IMPACT OF IMPROVED COMMUNICATION ON WOMEN’S TRANSPORT NEEDS AND EMPOWERMENT IN BANGLADESH

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ABSTRACT

The effective development of transport and ICT infrastructure can play a strong role in fostering gender equality and women’s empowerment and contribute to the region’s achievement of the Millennium Development Goals. Harnessing the potential for synergies between improved communications and ICTs with transport development can play a crucial role in promoting the empowerment and general welfare of women.

In Bangladesh, cultural and social norms often restrict women’s travel, which may prevent them from doing activities outside their homes. This paper, which is based on case studies, provides insights on how complementary interventions in the transport, ICT and other infrastructure sectors can facilitate women’s access to a broad range of socio-economic opportunities and services. In this way, the interventions can contribute to promoting the empowerment and general welfare of women.

Keywords: women, gender, entrepreneurship, transport, ICTs, women’s empowerment

I. INTRODUCTION AND BACKGROUND

With the costliness of investments in transport and ICTs infrastructure, Governments are seeking ways to optimize their investments in these areas. Projects in different types of infrastructure can interact and result in compounded benefits through proper planning. There are potential synergies between better communications and ICT systems and improvements in transport infrastructure. Better transport facilities and roads impact positively on communication flows. Similarly, the availability of improved communications

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and ICT infrastructure has an effect on people’s travel patterns and transport needs.

UNDP has estimated that, among the 1.3 billion poor people in the developing world, women represent approximately 70 per cent. Millennium Development Goal 3 is committed to promoting gender equality and women’s empowerment. Effective transport and ICT infrastructure development can play a strong role in fostering gender equality and women’s empowerment, and contribute to the region’s achievement of the targets of Millennium Development Goal 3 and other Goals.

As women and men have different economic and social roles and responsibilities and are subject to differing social norms, their access to facilities and services, as well as their needs, often differ with regard to transport and ICTs. While ensuring women’s access to ICTs and averting a gender “digital divide” in developing countries has been recognized as important to women’s empowerment, the relationship of transport to gender equality and to the empowerment of women is less understood. In planning infrastructure facilities, harnessing the potential for synergies between improved communications and ICTs with transport development can play a crucial role in promoting gender equality and women’s empowerment. However, considerable work is needed to better understand the dynamics behind this relationship. It is important to consider how to accommodate women and men’s differing needs in order to make the development of transportation and ICT infrastructure more efficient and complementary.

In this respect, Bangladesh poses an interesting case for examining the gender dimension of (a) how improved communications can impact on travel patterns and enhance investments in transport and (b) how improvements in transport infrastructure can impact on communication flows and communication technology needs and access.

This paper will examine these dynamics with particular focus on the effects of improved transport and communications and ICTs, as well as the interplay between these developments on women’s entrepreneurship in rural areas. It will include a general mapping of the travel needs of rural women in Bangladesh with regard to their daily tasks and responsibilities and the societal norms and constraints to which women are subject. Two case studies are presented to illustrate women’s basic transport and communications needs for carry out their household and entrepreneurship activities. One case study focuses on women’s household activities, while the second focuses on women’s entrepreneurship activities. The potential for women’s empowerment
in Bangladesh through synergized transport and ICT improvements is considered based on lessons drawn from the third case study on Nabanna, a woman’s ICT entrepreneurship initiative in India. Finally, this paper concludes by examining where there may be opportunities to develop transport and communications technologies in an integrated and mutually reinforcing manner in order to promote rural women’s empowerment and women’s entrepreneurship.

II. FACTORS AFFECTING WOMEN’S MOBILITY IN BANGLADESH

Bangladesh is one of the world’s most densely populated countries, with more than 77 per cent of its population living in rural areas. More than two thirds of the people living below the poverty line in Bangladesh are women. There is a marked difference between men and women in the amount of travel and in their travel purposes. It is important to consider to what extent these differences can be attributed to gendered differences in travel needs and to what extent they are caused by social norms. In Bangladesh, women’s mobility is subject to a number of factors, which include the accessibility of safe and comfortable transport modes, travelling conditions and social norms circumscribing acceptable conduct and activities for women according to traditional practices.

