

**Do Migrants Transfer Tacit Knowledge?
The Case of Highly Skilled Bangladeshi Immigrants in the United States**

by

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Master in Applied Economics
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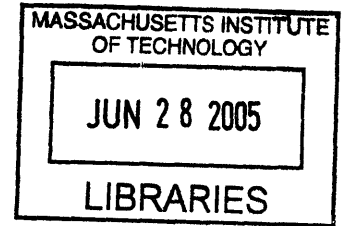
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ABSTRACT

Transfer of knowledge is a complex process. While codified knowledge is easy to transfer, tacit knowledge is not. "Tacit knowledge is difficult to exchange over long distance because it is heavily imbued with meaning arising from the social and institutional context in which it is produced, and this context specific nature makes it spatially sticky" (Gertler 2003). This thesis argues that there is certain tacit knowledge that migrants often transmit over long distances after customizing the knowledge to apply in different institutional settings. This thesis takes the example of Bangladesh, a country having an unfavorable socio-economic and institutional setting for receiving new technology, and explains how, despite the unfavorable conditions, some expatriates do transfer their knowledge to Bangladesh. Based on in-depth interviews with those expatriates creating the most impact in the economy of Bangladesh, the thesis shows that highly skilled Bangladeshi immigrants in the United States transfer tacit knowledge through building partnerships with individuals and organizations in Bangladesh. The thesis also finds that these partnerships are mostly based on trust, often coming from basic commonalities: same language, common "codes" of communication, shared norms, and personal knowledge about each other.

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I acknowledge the support of my mother, who has waited a long time to see her shy daughter gradually making progress to achieve her goals. I acknowledge my father for being my father, whose life long hard work and persistence made him my model, a model I remember in times of deep trouble. I acknowledge my brothers, whose depth of knowledge and insights has always inspired me to ask meaningful questions. I also thank all my other family members who have always been my inspiration.

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INTRODUCTION

When highly skilled people emigrate from developing to developed countries, there may be three possible repercussions for the developing countries, depending on their socio-economic situations. The three possible repercussions are (i) brain drain, a process through which developing countries lose the highly skilled labor force, (ii) brain circulation, a process through which skilled immigrants transfer their knowledge to their home countries, and (iii) inflow of remittances to developing countries.

While it is sometimes reasonable to claim that loss of highly skilled people creates a shortage of skilled labor for certain occupations in developing countries, there also exists noticeable evidence that supports that migration also creates benefits: (i) emigrants send a significant amount in remittances back to their countries, which serve as an external source of development finance (Ratha 2004), and (ii) immigrants increasingly create linkages to their home countries and engage in businesses and other activities, which can have positive impact on the home country's economy and the society. Unfortunately, due to lack of coherent data on remittance and other contributions made by the emigrants living abroad, it is sometimes difficult to understand whether the benefit from high-skilled labor migration outweighs the cost of brain drain.

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This thesis takes the case of Bangladesh and tries to answer the question “Do highly skilled immigrants in the United States transfer knowledge to Bangladesh?” The thesis starts with the hypothesis that Bangladeshi highly skilled immigrants do transfer tacit knowledge to Bangladesh. This thesis analyzes the nature of knowledge that the emigrants transfer from United States to Bangladesh by distinguishing between two types of knowledge: (i) codified knowledge, and (ii) tacit knowledge. Codified knowledge is the knowledge that can be verbally communicated and systematically written for publishing in books, and in other media. Tacit knowledge is the knowledge that cannot be codified in a systematic way because it originates in the mind of the knower through gaining experiences. Tacit knowledge is usually very difficult to transfer because it is embedded in the person who learns it only by doing, and not by reading books or instructions.

Bangladeshi expatriates in the United States face a number of challenges both in the United States and Bangladesh when they engage in the process of knowledge transfer. While getting immigrant status, supporting their families, and time committed to engaging in transnational activities are some of the challenges they face in the United States, in Bangladesh, they face challenges like information gap, lack of infrastructure, and other institutional barriers like corruption, bureaucracy, and weak law enforcement. Therefore, so far only few people made their ways to transfer their skills and knowledge. This paper

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investigates how some of the expatriates became successful in transferring their knowledge despite the obstacles they faced.

Based on in-depth interviews with twenty expatriates, this thesis analyzes the nature of knowledge that the Bangladeshi expatriates transfer from the United States to Bangladesh. Chapter one points out why it is important to study highly skilled Bangladeshi immigrants in the United States, what knowledge transfer means, research methods and caveats regarding the research. Chapter two gives a historical background of migration and the current context of the research. Chapter three discusses the kinds of knowledge that the expatriates transfer by providing examples of the successful cases. Chapter four discusses, some of the challenges of knowledge transfer and how, despite the obstacles, some immigrants do transfer knowledge. Finally, this paper concludes by summing up the most important findings from the preceding analysis, suggesting policy implications, and discussing the possible scope of further research.

1.1 WHY STUDY HIGHLY SKILLED BANGLADESHI IMMIGRANTS IN THE UNITED STATES?

While immigrants from China, India and some Latin American countries represent the largest fraction of the total immigrant population in the United States, relatively less focus has been given to immigrants coming from small and

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less developed countries like Bangladesh. In this global economy, where migrants increasingly become more mobile and act as agents for mobilizing capital, labor and entrepreneurship skills, it is important to understand how the immigrants from small and less developed countries are able to create opportunities within their countries of origin while being only a small fraction of the growing number of transnational citizens. In order to understand the nature of knowledge transfer from the United States to Bangladesh, this study focuses on tacit knowledge of highly skilled Bangladeshi immigrant in the United States and explores what kinds of partnership do they build and what kinds of knowledge they transfer.

In the case of Bangladesh, remittance figures do not well represent the monetary contribution made by high-skilled emigrants since the figures do not show the breakdown of the remittances sent by high-skilled and low-skilled emigrants. The statistical data from Bangladesh Bank shows that the majority of remittances come from emigrants living in Middle Eastern countries, which has always been a popular destination for low-skilled workers. Interviews conducted for this thesis also shows that high-skilled emigrants usually come from relatively well off families and they do not need to send remittances to support their immediate family members.

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Table 1: Remittances Sent from the U.S. to Bangladesh (2003-2004 Fiscal Year)

Country	Percentage of total Remittances sent to Bangladesh
Saudi Arabia	41.1%
U.A.E.	11.1%
U.K.	8.8%
Kuwait	10.7%
U.S.A.	13.9%
Libya	0.0%
Qatar	3.4%
Oman	3.5%
Singapore	1.0%
Germany	0.4%
Bahrain	1.8%
Iran	0.0%
Japan	0.6%
Malaysia	1.1%
Other Countries	2.7%

Source: Bangladesh Bank, 2005

The data in table 1 shows that only 13.9 percent of the total remittances come from the United States, 8.8% come from United Kingdom, while a higher percentage of the total remittances come from all Middle Eastern countries including Saudi Arabia, United Arab Emirates, Qatar, Oman.

While data from Bangladesh Bank (table 1) indicates that monetary contributions made by highly skilled immigrants in the United States is low compared to that sent by low skilled migrants from other countries, it raises the question “what do highly skilled Bangladeshi immigrants in the United States contribute to the development of Bangladesh?” It is still not very clear whether

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the highly skilled emigrants transfer their skills and knowledge to Bangladesh, or whether they actually create brain drain. Therefore, there is a need to understand the process of *brain circulation*, a process through which highly skilled Bangladeshi immigrants are able to transfer their knowledge back to Bangladesh.

1.2 WHAT DOES KNOWLEDGE TRANSFER MEAN?

Knowledge transfer is the process through which individuals and organizations learn from the experience of other individuals, and organizations. Knowledge transfer is a complex process because it is often difficult to follow who transfers what knowledge and how. Lundvall and Johnson (1994) explicitly categorized knowledge embedded in three different levels: "Individual knowledge consists of 'know what', 'know why', 'know how' and 'know who'. On the organizational level these categories correspond to 'shared information - data bases', 'shared models of interpretation (including company stories)', 'shared routines' and 'shared networks'. Finally, on the regional level we may identify 'people', 'culture', 'institutions' and 'networks'."

