipurpose sheds; and livestock slaughter slabs/sheds; installation on tube wells, sanitary latrines and garbage pits; and provision of an office of Market Management Committees (LGED, 2009). As a measure to encourage the rural poor women to use the markets, there are separate male and female toilets located so that women have the necessary privacy (LGED, 2009). In general, this market accessibility created opportunities for the local suppliers, farmers and particularly for the poor women to sell their products, such as handicrafts, and vegetables beyond their geographical boundaries with fair prices. It also extended their products' market not just in Bangladesh, but also in Europe and North America (Ahmed, 2007).

As for the intended gender-related outcomes, the share of women buying from the local market indeed rose to 32 per cent (which is a rather large figure in the context of Bangladesh), from 0 per cent before the project's inception. This phenomenal change in women's participation in rural markets and growth centers demonstrates RIIP's implications in the surrounding communities and region (Kuhnle, 2005). The project has also strengthened the institutional capacities of local implementing agencies, improved road safety, and provided support for associated consultancy services (KfW, 2012).

Livelihood perception and food security

Enhanced employability along with other livelihood opportunities created by the project contributed to the improvement of livelihood perceptions among extremely poor and marginalized women. It was evident that employment generation has enhanced social inclusion of everyday life, as opposed to previous despair and marginalization (Table 6):

Table 6: Livelihoods perception after the inception of the project[7]

Livelihood Perceptions For The Future	per cent
Better	95
No changes	0
Worse	0
Better + worse	0
No idea	5
Unknown	0

Source: Author (2008)

Locally, food consumption and food security among the extremely poor women were improved after the project due to local employability and higher incomes for poor and marginalized women. On average, people in rural areas consume three meals per day. Still, for the group of extremely poor women even one meal per day was uncertain due to their limited resources. The capacity of food intake was increased to two to three meals per day.

Simultaneously, "access to land ownership" was another challenging feature for local marginalized poor women (Abdullah, 2007). Where land ownership among the women could not be enhanced directly by the project, at least leasing of some agricultural lands for farming became affordable. This, in turn, fostered the development and improvement of agro-based entrepreneurship (Ahmed, 2008).

Access to health facilities

The accessibility to the locally available health facilities were improved in rural communities alongside the Chitla-Bagirhat and Damurhuda-Karpashdanga roads. As can be seen in table 7, people living these areas now have better access to the local health services.

Table 7: Improved accessibility to health facilities

Changing Aspects	Project Area	Control Villages[8]
Average time to reach to the nearest health facilities, which includes walking from home as well as using locally available transport modes (e.g. local bus, vans)	43 mins.	132 mins.
Observed time-saving in reaching the health facilities over the five years	70 per cent	2 per cent
Observed improvement of family health conditions	87 per cent	32 per cent

Source: Kuhnle (2005)

Access to skill development training and education

RIIP also resulted in education and skill development opportunities for extremely poor women and their family members. Specially, their children benefited in terms of education, because of facilitated access to schools and better household finances (Khandker et al., 2009). The training involved not only skill development in the area of basic accounting and financial management, but also on the establishment of small and medium-sized enterprises. Furthermore, local and regional NGOs were more interested in expanding their activities in this region than before, as it had become

[7] Representativeness of this information could be arguable. Sample size was relatively small in comparison to the real population and selection was random, but with proper spatial representation within the region.
[8] Control villages are those villages, which is not in RIIP/RDP-25 coverage area.

easier for them to approach remote communities. This has also created opportunities for poor women to integrate into mainstream market and financial system.

Ensuring universal primary education is still a large challenge for Bangladesh (Ahmed and Ypanaque, 2011). Government and other development partners are making efforts to address the issue effectively, particularly among the marginalized groups of populations. Since the implementation of the project, 59 per cent female students from extreme poor family were enrolled in primary schools, compared with previously only 32 per cent (Kuhnle, 2006). This suggests that the project has not only improved employability in the region, but also created avenues for education, leading to overall social progress in the long run.

Opportunities for investments

Since the inception of the project, external investors have made some small to medium-sized investments, creating demand for local labors (Ahmed, 2009). For example, external investors and businessmen worked with local women to produce various handicrafts merchandise, for which there is tremendous demand within the country as well as abroad. This lead to increased levels of local employment and provided social and economic incentives for further entrepreneurial activities. All of this not only helped the women financially who were directly part of the project, but it also increased overall local consumption (e.g. of food), stimulated interest in various other social services (e.g. education) within the larger community, as well as enhanced people's capacity to actually make use of them. Therefore, it was evident that the impacts of the project went beyond mere financial outcomes through the provision of incentives and opportunities to pursue wider social and development goals.