Roads, transport modes and travelling conditions for women

Road transport is the major form of transport for the movement of people and goods in Bangladesh. The road transport system is comprised of mechanized vehicles and a more traditional, informal transport sector serviced largely by non-motorized forms of transportation (that is, rickshaws, rickshaw vans and “bullock” carts). Most modes of transport are non-motorized, and walking is the primary means of mobility. On rural roads, informal non-motorized vehicles and walking are particularly predominant.

Unsafe road and transport conditions impede rural women’s mobility in Bangladesh. Public transport, road improvements and infrastructure design also tend to cater to the formal work needs of men rather than to the needs of women, which are primarily in the areas of reproductive, productive and community-managing work. This leaves women with few travel alternatives. Studies indicate that women face discourteous treatment and harassment on crowded public modes of transportation, such as buses. This further reinforces women’s preference to use less “public” forms of transportation, such as
rickshaws. This, however, entails greater cost and is not affordable for very poor women (ADB, and others, 2005).

**Social norms and women’s mobility in Bangladesh**

Bangladesh is a traditional patriarchal society, and the family comprises the basic unit of social control and sets the norms for gender roles. Social norms, such as the Islamic practice of purdah, tend to prohibit many women from leaving the home by requiring them to adhere to a strict code that determines when and for what reasons women may wander outside their homes. The practice, which is aimed at secluding women in order to protect their modesty and purity, is common throughout the country. In Bangladesh, it is widely perceived that a “decent” woman should not go to the market in order to preserve the izzat, or respectability and honour, of the family (Fernando and Porter 2002). For women, work outside the household is disparaged and discouraged (Karim, 2001). As a consequence, the labour market is restricted for women, making it more challenging for a woman to be financially independent (USAID, 2006).

As a result of economic hardship necessitating the need to engage in income-generation activities, poor and destitute women are generally more willing to challenge strict adherence to traditional conventions, such as purdah, and are likely to be more mobile than more affluent women. They travel to fields, markets and road construction sites for work.

While there exist segments of the upper class in which “liberalized” women live a more mobile lifestyle (normally as a result of education), key factors affecting the extent to which purdah constrains a woman’s mobility are her economic and social status. Education is also a factor influencing the extent to which purdah is embraced by women.

Discrimination in the provision of services on the basis of a woman’s ancestry can manifest itself in caste- (or tribe-) based distinctions among some populations in Bangladesh. These distinctions, determined by birth, result in serious violations across the full spectrum of civil, cultural, economic, political and social rights. Women who are discriminated against on the basis of caste are often singled out, not because of a difference in physical appearance or race, but rather because they belong to an endogamous social group that has been isolated socially and occupationally from other groups in society. The triple burden of gender, class and caste makes lower-caste women the furthest removed from equitable access to basic resources and services in transport and communications and from legal protections necessary to ensure women’s
safety and security where travel may be necessary (Human Rights Watch, 2004).

Due to the complex influence of gender, class, wealth and caste on women's mobility, it can be difficult to determine how women are affected by investments in transportation infrastructure. Improved transport infrastructure and travelling conditions for women do not necessarily result in the greater mobility of or positive transport impacts on Bangladeshi women. To ensure that the benefits of transport infrastructure investments for women are not undermined, it is crucial to develop gender-sensitive transport approaches that address these societal constraints and issues of gender relations effectively.

III. MAPPING WOMEN'S TRAVEL NEEDS

A study by Matin and others on the relationship between mobility and rural women's empowerment in Bangladesh shows that there is a rigid division of labour in the composition of work done by Bangladeshi women and men (Matin and others, 1999). Official labour statistics on formal work activities show that women work fewer hours than men in all types of activities, including both agricultural and non-agricultural work. However, data gathered through time-use studies in rural areas show that women spend as many, if not more, hours at work than men. These are primarily in household maintenance and subsistence activities.

Women's household activities

Bangladeshi women in rural areas shoulder the responsibility of managing the household. In terms of reproductive activities, women generally have primary responsibility for the care and feeding of children and families. Cooking, cleaning, childcare and nursing activities, and looking after family members occupy a major portion of Bangladeshi women's daily work. Generally included in their cooking responsibilities are, for example, gathering and managing water and fuel resources, such as stove ash or straw. Women are also primarily concerned with impending family needs and other maternity concerns requiring immediate and long-term care, such as seeing to children's and family members' health and schooling, ensuring sufficient household income, and helping the employment of the family (Biswas, Bryce and Bryce, 2001).