How knowledge transfers from one organization to another organization depends on the type of knowledge. Davenport and Prusak (2000) identified Knowledge as a "fluid mix of framed experience, values, contextual information, and expert insight that provides a framework for evaluating and incorporating

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new experiences and information. It originates and is applied in the minds of knowers. In organizations, it often becomes embedded not only in documents or repositories but also in organizational routines, processes, practices, and norms.”
(p. 5)

1.2.1 Types of Knowledge

There are fundamentally two types of knowledge: codified knowledge and tacit knowledge. According to Cowan, David and Foray (2000), Codification is mainly seen as a process transforming knowledge into a format that makes it possible for knowledge to be stored and transferred as information. They also described Information as “a message containing structured data” while a code is described as “structured data and the necessary instruction for its processing’ and as “knowledge reduced to symbolic representations”. It is sometimes easier to codify a description of the process than it is to codify ways to adopt the process.

Tacit knowledge is the knowledge people acquire from experience. Tacit knowledge may originate in the mind of individuals in the form of insights, intuitions, and hunches and is not easily visible and expressible. It is highly personal and is often hard to formalize and share with others. Pavitt (2002) reported “a growing body of thought argues that in a competitive era in which success depends increasingly upon the ability to produce new or improved

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products and processes, tacit knowledge constitutes the most important basis for innovation-based value creation.”

1.2.2 Geography of Tacit Knowledge Transfer

There are two arguments about geography of knowledge transfer: (i) Tacit knowledge is difficult to transfer over long distances and (ii) Tacit knowledge may flow across boundaries. According to Gertler (2003), “tacit knowledge is difficult to exchange over long distances. It is heavily imbued with meaning arising from the social and institutional context in which it is produced, and this context specific nature makes it spatially sticky.” The recent literature on learning regions further explores the character and geographical consequences of tacit knowledge (see Lundvall and Johnson 1994; Florida 1995; Asheim 1996, 2001; Morgan 1997). It argues that tacit knowledge does not “travel” easily because its transmission is best shared when partners interact face-to-face. These partners often share some basic commonalities, including same language, common codes of communication, shared convention and norms, shared institutional environment, and personal acquaintances.

Other literature suggests that organizational or relational proximity and occupational similarity are more important than geographical proximity in supporting production, identification, appropriation and flow of tacit knowledge (Allen 2000; Amin 2000; Amin and Cohendet 2004). Furthermore, “communities

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of practice literature” assert that tacit knowledge may also flow across regional and national boundaries if organizational or “virtual community” proximity is strong enough. In other words, learning need not be spatially constrained if relational proximity is present. (Gertler in Nelson 2005)

1.3 METHODOLOGY

The information presented in the paper is based on a field study carried out during the period from November 2004 to April 2005. The research method relied mainly on in-depth interviews with twenty highly skilled Bangladeshi expatriates living in the United States and other key informants such as leaders of some Bangladeshi organization, some academicians, a researcher, a businessman, and a venture capitalist living in the United States.

I started interviewing the Bangladeshi expatriates living in the United States in November 2004, when I went to Silicon Valley to attend a convention organized by the American Association of Bangladeshi Engineers and Architects (AABEA). The objective of the convention was to bring together highly skilled Bangladeshi professionals, and discuss and exchange information about how their skills and knowledge could be transferred to Bangladesh. The convention was able to attract approximately 200 professionals, entrepreneurs, academicians, investors, and students in the fields of engineering, architecture,

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planning, and business. By attending the event, I met many Bangladeshi immigrant professionals, and meeting with them gave me a clear idea about what kinds of professionals and entrepreneurs are interested in the process of knowledge transfer to Bangladesh.

There were predominantly three kinds of people who came to the convention: (i) those who are involved in various economic and social activities in both Bangladesh and the United States, (ii) those who came to look for information about how others have become successful in transferring knowledge or technology, and (iii) those who wanted to establish contacts with persons of similar interests. For my study, I was looking for the people in the first category. Since there is a preconception that only a few Bangladeshi immigrant professionals have linkages with Bangladesh through some kind of businesses and social activities, I was specifically searching for those whose contributions actually created some impact in the society and economy of Bangladesh so as to understand why only few people are able to engage in such activities while the others cannot.

I observed the individuals and informally talked to them about their professional lives in the United States and their contributions to Bangladesh. I did a quick scrutiny to understand what kind of people would best fit in the sample. I kept record of the identity of each individual who I thought could be the

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subject of my research, or who could provide me some contacts of persons I was searching for.

I personally knew some individuals with different occupational backgrounds who have been living in the United States for more than fifteen years. They gave me information about people of different academic backgrounds, occupations, and levels of achievements. In the beginning of sample selection process, I looked for both success cases and failure cases of those who have experience in transferring knowledge and skills. As I came to know more about the level of involvement of the expatriates in different kinds of activities, I selected twenty individuals who are recognized among Bangladeshi communities as the best people making significant contributions to Bangladesh's economy and society.

Throughout the entire interview process, I informally interviewed about thirty expatriates, only twenty of whom I found directly relevant to the study. For example, I interviewed some academicians and researchers who gave me some information about how the involvement of expatriates with different organizations has changed over time. I also visited the websites of different relevant Bangladeshi organizations to collect information about their past activities and current online discussion topics.

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1.4 CAVEAT: What This Research Does Not Undertake

This paper does not assess the impact of knowledge transfer on the economy and society of Bangladesh. It has assumed that the transnational activities create slow repercussions in the economy and society of Bangladesh and these activities do not have any immediate visible impact. However, this thesis concludes that knowledge gets transferred through the transnational activities based on the information provided by the Bangladeshi immigrants living in the United States. In some cases, media or local immigrant association has acclaimed the successes of certain transnational activities. In other cases, this paper simply relied on the judgment of individuals who created the impacts.

This thesis does not report all the details of the Bangladeshi organizations with which the Bangladeshi expatriates and organizations in the United States built partnership. These organizations are beyond the scope of the research. However, some of the organizations and their capacities are well recognized in Bangladesh and this paper does not describe their capacities in detail.

The findings of the thesis are based on the analysis of twenty in-depth interviews. The sample includes only those who created the most economic impact. Therefore, it does not go deep into analyzing why some expatriates were not successful in transferring their knowledge. The thesis assumes that the causes of failure are directly related to the obstacles pointed out in this thesis.

HISTORY AND CONTEXT

Emigration from Bangladesh to the United States was not very common before 1960. After 1960, Bangladeshi students started to come to the United States for higher education. It is difficult to say whether those students coming between 1960 and 1970 returned or continued to live in the United States. However, some of those interviewed for this thesis reported that most of the students who came to United States between 1960 and 1970 returned back to Bangladesh. Since 1970 the trend has started to change --students who come to study often find employment and become naturalized citizen.

According to the 1986 immigration data, 61% of the Bangladeshi aliens who obtained permanent resident status were students. By 1992, it was estimated that 90% of the total population of Bangladeshi immigrants were professionals. (Siddique 2004) According to Census 2000 data, about one third of the population was naturalized US citizens and two thirds of the population was not US citizens.

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Table 2: U.S. Citizenship and Period of U.S. Entry

Total population	95 295
U.S. Citizenship and Period Of U.S. Entry	
Naturalized U.S. citizen	32 420
Entered 1990 to 2000	13 435
Entered 1980 to 1989	13 490
Entered before 1980	5 490
Not a U.S. citizen	62 875
Entered 1990 to 2000	53 475
Entered 1980 to 1989	8 385
Entered before 1980	1 015

Source: Census Bureau, 2000

Since the early 1990s, Bangladeshis have been entering the US under the Opportunity Visa Program (OP-11990-91) and the Diversity Visa Program (DV 1995-96). The majority of those who enter the United States under these visa schemes are relatively less educated in comparison to those who previously entered. Most of the immigrants entering the United States with the opportunity visas and the diversity visas, have settled in big cities like New York, Boston, Dallas, Houston, and Newark. These new immigrants prefer to land in those cities because those cities have well-established networks of Bangladeshi born people. Comparatively less educated new-comers preferred to land in these cities because it is relatively easy to obtain employment through these informal networks. They mostly work in small businesses such as gas stations, restaurants, small construction companies, small stores, security companies, and car services including driving taxis.