Possible risks

Even though improved accessibility has positive impacts on local economies and societies, it also imposes some potential challenges. Evidence from other parts of South Asia suggests that improved accessibility and road networks can contribute to an increase in female trafficking as well as smuggling of goods (Nepal, 2007). Since Chuadanga is situated at the border region, there exists the danger of similar incidents. However, strong social awareness in the rural communities along with active engagements of law-enforcement agencies can overcome this challenge. Furthermore, rural road construction can be the reason for potential disruptions of water channels and landscape fragmentation, which can affect land productivity along with overall food security. Ultimately it can have a negative impact on social and cultural diversity as well as on political capital (Faiz et al., 2012). However, it has to be mentioned that such effects were not observed in the project area.

Overall contribution

A majority of world's poor live in rural areas with limited to no accessibility to various services and livelihood opportunities. Many of them experience hunger and chronic poverty. These problems can effectively be address by enabling disadvantaged demographic groups through the provision of more efficient market access, which can create opportunities for employment and local socio-economic development. This is particularly important for countries like Bangladesh, where a large share of population lives under the poverty line. The project has successfully established employment opportunities and jobs for the extremely poor women through the focus on a labour-intensive infrastructure program (Faiz et al., 2012).

Figure 7: Impacts of improved acccessibility

Overall the project improved physical conditions of rural roads, improved local facilities such as local markets, boat riverports, ferries, and union council office complexes; enhanced infrastructure maintenance; and strengthenied institutional capacities of the implementing organisation; and capacity of small and medium-sized enterprises. Table 8 shows measure of success based on some selected indicators.

Table 8: Project indicators and status at ex-post evaluation

Indicator	Status at ex-post evaluation
20 per cent increase of income among the poor households	47 per cent increase of income among the poor households
30 per cent increase of traffic	Motorized traffic increased by 140 per cent, and non-motorized traffic increased by 57 per cent
A 10-15 per cent decrease in transport cost	Cost reductions were possible 65 per cent for passengers, and 63 per cent for goods.
A 15 per cent increase of volume of goods handled by markets	Market sales increased by 43 per cent

Source: KfW (2012)

Improved rural roads and accessibility in the project area has contributed substantially to the achievement of the government goals of poverty reduction and employment creation among the targeted beneficiaries. This way, the project also contributed to the attainment of the United Nations Millennium Development Goals (Table 9). The project has helped to alleviate poverty in the region through higher economic efficiency and lower costs and prices as well as better access to social and economic opportunities (KfW, 2012).

Table 9: Contribution of towards the Millennium Development Goals

MDG	The project Contribution
Goal 1: Eradicate extreme poverty and hunger	Employment generation (immediate, long-term) Lower transport costs and thereby increase the real incomes Time savings
Goal 2: Achieve universal primary education	Access to education
Goal 3: Promote gender equality and empower women	Female participants in local governance and market management committees Decrease of wage differences for equal work Promotion of female labor
Goal 4: Reduce child mortality	Access to health Road safety campaign
Goal 5: Improve Maternal Health	Access to health
Goal 7 *(partly covered)***:** Ensure environmental sustainability	Large-scale community-led plantation of trees by the road side

Source: GITEC/GIZ (2010)

CONCLUSION

Poor accessibility is a major developmental challenge in many parts of the world. It is particulary important in rural areas of the Asia-Pacific region, since a large share of the global population is situated there with minimal social and economic opportunities. With a case study from southwest Bangladesh, this article highlights the benefits of a carefully planned employment-intensive inhfrastructure program. Such an initiative not only improves rural accessibility, but also creates opportunities for local poor. More specifically, the project created local employment opportunities as well as an environment for inclusiveness and solidarity among poor and marginalized citizens, who, otherwise, would have been excluded from mainstream economic acitivities.

It is evident that rural accessibility can positively influence the development of local small and medium-scaled enterpreneurial efforts, improve food security and, moreover, improve possibitities for land ownership among the previously disadvantaged population. Infrastructure projects are usually evaluated in *economic* terms. However, an improved rural infrastructure has the potential to exert influence beyond that *economic* sphere. The project has proved its substantial implications for people's access to health facilities, which is traditionally a big challenge for the rural poor. It also created avenues for locally available skill development and education opportunities, which have tremendous impacts not just for the direct beneficiaries of the project, but also for future generations. The facilitation of investments on locally-grown small and medium sized enterprises can make a critical contribution to the overall local economic development.

Besides the project's socio-economic implications for southwest Bangladesh, it also provides insights for future reserarch. Relevant future studies might ask how rural accessibility can influence and/or shape political participation among poor and marginalized citizens. In addition, since various regions in the world are increasingly experiencing climate related risks, it can be extremely valuable to have deeper insights on how and to what extent rural accessibility can contribute to strengthen local capacities to cope with climate variability and other extreme climate events.

The project has proven to be effective in promoting local economic development, empowerment, access to roads and markets as well as in contributing to various aspects of social development. The success of the project has led other non-profit and government agencies to explore implementing more projects in the region. The project provides critical development insights for Bangladesh and other regions in developing countries, operating within a similar social and economic context. In that sense, it is always important to remember the following: poor is poor, not because they were born poor; but largely because of the structural challenges that they encounter throughout their lives. It is therefore imperative to adress local infrastructual challenges to unlock accessibility and provide new opportunities to local people.

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