Women's use of roads and transport facilities involves fulfilling the above-mentioned domestic and familial responsibilities and caretaking work.
Even for women observing purdah, transport and commuting needs may often involve travelling to health facilities, within the village or to agricultural fields for various household tasks, such as gathering water or straw. Where rural women cannot gain access to or afford simple transport, such as rickshaws, they frequently walk with heavy loads or carry head loads. For women observing purdah less strictly, transport needs may also include visits to local markets or travel to wage employment and jobs.

**Women’s supplementary income generation through subsistence activities, wage employment and microentrepreneurship**

Bangladeshi women participate in different kinds of economic activities, such as subsistence agriculture, largely as unpaid family workers or, if the work is paid, in order to supplement the family income. In general, women participate more in rural industries that can be conducted at home in breaks between household work, and less in those that require them to work outside the home.

The 1996 data indicate that, in comparison with other countries in the region, unpaid family workers in Bangladesh constitute the highest proportion of employed women, while the percentages of employers, self-employed persons and employees are the lowest in Bangladesh (Karim, 2001).

Women, in particular poor women who do not observe purdah and work outside their homes, often enter unskilled, low-paid forms of employment. For example, women’s participation in almost all stages of crop production is common, and post-harvest crop processing at the household level represents the single major source of employment for rural women, providing 40 per cent of woman’s wage earnings. Increasingly, women are moving into agricultural activities, such as transplanting, weeding, harvesting and irrigation, which have traditionally been done by men. Road construction and maintenance work has also proved to be an effective wage opportunity for women. In addition, improved roads, facilitate women’s access to other destinations, such as other villages for wage work, or social facilities, such as schools and health clinics.

Large numbers of women in rural areas generate supplementary family income through small family businesses and activities in the informal sector. These women’s microenterprises are frequently located in the home. Purdah-observing Bangladeshi women can operate home-based family enterprises, although they do not travel to markets to sell their products or to purchase raw materials (Biswas, Bryce and Bryce, 2001).
Due to the low social status of women, particularly in rural Bangladesh, women tend not to be regarded as owners of the enterprises or income-generation subsistence activities they run. They tend not to receive a share of the income nor to be involved in family financial decision-making.

Due to the global recognition of the Grameen Bank microcredit initiatives pioneered by Bangladeshi economist Mohammad Yunus, women-targeted microcredit schemes are increasingly being introduced. However, for the most part, women’s “cottage industries” in developing countries tend to be overlooked by agencies because they are in the informal sector. As a result, they are usually run by women with no or minimal access to financial resources, credit or equipment, or with limited household and community-level decision-making power, which promulgates the “invisibility” of women (Dutta, 2003). These women are not regarded as earning members of the official economy and their income-generation activities are “invisible”, leading to the development of public policies that do not frequently address or integrate the needs of women entrepreneurs and the stunted expansion of their businesses.

Improvements in transport accompanied by credit initiatives for women can substantially strengthen women’s businesses and promote entrepreneurship. The other factors that affect a woman’s travel needs in undertaking these economic activities are the extent to which she observes or does not observe purdah, her socio-economic status, gender power relations in Bangladeshi society and whether her economic needs take precedence over traditional and religious demands.

IV. SYNERGIES BETWEEN COMMUNICATIONS/ICT SYSTEMS AND TRANSPORT INFRASTRUCTURE AND POLICY CONSIDERATIONS FOR WOMEN’S EMPOWERMENT

The need to consider synergies between transport and other infrastructures is reinforced by the fact that transport infrastructure is not an end in itself. People use transport to gain access to other places, services and infrastructures. To make the best use of the potentials created by improved transport facilities, other things must be in place, and the chief role of transport is to facilitate people’s access to these other services and facilities. Subsequently, it is essential that there is an integrated, holistic approach to the development of transport infrastructure and that this be done in tandem with other infrastructure development. To ensure the full benefit of transport
development to the public, the development agenda must be looked at as a whole rather than on the basis of a purely sectoral perspective (ESCAP, 2006).