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According to the statistics of the Visa Office of the Bureau of Consular Affairs of the US Department of State and the Immigration and Naturalization Services (INS) of The US Department of Justice, from 1972 to 1995, a total of 35,817 persons of Bangladeshi origin received immigrant status. Another 156,196 persons of Bangladeshi origin came to the US with non-immigrant visas. Non-immigrant visas are usually issued to students, tourists, business people, diplomats, and any other person who need to stay in the US temporarily. From 1981 to 1995, 11,040 of those non-immigrant visa holders changed their visa status and became immigrants.

According to the International Migration Research Series titled “Dynamics of Remittance Utilization in Bangladesh” published by International Organization for Migration in 2005, there are about 500,000 people who were born in Bangladesh and currently living in the United States. Though according to 2000 census data, Bangladesh born population the United States was 95,295 in 2000, according to the government officials there are approximately 500,000 Bangladeshi born people currently living in the United States, of which 250,000 are legal residents and 250,000 illegal residents.

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2.1 HIGHLY SKILLED BANGLADESHI POPULATION IN THE UNITED STATES

There is no estimated data available for number of Bangladeshi born highly skilled people in the United States. However, Census 2000 data gives an approximation of the educational attainment of the Bangladeshi born population, based on which it can be seen that 46.5% of all those who come from Bangladesh to the United States, have at least a bachelor's degree or higher.

**Table 3: Educational Attainment
Population 25 years and over**

Educational Attainment	Population	Percentage
Total	69 180	100.0
Less than 9th grade	6 000	8.7%
9th to 12th grade, no diploma	9 115	13.2%
High school graduate (includes equivalency)	10 980	15.9%
Some college, no degree	7 075	10.2%
Associate degree	3 840	5.6%
Bachelor's degree	17 335	25.1%
Graduate or professional degree	14 840	21.5%
Percent high school graduate or higher	(X)	78.2%
Percent bachelor's degree or higher	(X)	46.5%

Source: Census Bureau 2000

It is estimated that 62.7% of the population 16 year old and over, is in the civilian labor force and that 59.3% among the civilian labor force is employed. According to the Census 2000 data, the majority of the employed civilian labor force is found in the occupation of management, professional, service, sales, office and other related occupations. The skills required for management, professional services, sales, and other office jobs are relatively higher than that

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required for construction, extraction, maintenance, production, transportation, and material moving occupations. Therefore, it can be concluded that approximately 80% of the employed civilian labor force is in the high-skilled and semi-skilled categories.

Table 4: Occupation of Bangladeshi Born Employed Civilian Labor Force

Occupation	Population	Percentage
Total	48 790	100.0%
Management, professional, and related occupations	16 070	33%
Service occupations	8 825	18%
Sales and office occupations	14 420	30%
Farming, fishing, and forestry occupation	15	-
Construction, extraction, and maintenance occupation	1 915	4%
Production, transportation, and material moving	7 540	15%

Source: Census Bureau, 2000

It is important to note that those who have bachelor's degrees or Master's degrees do not always fall in the high-skilled group because some of them may have received bachelor's degree when they were in Bangladesh, but their degrees are not given equal value as those of U.S. degrees. There are certain cases where persons having bachelor's degrees from Bangladesh are not able to obtain the jobs they desire, and perform works that do not require bachelor's degrees. Though by looking at the educational attainment data it is difficult to draw any conclusion about the percentage of Bangladeshi born highly skilled people in the United States, at least it can be seen that there is a large number of highly skilled and people living in the United States.

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In this thesis, highly skilled people are those people who are employed in the professions that require high level of skills regardless of their level of educational attainment. The underlying reason for defining highly skilled people based on their professions is that educational attainment does not ensure that the persons are adequately trained or gathered valuable experience, and transfer the obtained skills to Bangladesh.

2.2 EMIGRATION FROM BANGLADESH AND DEVELOPMENT POTENTIAL

Until now, emigration from Bangladesh to the United States has always been driven by a number of economic and social reasons. Lack of employment opportunities, low standard of living, increasing insecurity, and low standards of education are the most common reasons Bangladeshis emigrate to United States. Traditionally, the role of emigrants in the development of Bangladesh is perceived as simply sender of remittances. A study on 88 respondents in the United States reveals the reasons emigrants from Bangladesh to the United States send remittances to Bangladesh. The following chart shows the main reasons. (Siddique 2004)

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Table 5: Reasons Bangladeshi Born People Send Remittances from the United States to Bangladesh

Reasons for sending Remittances	Number of people
For maintaining own/extended family home	14
For occasional support to extended family	28
For community development	17
Purchase/construction of land/ house	17
Business investment	5
Charity	7
Natural disaster	9
Election	1
Religious charity	28
Others	4

Source: Siddique 2004

Survey based on 88 respondents.

Siddique (2004) does not provide any information about the level of skill of the respondents. Based on this data it is difficult to conclude who sends remittances and who does not. However, based on twenty interviews done for this paper, it can be concluded that the remittance that the highly skilled expatriates send to Bangladesh is a very tiny fraction of their total income, and that they do not generally need to send money to support extended family members. The highly skilled expatriates also reported that they do not need to send money on a regular basis. However, they do send remittance for religious charities, social services and sometimes business investments.

Like most other countries, the amount of remittance that are sent from the United States to Bangladesh is increasing every year with the increase in Bangladeshi born population in the United States. The following data from

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Bangladesh Bank shows that remittances from the U.S. to Bangladesh more than doubled from 1997 to 2004.

Table 6: Remittances sent from the United States to Bangladesh (Million dollars)

Year	U.S.A.
1997-1998	203.13
1998-1999	239.41
1999-2000	241.3
2000-2001	225.62
2001-2002	356.24
2002-2003	458.05
2003-2004	467.81

Source: Bangladesh Bank

Though the role of remittances is said to be an external source of development finance for developing countries, in the case of Bangladesh, monetary contributions is not the only way emigrants contribute to their country of origin. The development of information and communication technology, faster travel, and cheaper travel costs enable the emigrants to create such linkage to Bangladesh. All the interviewees in the survey reported that they would not be able to create such linkages if the communications had not been improved.

Bangladeshi expatriates in the United States are interested in creating economic opportunities in Bangladesh. In a survey conducted by Siddique (Siddique 2004), it was found that there is a significant interest among

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Bangladeshi expatriates in investing in Bangladesh. In another survey, Siddique and Abrar (2001) show that especially the enterprise owners and self employed Bangladeshi immigrants intend to invest in businesses, while the employed immigrants are more interested in saving. While the business investment potential exists, there has not been any significant coordinated effort by expatriates and Bangladesh government to promote expatriates' investment in Bangladesh. In addition to investment, the highly skilled Bangladeshi professionals, entrepreneurs, consultants, and academicians have knowledge and skills that could also be better utilized by the government.

2.3 *CHALLENGES IN TRANSFERING SKILLS AND KNOWLEDGE*

Living in geographically distant locations from the knowledge receiving country, it is challenging for all immigrants in the United States to transmit knowledge from the United States to their home countries. Bangladesh is no exception. While international trade and share of knowledge are increasing at a faster rate than ever before, there are still some factors that pose challenges in transferring knowledge from one geographic location to the other. Those challenges can be divided into two categories: (i) the challenges faced by the immigrants in the knowledge sending countries, and (ii) challenges faced by the immigrants in their country of origin or in the knowledge receiving countries. I will

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discuss some of the challenges faced by Bangladeshi immigrants in the United States.

2.3.1 Challenges Faced in the Knowledge Sending Countries

Most of the highly skilled immigrants face enormous challenges in the beginning of their professional lives to become financially and geographically stable. Most of the highly skilled professionals who settle in the United States come with student visas. It takes them years of hard work and time commitment to secure their own financial positions and ensure supports to their families. By the time, they achieve their own financial security most of the immigrants and their children become habituated to life styles in the United States. Those immigrants, having strong persistence, sometimes go beyond the regular needs of life and seek to do something that gives them personal satisfaction. After fulfilling their basic needs, they try to achieve something further that does not only give them personal satisfaction, but also gives them recognition in the society.

In most of the cases transferring knowledge about the business and technology know-how require long time commitment, dedication and persistence. Sometimes it is hardly possible to transfer knowledge in a meaningful way without living in Bangladesh for long time. This is the greatest challenge faced by most of the expatriates. In addition, there exist both information gap and a

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cultural gap that sometimes become apparent when the immigrants start to communicate with any entity in Bangladesh.

After being habituated to the work culture in the United States, sometimes immigrants expect a similar work culture back home. This higher level of expectations sometimes creates an array of disappointments. There are also instances, when immigrants judge the work culture in Bangladesh erroneously. Some immigrants retain their impression of the country that existed fifteen or twenty years ago. For not having the information about the progress in Bangladesh and the changing work culture, sometimes immigrants misjudge the current conditions that exist in Bangladesh. This difference in perceptions plays important roles in making a decision whether to become engaged in the transnational activities or not.

Information gap is greater; the lesser the expatriates interact with the people who live permanently in Bangladesh. Another reason is their lack of understanding of the current conditions. Those who do not read newspapers or do not keep themselves updated with recent economic and political events have lesser information about Bangladesh. Media sometimes play negative role in shaping the perception of the expatriates. Political situation in Bangladesh was never stable enough for these immigrants to captivate a positive impression about the country. Living in the United States and living secured lives, some immigrants develop distorted impression about the country's economy, society

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and politics. This negative perception about the country is visible when the expatriates get engaged in discussions in various social gathering or in forums. Those who want to get involved in transnational activities are often ill-informed about the opportunities that exist in Bangladesh.

2.3.2 Challenges in the Knowledge Receiving Country

There are a number of constraints that the expatriates face when they need to either invest themselves, or bring investors to start new ventures. The most common of those constraints are unnecessary government interventions, bureaucracy, corruption, deteriorating law and order, lack of infrastructure, and lack of security. When expatriates want to develop businesses they often do not find adequately skilled people to work in the businesses.

Another obstacle is the lack of knowledge about cutting edge technology among people working in both public and private sectors. When the expatriates want to introduce cutting edge technology, sometimes people do not want to adopt the technology for their limited knowledge and vision of future prospects. However, sometimes the nature of cutting edge technology is not well-received in Bangladesh because people feel it is alien or foreign to the established habits and practices. Techniques used by people are inherently “sociotechnical” in nature and must be culturally acceptable if they are to be economically successful. Those who take decisions about adopting new technology sometimes

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ignore the fact that with the introduction of technology, cultures evolve slowly, and not instantaneously. If people assume that what is now unfamiliar can never become widely accepted, they sometimes prematurely take decisions to reject the cutting edge technology as ill suited.

Lack of infrastructure is the most commonly identified challenge that the expatriates face among all the problems they face in Bangladesh. Infrastructure means not only basic means of communication like telecommunication, roads, highways, but also the capacity to absorb knowledge. For example, to make the existing infrastructure work effectively it is required that the existing institutions respond immediately to growing demand. The institutions in Bangladesh are not often receptive to new ideas. Institutions do not respond well to technology changes worldwide because of the lack of clear understanding of the government's possible role in creating technology infrastructure. It is often difficult to get information when necessary. These characteristics of the organizations often create challenges to those expatriates who want to engage in activities that help transfer knowledge to Bangladesh.

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The Bangladeshi immigrants in the United States transfer skills to Bangladesh in the form of tacit knowledge. Tacit knowledge is defined as the knowledge that is not codifiable, and cannot be easily transmitted to another person by giving simple verbal instructions. While almost all the expatriates have transferred information and codifiable knowledge, there also exist instances when these expatriates transferred tacit knowledge along with codifiable knowledge.

3.1 WHAT KNOWLEDGE DO BANGLADESHI EXPATRIATES TRANSFER?

When knowledge flows from high-densed knowledge areas to low-densed knowledge areas, the knowledge that flows is both codified and tacit knowledge. It may be relatively easier to identify which knowledge could be codified knowledge than to identify which is tacit knowledge. The difficulties arise because tacit knowledge often comes with information and it is not always possible to draw a clear distinction between tacit knowledge and information. Bangladesh as one of the least developed countries in the world has low

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knowledge absorptive capacity in certain cases, and it is very natural that tacit knowledge often comes with codified knowledge when knowledge transfers to Bangladesh. This section provides some examples of tacit knowledge inherent in Bangladeshi expatriates in the U.S. These include knowledge about cutting edge technology, new marketing tool, knowledge about capturing regulated market, knowledge about product and service characteristics, knowledge about how to popularize use of new technology and make expensive technology affordable, knowledge about Investment and entrepreneurship, and knowledge about infrastructure services. The following information provided is taken from in-depth interviews with twenty highly skilled Bangladeshi immigrants.

3.1.1 Knowledge about Cutting-Edge Technology and New Marketing Tools

Since the late 1990s, the use of user interface portals to facilitate marketing, customer interactions, and commercial transactions has flourished in the United States and other developed countries. But portals were not common in Bangladesh at that time. Companies sometimes had websites, which however often contained only limited or outdated information about their companies, quotes, and their products. Those websites often failed to serve the purpose of customer interaction and information sharing on a wide scale.

A group of talented young professionals living in the United States formed a small Information Technology company based in New York. They took the

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initiative to educate Bangladeshi garment manufacturers and exporters about the growth of e-commerce worldwide and how Bangladeshi businesses could benefit from creating a portal in order to communicate with buyers to learn regularly about the changing demands in the importing countries. Now, it may seem very easy to create a portal because it does not require very sophisticated technological knowledge and can be done by anybody who has the technical background. Yet in reality, it is not sufficient to have only the technical background to create a huge portal. It requires detailed understanding of the industrial domain, and of the expectations of both the buyers and producers, and some tacit knowledge that can only be acquired by working in dynamic and innovative organizations.

Prior to forming the company, each of the expatriates had acquired unique experience from working in different types of organizations, including technology start-ups and big companies. Each of them used their own skills to develop the user interface system for the use of garment exporters in Bangladesh. They partnered with a Bangladeshi IT solution company to develop the portal. It took 2 years for 10 employees to develop the portal. The portal did not only require technical knowledge; it also required strategic decisions about how to design the portal and what information would best serve the changing demands of both buyers and sellers. In other words, the challenge was not only to develop the portal, but also to manage it in the long term.

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The knowledge about how to innovate and upgrade any products is the kind of knowledge that is continuously being created and absorbed by those who practice it and thus learn it from experience. The specific knowledge required for such development of software was not easily available to Bangladeshi software developers having similar technical knowledge. In this portal development project, Bangladeshi expatriates have not only provided information and technical knowledge, but also contributed by transferring their tacit knowledge through setting an example of portal development. Throughout the entire process, the local company's employees who worked with the expatriates gained knowledge about how a user interface system could be made to work, and not just how to develop it.

3.1.2 Knowledge about Capturing Regulated Market

In the early 1970s, there was an influx of pharmacists from Bangladesh to the United States. At that time, they came as immigrants to meet the demand for pharmacists in the United States. Most of the pharmacists settled in New York and in the surrounding states and later some of them gradually moved to other states. However, as of today New York still has the highest concentration of Bangladeshi-born pharmacists among all other states in the U.S. These pharmacists generally work in or own drugstores; some work in hospitals, while others work in the industrial sector. Among them there are a few entrepreneurs who own their own pharmaceutical companies or have their own consulting firms.