The linkages between ICTs and transport can be seen in how improved communications strengthening poor people's access to information can result from investment in transport infrastructure. This can have far-reaching impacts on rural Bangladeshi women and implications for women's transport needs relating to access to activities and opportunities.

**Linkages between improved transport and women’s mobility**

Although there has been recognition that gender equality, women's well-being and human security are important to transport planning, few transport projects have actually incorporated these successfully. A portable steel bridge project, funded by the Government of Japan in Bangladesh, exemplifies one project that did so (Jahan and McCleery, 2005). It also demonstrates the linkages among improved transport, ICTs and women's mobility. The steel bridge project was aimed at building small-scale bridges on strategic routes and resulted in the considerably increased mobility of women. The site selection of the bridges was done in a way to ensure that they were easily accessible by women and the surroundings were safe for them. The bridges were also appealing to women since most of the transportation modes used on the bridge were familiar to them.

As a result of the bridge's women-friendly design and location, larger numbers of women began to make trips, mostly to visit health facilities, markets, schools and relatives' homes. Women's greater ease of access to health clinics and their increased participation in social and community activities were particularly notable. For women less restricted by purdah, the prospect of an easier and safer commute also created incentives for more women to take wage employment.

As travel to health clinics and hospitals for family purposes is one of the common trips made by women, a key benefit of better road transport is women's improved access to these health facilities and, as a result, the improved quality of women's emergency reproductive care. According to a Millennium Development Goals report on Bangladesh, one of the chief causes of maternal deaths is the delay in women receiving health care due to the inaccessibility of health services/centres. Most health centres and private clinics are located in district towns, whereas 70 per cent of the population live in rural areas.
Since the lack of access to appropriate transport services is one of the main reasons for the poor reproductive health of rural women in many countries, improved transport facilities and services can make possible the increased use of health-care facilities and health-care professionals, leading to a reduction of maternal mortality (ESCAP, 2006).

Interestingly, the improved communications system resulting from the bridge project had a powerful spillover effect on purdah-observing women as well, though they did not leave their homes or experience a direct change in mobility. A joint Japan-UNDP study on the project found that, due to the better communications resulting from the bridges, numerous NGOs moved into these areas. This spurred significant increases in women’s entrepreneurship, self-employment and microfinancing activities. The NGOs played a strong role in providing entrepreneurship support to women and training in income-generation areas, such as poultry, cattle-rearing, vegetable gardening, handicrafts, pond-fish culture and other activities (Jahan and McCleery, 2005). Although the women operated their businesses from home and did not themselves undertake travel to markets to sell their products or to purchase raw materials, the increased ease with which partners could come to their doorstep and easier and less expensive access to markets helped their businesses to flourish.

**Linkages between improved ICTs, women’s entrepreneurship and women’s mobility**

In the area of ICTs and infrastructure, such initiatives as the Grameen Bank Village Phone project, in which money is loaned to poor rural women to start small businesses purchasing and renting out mobile phone services to the rural community. This is an example of how communications and ICTs can play a role in promoting women’s entrepreneurship, inducing women’s increased mobility and shifting travel patterns.

In growth centres of Bangladesh, there have been initiatives in local markets to allocate at least 15 per cent of the space to the women’s market section, with seating and selling arrangements for destitute women. This is gradually changing conditions under which women have little or no opportunity to sell products at the market because social norms make it difficult for them to set up stalls next to male shopkeepers or because they are at risk of harassment. This initiative has created income-generation opportunities for women previously not available to them. In addition, it has provided greater incentives for women to support improved transport routes due to their
motivation to gain access to the market places for entrepreneurship purposes (Sultana and Tanaka, 2002; Kelkar, Nathan and Rownok, 2004).

**Linkages between improved transport, ICTs and women’s entrepreneurship: effects on promoting women’s empowerment and sociocultural change**

Important changes are taking place in rural Bangladesh with regard to the creation of empowering conditions for women and girls. With such initiatives as the Grameen microcredit schemes for women and the introduction of women’s market sections, increasing numbers of women are entering the Bangladeshi job market. These initiatives and changes have led to significant advances in social perceptions of women’s role in society and the need for their mobility. However, long entrenched social and religious practices still remain a major problem towards women’s social advancement and empowerment.