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The Bangladeshi pharmacists have a formal organization called Bangladesh American Pharmacists' Association. They regularly arrange social and professional events to share their knowledge and experience about their professional careers in the United States and discuss how they can effectively contribute to Bangladesh's pharmaceutical industries. As one of the least developed countries, Bangladesh has received exemption from abiding by the patent laws until January 01, 2016. This has opened the door to enormous export opportunities for the pharmaceutical sector of the country. This recent development, along with improvement in information and communication technology, has created a lot of enthusiasm among these pharmacists about transferring their acquired skills and knowledge to Bangladesh. I had the opportunity to interview one of the pharmacists who has been providing consulting services to one of the top ten pharmaceutical firms in Bangladesh.

The Bangladesh pharmaceutical industry is the second highest contributor to the national ex-chequer after garments, and it is the largest white-collar intensive employment sector of the country. With an annual growth rate of about 10%, the Bangladesh pharmaceutical industry is now heading towards self-sufficiency in meeting the local demand. Domestic manufacturers mainly dominate Bangladesh pharmaceutical industry. Of the total pharmaceutical market of Bangladesh, the local companies are enjoying a market share reaching around 80%, while the multinational companies have a market share of

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approximately 20%. While multinationals gain knowledge on how to access the highly regulated market through their wide networks on international level, there is limited information and knowledge available for the domestic firms.

The interviewee for my research has been providing consultancy to one of the top pharmaceutical companies in Bangladesh for the past three years. According to him, getting products approved for sale in the highly regulated U.S. market requires a great deal of knowledge that can only be acquired from work experience in this country. For example, The U.S. Food and Drug Administration provides guidelines that outline the requirements to get FDA approval for both brand and generic drugs. While most pharmacists can appreciate the FDA regulations with respect to product approval, quality and Current Good Manufacturing Practices (CGMP), it is practically impossible to establish a pharmaceutical firm in Bangladesh without having the knowledge base, experience, and practical “know-how” of how things are done in the States. To be able to develop drugs that meet FDA requirements, Bangladeshi industries must acquire the knowledge through learning and following the guidelines prescribed in the Code of Federal Regulation (CFR). In this respect, the knowledge that is required is not only the information about how to meet the requirements, or how to follow the legal procedure, but also practical knowledge about how to deal with FDA and about the circumstances that arise in different contexts. For example, the concept of “Bioequivalence” is practically unknown to the Bangladeshi firms. This is a key factor in getting most tablets and capsules approved as generics in

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the U.S. It is only through tacit knowledge that the Bangladesh firms are able to acquire this intelligence to assist in their drug development programs.

The knowledge required to access to a highly regulated market is very context and institution specific. The approval procedure also varies across countries and only those who learn from experience possess the tacit knowledge about how to help a new firm acquire FDA approval. This is why migrants' contributions are recognized as not only valuable but extremely critical in the entire process. The consultant, interviewed for this study, who has been a consulting for last three years with one of the top pharmaceutical firms in Bangladesh, is working towards setting up a factory to export to U.S. market. So far, no firm in Bangladesh has received FDA approval; this new factory will soon serve as evidence that transfer of tacit knowledge by highly skilled Bangladeshi expatriates does occur.

3.1.3 Knowledge about How to Popularize Use of New Technology

While the migration of individuals, such as Dutch shipwrights to Sweden or Italian architects to Russia, was the chief form of technological diffusion by 'contagion' in earlier times, their role is now mostly taken over by large organizations such as the multinational corporations. This development runs parallel to the replacement of the picture of the solitary inventor or innovator himself, as pointed so lovingly by Schumpeter for instance, by that of the

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routinization of the process in the work of large teams in the R&D departments of these same corporations. The “carrier” of the virus of new technology is not the foreign individual but the foreign corporation. The “enlightened despots” of today, in spite of their political rhetoric, appear to be as eager to obtain the services of these new carriers as their predecessors were to obtain those of the original ones (Singh 2003).

This section presents an example of transfer of renewable energy technology to point out why technology transfer through an expatriate is different than technology transfer through assistance from international organizations or multinational companies. There is a dedicated academician, who has been working persistently, to transfer solar energy technology and wind energy technology to Bangladesh. This expatriate is the president of International Consortium for Energy Development, a Boston-based nonprofit corporation in the United States. A detailed interview with him revealed that the ingrained knowledge that he obtained after working on different renewable technology projects in the United States contributed the most to the process of knowledge transfer to Bangladesh. According to him, the solar technology itself does not require very sophisticated equipment or machinery; the challenge of adoption of solar technology lies in popularizing a completely new and relatively inconvenient technology among consumers. Another challenge is to make the cost of solar energy affordable to consumers, especially to the poor.

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In the case of solar technology, adoption, marketing, and adaptation of technology require very insightful understanding of the culture, and the spending habits of the average users, and an ability to work closely with organizations that market and sell the technology. The above-mentioned academician has been providing consulting services to Bangladesh Rural Advancement Committee (BRAC), a local NGO, to develop an implementation strategy for marketing and selling solar energy technology in rural areas of Bangladesh. His previous experience of implementation of solar technology projects along with his understanding of the culture of Bangladesh helped him develop a suitable plan for Bangladesh. He lives in the United States but he frequently goes to Bangladesh and passes along knowledge related to successful practices in the United States and other countries.

The consultant has not only found the cheapest source of needed components, but also planned the partnership building among the businesses and organizations in such a way that the local companies get the opportunity to learn from matured foreign companies rather than simply being dependent on them. For example, an important aspect of the recommended partnership building process was his decision to involve a local battery-producing company as the local dealer of imported silicon panels, and batteries from Tata BP, an Indian company specializing in silicon panels production. Though it was possible for BRAC to exclude the local battery-producing firm from the deal and directly buy from Tata BP, the consultant made the conscious effort to include the local

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firm in the entire process by giving them the dealership for the batteries and silicon panels. In this process the role of the local battery producing firm was to simply import and deliver to the NGO. The impact was not visible in the beginning when the partnership was built. The local firm, after working for several years with Tata BP, developed the capacity to produce the battery by themselves. Now, Bangladeshi local firms produce batteries and all of the equipment required for solar technology installation except the solar panels, which require scarce resources and heavy investment to produce locally.

There is an example of a windmill project with which the Bangladeshi expatriate has been involved for last few years. The coastal area of Bay of Bengal is suitable for generating wind power. When the consultant went to Bangladesh to find out whether the wind flow in particular seasons is sufficient to generate electricity, he found that there was an experimental result already available in a government office. The result shows that the coastal area as a location does not qualify for wind power generation. He became curious about the result and wanted to check the record keeping. He found that the experiment was not administered in a proper way. It is important to note that this experiment was funded by a certain international organization, staff of which probably ignored the fact that an experiment of this nature may not be adequately conducted by an institution of that capacity. The person, who was supposed to keep a record of the speed of wind and the result of the blade movement, was not keeping the record regularly. There were probably a number of other

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reasons, including administrative failure, for the lack of accountability that led to a wrong result. The expatriate then developed a well-defined guideline for the record keeper and helped him run the experiment again. This time he got a result that was not only reliable but also promising.

After making sure about the wind in the location of the experiment, the expatriate went one step further to convince the administration to pursue the windmill project. For lack of time, he flew back to the United States and tried from there to contact those persons in Bangladesh who were supposed to implement the project. One year had passed since his visit, and no development was underway. Being curious, he went to investigate the reason the project did not get implemented. He found that the proposal that was sent to the international organization required that the turbine, blade and pillars be purchased from a company in California at a very high cost. According to the expatriate, who has long been involved in windmill installation in different parts of the world, knew well that the pillar that supported the turbine could easily be made in Bangladesh at a cheaper cost using local materials. Unfortunately, for lack of coordination between the expatriate and the local organization, a good project was never implemented. This example shows that there is a difference between the way an expatriate and an international organization transfer certain technology.

While “technology transfer” literature says that developing countries need to find and import suitable technologies that can provide both for the fulfillment of

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fundamental needs and for the promotion of technical capabilities for development, it is still unclear who should be the actors to instigate the process. According to Cohen and Goel (2004), “the lack of necessary resources, such as human skills, technical knowledge, and information networks in developing countries delays the progress towards acceptable living standards” (p16). The renewable energy technology example fully supports Cohen’s view and provides evidence to support the view that individual agents may be carriers of certain technology, as opposed to big companies or organizations.

3.1.4 Knowledge about Product and Service Characteristics

I interviewed four expatriates, three of whom are in the software and application development firms, and one of them is in the analog design firm. These four interviewees have in common access to certain knowledge and information that those who work in Bangladesh do not have. Among them two of businessmen have offices in their homes, and have partnerships with family members in Bangladesh. There is one individual who works for a big firm in the United States. Another interviewee, specializing in analog design, set up his own firm in Bangladesh and frequently goes to Bangladesh for business purpose.

Software development is a huge industry, which has created a lot of economic opportunities not only in the United States, but also in countries like India, China, and other countries that have adequate infrastructure, qualified

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labor force, and knowledge to support such industries. Bangladesh is lagging behind most of the developing countries because of a number of reasons. Some of the obstacles that are most commonly identified by the expatriates are those related to lack of high-speed connectivity, inadequately labor force, and lack of knowledge about the technology. Despite the unfavorable conditions, there are some expatriates who have been able to develop businesses in Bangladesh while living in the United States. In this section, first, I will present two software and application development cases.

The person working for the big firm oversees some of the tasks of the firm that are subcontracted to a software development firm in Bangladesh. The small firm located in Bangladesh provides products and services to the big firm. Prior to coming to the U.S., this individual earned a reputation for being one of the pioneers in developing software in Bangladesh. He, with a group of other talented software professionals, started the firm to develop software for local companies. When the individual, the interviewee of the study, started to work for the big firm, he explored the opportunity to subcontract part of the tasks of the big firm to his small company in Bangladesh. Only because the expatriate had decided to work in the United States was it possible to subcontract this business. The experience that the expatriates gained has helped invaluablely with the small company's growth because without the expatriate's affiliation to the firm, and without the knowledge he achieved from his work experience, it would not be

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possible for the small company in Bangladesh to develop software for the U.S. market.

The knowledge that the expatriate transferred could not be replaced by any information or knowledge available from other sources. The specific knowledge that he has transferred is the understanding of the quality of products and services that the big firm demands from its subcontractor. The information technology industry is a dynamic one, and by nature its products need frequent upgrading and incorporation of changes when organizations change their nature of works. In some cases, the knowledge about the end product changes frequently with the change of the organization's demand. In such cases, expatriates learn that institution specific knowledge and share it with small firm back home.

For the family run businesses, the specific nature of knowledge is the same as the knowledge that the big firm employee passes to his small company in Bangladesh. However, one exception is that the independent small entrepreneurs provide services to a number of other organizations in the United States. For example, one of the interviewees reported that he provides mail-tracking services to a number of huge retail businesses in the United States. Those who live in Bangladesh have no idea about the mail tracking system in the United States. It is a very institution specific knowledge, and only can be learned from experience in working in that sector. This knowledge does not only require

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understanding of the mail tracking system, it also requires understanding of technical details about how the information passes from one entity to the other and who gets the information and who does not.

Bangladeshi local entrepreneurs, having almost no understanding of the business and marketing culture of the United States, are not in a position to achieve the type of knowledge to run businesses to serve the US market. The expatriate has made contacts to his clients by living in the United States and learned about the entire processes by being part of both formal and informal professional networks in the United States. According to him, when he gives instructions to the employees in the firm in Bangladesh, he only gives them instruction about how to work for each module. Suppose the total mail tracking system consists of twelve modules, and each module interacts with the other module to reach the final consumers. When the employees in Bangladesh start building each module separately, they do not have clear understanding of the entire network they create. After one or two year, when they finish building the entire system, they learn about the entire process. This is an example of tacit knowledge that people gather only from experience. The expatriate who guided them throughout the entire process is the main architect of the design, and it is possible for him to acquire the advanced knowledge because he has the experience in building the entire system. This is also a unique example of tacit knowledge transfer over long distance. This expatriate frequently travels to

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Bangladesh to share his knowledge and communicate directly with the employees who do the core ground work.

There are twenty-five employees in that small firm in Bangladesh and employees get hands on training to do their works. The interviewee reported that after working for two or three years, the employees learn so much that they get jobs in countries such as United States, Canada, and Australia without having any formal degree in those countries. He also mentioned that sometimes it is difficult to get stable employees because the knowledge and experience they acquire sometimes create better opportunities for them both abroad and in Bangladesh.

Very recently another Bangladeshi entrepreneur living in Florida went to Bangladesh and set up the first small analog design company there. While in the United States, for 10 years, he worked for many startup Integrated Circuit design companies on a variety of capacities ranging from Design Engineer to Co-founder of startups. He holds five US patents. The embodiment of his innovation has turned into a successful product line for a major semiconductor company in the Bay area. One of his most challenging innovations was the ALL CMOS RF transmitter and Receiver for low-cost applications.

According to this expatriate, chip design is a very human capital-intensive task and the company, like the one he set up, requires only minimal infra-

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structural support. The only challenge is to find and retain the experience of analog designers. For long time he gained experience working on this specific analog IC designs, and he has developed some insights and skills that are not easily transferable. Though it is possible to train people to design such chips, it is not possible for someone living in Bangladesh to establish a company of this capacity because establishing an IC design company requires some specific knowledge, which can be gained only from experience. This expatriate is hopeful about creating a knowledge base that would help the analog IC design industry grow in Bangladesh. According to this expatriate, Bangladesh has a lot of talented people in the country, and the only thing required is to train them adequately to grow their capacity and knowledge.

The process of knowledge transfer has already started. The expatriate works closely with the employees to develop their analog IC design skills. He lives in both Bangladesh and in the United States. For business purposes, he sometimes spends two to three months in a row in Bangladesh, while he has his family living in the United States. It is interesting to note that this expatriate found a Taiwanese investor to invest in his company, and he found information about the investor simply on a *google* search.

According to that expatriate, many big name semiconductor companies have already outsourced a lot of their activities including digital design, VHDL coding, verification, FAB for standard digital process, packaging, and testing.

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However, most of these companies have not yet yielded any significant achievements. The expatriate, an expert in Analog IC designing, is in the process of creating the knowledge network required for the chip design industry. Once he shows significant achievements in this field, Bangladesh may benefit from this knowledge and make its name known in the future.

3.1.5 Knowledge about Investment and Entrepreneurship

More than a decade ago, there was no reason investors would know why they should invest in a private telecommunications industry in a poor country like Bangladesh. At that time, the Bangladesh Telephone and Telegraph Board (BTTB), owned by the government, had a monopoly over the telecommunications sector, with only one or two small private cell phone companies entering the market. BTTB, as a public entity was not able to serve the growing demand in Bangladesh. Telephone calls were expensive, and it was also difficult to get a telephone connection when someone applied for a new phone. Businesses were suffering from a lack of telecommunications infrastructure, and it was difficult to communicate with businesses in remote locations.

The culture of mobile phones was something alien to the majority of the Bangladeshi people. Not only were mobile phones seen as a technology unnecessary for the poor, but also as unaffordable for average consumers. The established culture of spending habits were assessed by average people in such

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a way that if a large scale investment had to be made to provide services to Bangladeshi people, mobile phone's demand would be very low. In other words, people as well as investors would think that an investment of a private mobile phone service was an unattractive and very risky investment to make,

Having unstable political and economic conditions, Bangladesh was always lagging behind in terms of attracting investment. While the disappointment about insufficient telecommunication services was increasing in Bangladesh, there was actually a Bangladeshi Wall Street investment banker, working in one of the high-rise buildings in the United States, was observing closely why investors pick up certain unattractive investments. After working for about seven years in Wall Street, he suddenly decided to go back to Bangladesh and try to bring investment to Bangladesh to start a private mobile company.