One way that these initiatives are contributing to the promotion of women’s empowerment can be seen in the greater connectivity among people, which is a result of women’s entrepreneurship and of bringing cell phones to rural areas. This has a synergetic effect in promoting stronger information flows within rural areas, in society as a whole and among Bangladeshi women. In this sense, communications and ICTs can play a crucial role in inducing gradual changes towards women regarding their social status and in addressing constraints that restrict women’s activities and mobility. ICTs can facilitate greater communication among purdah-observing women and play a role in enabling women to reach out to the world outside the home and break out of their isolation despite their physical seclusion.

Innovations are taking place in the development of women’s knowledge and skills through ICT-mediated women’s networks. Where women are hindered from communication flows that are normally acquired through physical travel, the development of ICTs can provide an effective alternative mechanism through which Bangladeshi women can gain access and exposure to information flows.

Even in cases in which ICT-induced efficiencies can substitute travel, the expansion of women’s enterprises through the use of ICTs can have a synergetic effect on travel, generating greater travel either by the woman entrepreneur herself or by employees or business partners. The demand for travel and transport needs may also increase for purdah-restricted women entrepreneurs, though these travels may be delegated to male associates and partners.
In the knowledge and sociocultural norms sphere, even in the case of women remaining confined to the home, improvements in communications and ICT infrastructure can play a role in exerting incremental changes to social perceptions and customs that impede women’s travel and mobility. In the long-run, such improvements contribute to the greater effectiveness of transport infrastructure in promoting women’s empowerment.

V. CASE STUDIES

There is a scarcity of quantitative studies examining the effect of improved communications and ICTs on the travel needs of rural women and the interplay between improvements in transport infrastructure and improvements in communications/ICT infrastructure. This paper presents the following two case studies to provide a picture of the travel and communications situations that rural Bangladeshi women face both in the traditional household setting and in the context of a more progressive women’s entrepreneurship situation.

The first case study documents data from a study conducted on women’s time use to give a clear picture of women’s travel needs in Bangladesh. The second case study profiles a woman entrepreneur in a women’s market section of a Bangladeshi market. It demonstrates how significant changes in social perceptions regarding women’s entrepreneurship have led to increased opportunities for women to travel for business purposes.

This paper presents a third case study on Nabanna, a women’s entrepreneurship initiative in India. This case study demonstrates how ICTs have helped to promote women’s entrepreneurship by improving information flows and by identifying business opportunities leading to both travel efficiencies and business expansion-related travel. Although sociocultural norms in India differ from those in Bangladesh, the experience gained from this case study provides insights on how to address some of the mobility vis-à-vis the empowerment problems of women that are also relevant to Bangladesh.

Case study 1: travel time savings study in Bangladesh

The following is a summary of a study conducted by I.T. Transport Limited for DFID (2002). Although not focused exclusively on women, it provides a picture of women’s transport needs and patterns in a traditional household setting. The study focused on travel time savings through effective investments in transport infrastructure and service development. It was conducted in 2002 in Jessore District, in south-western Bangladesh.
Although physical, environmental and transport characteristics vary across Bangladesh, Jessore District was selected as it represented the majority of the country, where there is a predominance of land transport as opposed to water transport. Bicycles and rickshaw vans are the most used forms of transport in Jessore. Buses ply on paved roads, and “bullock” carts enable access where roads are of poor quality. The study covered seven paved, partly paved and dirt roads of between 3 and 19 km in length. Agriculture was the main source of household income in the study area.

Travel patterns were analysed based on separate types of questionnaires administered at the household level and at roadside interviews. In addition, selected male and female travellers from different social groups were interviewed to ascertain their reasons for travelling, choice of transport mode and how these were related to their socio-economic circumstances.

Table 1. Overall and gender-disaggregated purpose for travel

<table>
<thead>
<tr>
<th>Purpose</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No. of respondents</td>
<td>Percentage of total respondents</td>
<td>No. of respondents</td>
</tr>
<tr>
<td>Household basic needs</td>
<td>6</td>
<td>0.50</td>
<td>1</td>
</tr>
<tr>
<td>Household wider socio-economic needs</td>
<td>957</td>
<td>78.30</td>
<td>153</td>
</tr>
<tr>
<td>Social and leisure</td>
<td>259</td>
<td>21.20</td>
<td>116</td>
</tr>
</tbody>
</table>


Note: The total number of respondents was 1,492, of which 1,222 were male and 270 were female.

Table 1 presents the overall and gender-disaggregated purpose for travel under three broad categories. It can be seen from the table that approximately three out of four trips were made to meet the household’s wider socio-economic needs, and one out of four for social and leisure purposes, respectively. Only a small proportion of trips were made for household basic needs using the roads covered in the study. Travel in relation to the household’s basic needs included travelling in relation to basic household activities, such as water collection, firewood collection and grain grinding, and basic agricultural
activities, such as ploughing, planting, weeding and harvesting. This was expected as most travel for basic needs was on unclassified tracks and paths much closer to homes.

Table 2. Gender-disaggregated purposes for travel relating to wider socio-economic needs

<table>
<thead>
<tr>
<th>Purpose of travel</th>
<th>Overall</th>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
<td>Percentage</td>
<td>No.</td>
<td>Percentage</td>
</tr>
<tr>
<td>Household wider agricultural needs</td>
<td>119</td>
<td>11</td>
<td>117</td>
<td>12</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>For going to economic facilities (e.g. banks)</td>
<td>6</td>
<td>1</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Travelling while work under other employer</td>
<td>12</td>
<td>1</td>
<td>11</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Self-employed travelling while working</td>
<td>43</td>
<td>4</td>
<td>39</td>
<td>4</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>For going and coming from work place</td>
<td>237</td>
<td>21</td>
<td>186</td>
<td>19</td>
<td>51</td>
<td>33</td>
</tr>
<tr>
<td>For purchase/selling of goods for profit</td>
<td>264</td>
<td>24</td>
<td>254</td>
<td>27</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>Travel to go to health facilities</td>
<td>66</td>
<td>6</td>
<td>46</td>
<td>5</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Travel to go to market for purchase (non-profit)</td>
<td>203</td>
<td>18</td>
<td>183</td>
<td>19</td>
<td>20</td>
<td>13</td>
</tr>
<tr>
<td>Travel to go to town</td>
<td>31</td>
<td>3</td>
<td>27</td>
<td>3</td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td>Travel to go to administrative centres (e.g. government offices, post office)</td>
<td>32</td>
<td>3</td>
<td>31</td>
<td>3</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Travel to go to educational institutions</td>
<td>97</td>
<td>9</td>
<td>57</td>
<td>6</td>
<td>40</td>
<td>26</td>
</tr>
</tbody>
</table>


Table 2 above provides a more detailed breakdown of the second category of table 1. As seen in table 2, there was a marked difference between the travel purposes of men and those of women, with a larger proportion of women’s travel being for social and leisure purposes, which included meeting social obligations. In this category, there was a substantial difference between the travel purposes of men and those of women, with the largest proportion of trips of the former being “for purchase/selling of goods for profit”, followed by “for going and coming from work place.” In the case of women, the largest proportion of trips were made “for going and coming from work place”, followed by for travelling “to health facilities” and for going “to market for purchase (non-profit)”. The reason behind women travelling to health facilities more than men was related to women’s responsibilities for their children’s health and welfare.
Given the scarcity of data on women’s travel patterns, thus case study helps to illustrate what largely has been known informally or anecdotally about women’s travel in Bangladesh and shows the low mobility of women. It shows that women who travel are doing so particularly for work purposes. It also confirms quantitatively that travel to health clinics is a key purpose for women’s travel, which should be a significant factor in increasing efforts to reduce the obstacles to women’s travel.

Case study 2: a woman entrepreneur in a women’s market section

This case study is from a World Bank study and examines gender mainstreaming in the Third Rural Infrastructure Development Project, implemented by the Government of Bangladesh from 1998 to 2004 with funding from international donors (Khatun, 2003). It describes Ms. Lovely Roy Choudhury, a woman entrepreneur who, in 2000, acquired a space for a shop in the women’s market section of a local market. She was a 32-year-old widow with one child living in her father’s house. She had a tenth grade education.