This investment banker, with no technology background in telecommunications at that time, actually brought investment to Bangladesh after persistently trying for years. Grameen Phone is now widely recognized in the world for its unique way of providing mobile phone services to both poor and rich people in Bangladesh. When asked what knowledge contributed most to his success, he said his knowledge about why investors choose "ugly" investments. When someone, wearing an economist's lens looks at this investment, he would probably say that his act was the act of an entrepreneur, who started a business from scratch. If a similar entrepreneur were taken from a group of people who

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had not lived in the United States, or who had the technical knowledge but no investment background, it would be obvious that the knowledge they had would not be similar to the one this entrepreneur had gained after working in Wall Street for years. At that specific time, the knowledge he acquired was knowledge that he could not easily transfer to another individual in Bangladesh. He is only able to transmit his knowledge to the economy, or to other industries, after he created a tangible impact in telecommunications and started to informally disseminate knowledge to others about his own experience of bringing investment to Bangladesh.

This is an example of tacit knowledge that creates the highest value in some circumstances. This entrepreneur, besides this valuable tacit knowledge, had gained more knowledge while working in Bangladesh. Having worked in the US institutional context, he was not able to apply all knowledge in the same way when he had to work in Bangladesh. Each time he used his problem-solving skills to surmount the obstacles he faced in Bangladesh. Finally, the expatriate convinced a Norwegian telecom company, Telenor, to take a 51% stake in Grameen Phone. With the help of Japan's Marubeni Corporation and \$65 million in loans from aid agencies and development banks, the new company started its operations. Today, Grameen Phone is the largest mobile phone service provider in Bangladesh, and the tacit knowledge required for bringing in such a huge investment came from an expatriate living in the United States.

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3.1.6 Knowledge about Infrastructure Services

There are two expatriates interviewed for this research who have transferred tacit knowledge about infrastructure services. One of the interviewees has worked with a local network system development company in Bangladesh to provide automation services to Chittagong Stock Exchange in Bangladesh. This interviewee lives in New Jersey and currently he is the chief of a branch in a defense communication laboratory. Before working there, he worked in Tel Korea, where he worked with network automation in telecommunications. While working with Tel Korea, he became interested in network automation of stock exchange in Bangladesh. Network automation is a communication system through which people can trade stock while sitting at home. All they need is to just call the stock exchange to trade stock whenever they want. This enables the stockholders to buy stocks from home or other cities.

This case provides an example of an expatriate's distinct way of transferring knowledge for a number of reasons. First, Tel Korea won the bid after competing with twelve other multinationals having similar expertise in network automation. Tel Korea's case was different, compared to other multinationals, because of the Bangladeshi expatriate's involvement in the proposed project. Another reason it was different is that the project proposed subcontracting part of the work to a Bangladeshi local company. This strategy to subcontract not only reduced the cost of the project, but also seemed more

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convenient for having an entity located in Bangladesh. Most importantly, throughout the entire process, there was the option for a local firm to learn from Tel Korea about the cutting edge technology they use. The expatriate arranged the terms and conditions in such a way that the employees of the local firm got training from him and from Tel Korea about the technology know-how that is not codifiable.

It took Tel Korea more than a year and half to complete the network automation of the Chittagong Stock Exchange. After the project was finished, the local firm started to work with the Dhaka Stock Exchange for a similar project, where they applied their knowledge received from Tel Korea. Here, the Bangladeshi expatriate was the main architect of the knowledge transfer process.

Another interviewee of this research has brought improved technology for secure data communication services. In this case, the knowledge transfer process worked differently. The Bangladeshi expatriate, with more than a decade of experience in his field, went to Bangladesh temporarily to develop his own business. He developed a partnership with one of his close friends living in Bangladesh. The expatriate left his job and began to work independently for his business. However, he does not want to go back to Bangladesh permanently because he wants to benefit from the knowledge network in the United States.

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Though the business of the expatriate has reached a mature level, he still thinks that by living half of the year in the United States and half in Bangladesh, he is in a better position to acquire knowledge from the United States and transfer his knowledge to Bangladesh. So far, this expatriate has provided secured data communication services to the top fifteen private banks in Bangladesh. He is looking forward to starting new projects and, for this reason, he lives in the United States to gather more knowledge while being part of a knowledge network.

3.2 PARTNERSHIPS

In order to transfer tacit knowledge, immigrants often build partnerships with organizations or individuals in Bangladesh. There are a number of reasons they build partnership. While some build partnerships to pool talent and money, others simply do this to benefit from a mutually agreed division of labor. There are also cases where all three factors were the basis for partnership: mutually agreed division of labor, talent pool, and economic gain. For simplicity, this study divides partnership into two categories: (i) private-private partnership, and (ii) public-private partnership. Private-private partnership refers to a variety of partnerships including those between individuals and private limited companies, those between two individuals, those between individuals and NGOs, and those between NGOs and NGOs. Public-private partnership is the partnership between

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individuals and government organizations, partnership between private companies and government organizations.

3.2.1 Private-Private Partnerships

Private-private partnerships are the most commonly found among those partnerships that have become the most successful in creating economic impact. Though in all the projects or business activities, the government's role is crucial to facilitating the process, here government is not seen as a partner based on economic gain, or division of labor. The private-private partnerships are often built based on regional or family kinships or shared experiences or common goals.

How the private-private partnerships are built and under which conditions these partnerships are effective, depend on a number of circumstances. For example, the partnership (3.1.1) between large US firms and the small software companies in Bangladesh is based on economic gain and trust. The small company in Bangladesh has gained the trust of the large firm in the U.S. because the owner of the firm is an employee of the big firm. This kind of affiliation with both firms has made the large firm in the U.S. subcontract to the small firm in Bangladesh. On the other hand, the partnership between the Bangladeshi

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expatriate living in the U.S. and his partners in Bangladesh is based on mutual support, trust, and past experience of working together in other projects. Here, both partners are able to benefit from the resources, talent and tacit knowledge of each other.

There are two examples of partnership based on family kinships. This type of partnership can be found mostly in the information and communications technology sector. While the partners living in the United States have valuable knowledge for being close to the consumers, the other partner gains knowledge for being close to the employees who do the core work. This kind of partnership is also based on economic gain as well as mutual support. In a country like Bangladesh where law enforcement is weak and risk is high, strong family bonds often help reduce the risk of businesses. The examples of successful cases indicate that the level of risk involved in the investment determines what kind of partnership would be built. Usually, those activities that require a higher level of accountability from both partners, end up being successful when any forms of kinship and trust between the two partners is tight.

3.2.2 Public-Private Partnerships

Public-private partnership is rare to find among those activities that have proved to be successful. Part of the reason is that information does not flow smoothly between government organizations and the highly skilled Bangladeshi

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expatriates in the U.S. Another reason is that government organizations often have rigid institutional settings where flexibility is perceived as breaking rules of the organizations. For example, there is one partnership that became successful despite the government's rigid role as facilitator. In this example, the expatriates were able to accomplish the technology transfer process because they had developed good working relation with some high-level officials through earning their confidence. The flexibility and receptivity to new ideas actually made it possible for the Bangladeshi expatriates working in partnership with the government.

Yet another of the interviewees, working with a Korean Telecommunication company, Tel Korea, has built a working relationship between the Chittagong Stock Exchange authority and Tel Korea, while providing network automation services to Chittagong Stock Exchange. This expatriate also visited Dhaka Stock Exchange with similar projects. While the authority of the Dhaka Stock Exchange did not respond to the idea of network automation, the authority of the Chittagong Stock Exchange was very receptive to it. The Bangladeshi expatriate engineer tried to convince authorities of Dhaka Stock Exchange to complete the automation, but, for various other issues, they did not want to implement it. Tel Korea ran for bid and won it to establish network automation for the Chittagong Stock Exchange.

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The interview itself revealed that the engineer had a better working relationship with the director of the Chittagong Stock exchange than with the authorities of Dhaka Stock Exchange. It needs to be mentioned that before the expatriate proposed his idea to the director, this engineer knew the director personally as both of them were from Chittagong. The director was also a foreign educated individual, and for that reason, he was receptive to the expatriate's proposal. This proves that sometimes partnership is more effective when it is based on trust and mutual understanding.