Before acquiring the shop, Ms. Choudhury had long been involved in handicraft activities at home and survived by selling these products in nearby areas. She also worked as a handicrafts trainer and as a teacher on an informal basis at the village school.

When she first joined the women’s market section, there were only five women traders. The number was growing and, approximately three years later, there were 18 women traders. Initially, all the women faced some social problems but over time their work was appreciated by the community. Most of Ms. Choudhury’s customers were girls from a local college.

The improved road network with good transport facilities played a large role in the expansion of Ms. Choudhury’s business. It helped in carrying commodities for the shop and in bringing customers from surrounding areas. Ms. Choudhury started a tailoring business and later began selling clothes. While originally she had little capital to run the business, she was later able to acquire materials on credit from relatives. This enabled her to survive. Through the business, Ms. Choudhury had become not only financially independent and a successful entrepreneur but also a role model in the locality.

The women’s market section illustrates how a holistic, integrated approach can be taken for the development of infrastructure facilities to support women’s entrepreneurship and empowerment programmes. The initiative was a part of a large-scale project integrating the gender dimension into numerous
components of infrastructure development: the construction of the women’s shops, information campaigns and social assessments, the political process of allotting the shops to women, the gender-sensitive design of water and toilet facilities, training for women on shop management, the inclusion of women in market traders associations, and the forming of linkages with local women members of the union council (Sultana and Tanaka, 2002; Rahman, 2004). The Project demonstrates the need to consider synergies among various types of infrastructure development.

**Case study 3: potential transport efficiencies through ICTs: lessons from Nabanna**

Although not located in Bangladesh, Nabanna, an ICT initiative in Baduria, India, is an interesting case that provides insights into the potential role that ICTs can play in creating travel time efficiencies for women. It also provides an indication of the mechanisms through which ICTs may be used to promote women’s entrepreneurship and to provide opportunities for women to benefit from improved transport and communications, irrespective of their purdah-related circumstances.

Poverty is pervasive, with many people dependent on daily wage payment for work in the fields, on construction sites or in brick kilns. Nabanna is a women’s ICT initiative that reportedly provides women, who have few opportunities for self-advancement, with an education. The goal of Nabanna is to energize the community in Baduria by empowering poor women to organize and to “harvest” information. As central feature of the initiative, two to three women from each of the municipality’s 17 wards are identified as information agents. These women participate in information and communication training and form the backbone of the network. Each information agent leads an information group, comprised of 10 women who are recruited from their local neighbourhood. The information group meets on a weekly basis.

The information agents are usually students or housewives and reach about 600 women in the community. Some information group members are skilled in knitting and weaving. Bidi (tobacco) binding, which is often an income-generation activity that the whole family participates in, is very prominent in Baduria. Other family-oriented work includes weaving. Women work independently or as a part of the family and do not have direct access to markets to sell their products. In most cases, they sell them via an agency or other distributor.

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1 Based on Ghose and Ghosh (see reference).
The training centre is used each day by approximately 10 to 12 information agents who devote about two hours each week to training. One of the women’s main activities is to maintain regular diaries about their everyday lives and topics suggested by the sponsoring organization. Through these diaries, the women have explored a wide range of topics and yielded a wide array of information. The information agents role play and take notes on discussions that take place in the information groups, simultaneously identifying topics and feeding information on a gamut of themes that affect Baduria and its women.

Although this case study does not address women's travel patterns explicitly, it provides some indication of the potential travel time savings through the application of ICTs. This can be seen to be very helpful in Nabanna's role in fostering microenterprises among women. The initiative’s ability to effectively harness ICTs results in significant transport and time savings in marketing activities, which could take considerably longer when done on foot or by other modes of transportation. For example, Nabanna has been supporting the association of piecework embroiderers with women running larger businesses across the community at large, facilitating new social connections and relationships. ICTs are enabling women entrepreneurs to identify potential business partners and clients with much less effort, and increasing business opportunities while reducing travelling and commuting time.

Through Nabanna, new horizontal linkages have been created. Women in Baduria can link producers and markets and make use of productive information inputs to income-generation ideas. For example, women entrepreneurs have the ability to outsource work, such as embroidery, but they lack information on to whom to outsource the work. On the other hand, poor women who have embroidery skills do not know from whom to procure work. ICTs are enabling the linking of these women and generating greater embroidery business.

The network has so far proven to be a valuable source for generating information in such areas as income-generation opportunities, focusing on which people have much skills and who needs them, as well as in educational inputs, such as in health and hospitals.

**SUMMARY OF FINDINGS AND CONCLUSION**

This paper examines the effects of improved communications and transport infrastructure, and the synergy between them, on Bangladeshi women, whose mobility is affected by social and cultural constraints, such as
purdah. The gendered planning of infrastructure facilities was found to be crucial and had strong implications for women. It was found that improved transport infrastructure could significantly strengthen women’s entrepreneurship across the board. This applied both to women not practicing purdah and to self-employed woman practicing purdah by working in home-based businesses. Similarly, improved communications improved the situation of women and advanced their entrepreneurship whether they practiced purdah or not. The development of both infrastructures (transport and communications) and the harnessing of their synergies offer even greater potential for promoting women’s entrepreneurship and empowerment.

There is a lack of quantitative studies examining the potential impact of gradual changes in rural Bangladeshi society on women’s empowerment and of the increasing presence of women in rural markets on women's travel. However, an examination of the case studies provides some insight into the current travel situation and the effects ICT innovations are having on rural society. It also shows how ICTs can play a role in reducing women’s travel needs or in promoting women’s mobility amid changing conditions and can support initiatives for women’s empowerment.

ICTs play a role in making existing travel more efficient and can reduce the need for additional travel in order to exploit new opportunities. At the same time, ICTs can be a catalyst for uniting woman entrepreneurs with their clientele, spurring greater business opportunities and increased travel due to business expansion and outreach to a wider customer base.

The second case study, which describes the woman entrepreneur in the women’s market section, illustrates how an integrated approach in infrastructure development can make transport investments more effective. The women’s market section was only one component of a large-scale integrated infrastructure development project comprised of numerous components: women’s road maintenance programmes, flood refugees, bridges, ghats, training and women’s markets, to name a few.

Increasing the presence of women in traditionally male-dominated markets leads to an increased need for travel, which changes the travel patterns of rural Bangladeshi women. While traditional travel purposes circumscribed by purdah allow women to travel for primarily non-profit activities, the co-development of entrepreneurial incentives in markets for women and improved road conditions can increase the presence of women on roads for “for profit” purposes.
Also, there have been a number of initiatives involving women in road construction and maintenance schemes. These schemes offer wage opportunities for poor rural women. In addition, women's motivation to engage in entrepreneurship activities and the growing acceptance of women in markets provide an incentive for women to take a vested interest in the improvement and maintenance of roads and transport facilities as they need safe and effective transport to run their businesses. The ease and safety of travel can encourage greater numbers of women to take wage employment that requires them to commute or travel.

The formation of women's networks through a system of information agents has proven to be highly effective in building women's ICT literacy and capacity. These networks are a necessary adjunct to basic ICT infrastructure and serve the purpose of women's empowerment through microenterprise and other business activities and mobility needs. They also help to improve efficiency by eliminating unnecessary travel.

In the case of Nabanna, the creation of a women's network played a role in increasing women's embroidery work. While the embroidery work remained a stay-at-home activity for the women, and men were the principle parties involved in travel for the sale of the products, ICTs played a crucial role in spurring efficiencies and the lucrativeness of women's businesses without an increase in travel. This could be perceived as positive, resulting from women's more efficient utilization of time due to the use of ICTs.

Bangladesh's growing number of initiatives to promote women's empowerment and what appears to be changing social conditions, coupled with the introduction of innovations in ICTs and women's networks, will have strong impacts on women's travel and ICT needs in the future. The rich interplay that transport and ICT infrastructures can have in assisting women to meet their growing needs in pursuit of empowerment should be an important consideration in infrastructure planning and development. Evidence from the case studies suggests that the mutually reinforcing and complementary development of transport and ICT infrastructures can effectively support women's empowerment. However, further quantitative analysis is needed to examine this interplay and to learn more about the optimal conditions for their co-development.
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