OBSTACLES AND OVERCOMING THE OBSTACLES

4.1 OBSTACLES

This section briefly outlines some of the obstacles identified by twenty expatriates interviewed for this research. The most commonly known obstacles the Bangladeshi expatriates face are – lack of adequate infrastructure, lack of information about investment opportunities, and corruption and bureaucracy at the government level. Among the twenty expatriates interviewed, almost everyone commented that government is not supportive enough to transferring skills and knowledge of expatriates. Because of bureaucracy, corruption, and differences in work culture at the government level it is always difficult to accomplish their works in time.

When asked about receptivity of their ideas by Bangladesh's society, 50% reported that in Bangladesh there was a time when expatriates were treated as individuals with lots of ideas but no strategic frameworks to implement. However, according to them, very recently the image of expatriates has started to change because of the globalization and exchange of information between the two worlds. Over the past two to three years, the information gap that existed has

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started to decrease – observed 2-3 interviewees. However, the overall impression of expatriates in their society still has not improved at all levels. When opinions of foreigners and Bangladeshi born expatriates are evaluated, sometimes people pay more attention to the opinion of the foreign born experts. However, interviewees for this research have not reported this kind of attitude towards expatriates as an obstacle, but rather as a perception that would take time to change.

Seventy five percent of the expatriates who travel frequently to Bangladesh and engage in activities, commented that it is sometimes difficult to engage in discussions with officers and staff of both government and non-government organizations, and build consensus at a certain point, because of their (officers' and staff's) lack of understanding of the advanced technology in businesses. All of them said that they had to either give presentations or discuss for many hours to convince them about the project they wanted to accomplish. They did not recognize this as a constraint; rather, they acknowledge this as a lesson – learnt through experience as to how to communicate with them effectively.

Around 10% of the expatriates said that they had faced the challenge of clarifying the role of partners, collaborators or individuals about the expectations from each other. Almost all the expatriates said that getting reply through e-mail is another problem they face regularly when they have to work with individuals in

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Bangladesh. Those who are in the computer related professions sometimes exchange knowledge and information through online chatting. They reported that this kind of chatting sometimes help them get updated information in time almost at no cost.

While 60% of the expatriates interviewed identified inadequate infrastructure as a constraint to supporting the nature of works the expatriates do, they also think that sometimes it is possible to work under such circumstances if the cost of doing business is not too high. 30% reported that they had problems with getting skilled labor required for outsourcing jobs to Bangladesh. While identifying the obstacles, the highly skilled expatriates always compared Bangladesh's situation with India and China. Almost everybody recognized the advantages India and China have in terms of receptiveness of Indian and Chinese expatriates' in their home countries. They also reported that Chinese and Indian expatriates in the United States have been able to transfer their skills and knowledge to their home countries and created economic opportunities because they received government supports and adequately skilled labor to work in high technology sector in their countries.

The expatriates identified inadequate networking opportunity as another obstacle to increasing transnational activities. According to the expatriates, both formal and informal networks play a crucial role in sharing knowledge and ideas. They think that one of the reasons the transnational activities are not growing in

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the case of Bangladesh is the lack of strong networks that build connections between professionals in the United States and Bangladesh.

4.2 OVERCOMING THE OBSTACLES

How to interact with people over long distances is the greatest challenge that the expatriates face when trying to create linkages with their home countries. Improvement in communication technology has reduced the gap between people living in two countries to a certain extent; but it does not always solve all the problems arising from the “long distance” factor. The tasks that can be done easily by closely interacting with someone cannot be done that easily by communicating by e-mail, phone, or fax. To overcome this obstacle some of the expatriates frequently travel to Bangladesh based on their own needs.

Telephone was not as cheap as it is now today. The use of Voice over Internet Protocol (VOIP) has decreased the long-distance telephone cost in last few years. Bangladeshi expatriates who have been trying to create business linkages were particularly interested in driving the calling cost down for long time. When the use of VOIP started to mushroom in the United States, the expatriates were able to interact more frequently with people in Bangladesh. The exchange of information started to get denser with the cheaper telecommunication cost. Some Bangladeshi expatriates formed political lobby groups that particularly

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lobbied to make international calls cheaper from Bangladesh. After being lobbied for a long time, Bangladesh Telegraph and Telephone Board (BTTB) reduced the calling cost to an affordable level. While, per minute call was more than a dollar before, now the rate has gone down to approximately \$0.10 per minute. One of the interviewees said, "Calling rate has gone down because of expatriates' persistent lobbying. We brought this issue again and again whenever any political leader or any representative from government came to Washington DC. Finally, it worked, and I think the biggest chunk of those who demanded and lobbied for cheaper calling rate was the expatriates living in the United States."

Government officials in Bangladesh are generally not very aware of the cutting edge technology that continuously creates business and improving organizations' efficiency. While information technology flourished at a high pace in many other countries, Bangladesh was not able to keep pace with the new technological improvements. Even after having the opportunity to get connected to the submarine cable and have high-speed Internet connection, Bangladesh government did not take the connection mostly because of lack of knowledge and clear vision. This was the time when information technology industry was booming, and Bangladesh was not able to create significant opportunity for itself. Bangladeshi highly skilled expatriates started to criticize government for the lost opportunity to connect to the submarine cable. However, at that time, some Bangladeshi expatriates created an impact when they actively tried to educate high-level government officials about the economic opportunities that information

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technology could create. Bangladeshi people were also becoming aware of the developments that were taking place worldwide. In order to create economic benefit out of the information technology, a good number of computer training centers were established in urban areas. With more young people getting trained in information and communication technology and entering the labor force, new business opportunities were created for expatriates who wanted to make use of the Bangladeshi young talents.

When the disappointment regarding lack of infrastructure was growing, few Bangladeshi expatriates thought about taking some initiatives to improve the situation. They started to organize themselves through forming different groups, most of them having computer related background. In the beginning of 2000, several e-mail groups were created to share information about each other's expertise and to exchange ideas, information about how the expatriates could contribute to Bangladesh's development. Subscribers of those e-mail groups discussed about what should be their missions, visions, roles, and goals. Most of them did not know any proper direction to start with because of their lack of connections with Bangladesh. They found it extremely difficult to do their jobs in the U.S. and at the same time to engage in activities that involved high risk. First of all, there was risk in investment of time and money, and second, the expatriates realized that they did not have as much information as required for being able to take decision whether to take the risk or not. However, some of those who had some personal connections were able to get information

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informally. Some of them received family supports; some of them used their school networks to explore opportunities in Bangladesh. People started to share their negative experiences about corruption and bureaucracy in institutions. However, those who actually were able to create linkages and continued to maintain the linkages dealt with corruption and bureaucracy differently. Some of them perceived corruption, bureaucracy as some of the barriers that have always existed, yet still wanted to continue to either develop businesses, or helped educational institutions build capacity. Since late 1990s, expatriates have taken a number of initiatives to improve the quality of education in top educational institutions in Bangladesh – including lobbying, developing capacity of educational institutions through providing computers, and arranging seminars to exchange information about the recent technological development.

Since the early 1990s, like many other Asian countries, new private Universities started to grow rapidly in Bangladesh. Though the Universities grew in number, they were not up to the mark. Some U.S. educated people went to Bangladesh and started to teach at those private Universities. It is important to point out that Bangladeshi expatriates, who were cynical about government's ability to recognize expatriates' roles, often took private initiatives to contribute to Bangladesh. They either worked with their ex-colleagues, friends, to start activities that would increase exchange of knowledge or got engaged in small-scale collaborative projects. These contributions were discrete and sometimes did not create as much impact as the expatriates had expected in the short term.

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In other words, the small-scale initiatives that they pursued were slow in growth. The initiatives taken by the Bangladeshi expatriates in the United States were mostly based on trial and error method, without any concrete implementation strategies in place. While majority of the expatriates, with expectation to contribute to the development of educational institutes, were disappointed for not having enough connections, there were some Bangladeshi highly skilled expatriates who were able to make use of their networks in productive ways. Though slow in progress, and with no visible immediate impact in place, these expatriates did set some examples of goodwill to their counterparts living in Bangladesh by showing persistence, sincerity, and commitments. The trend of engaging in small-scale collaborative projects helped some of the expatriates create linkages slowly. Those linkages were mainly based on trust, common understanding of the goals, and past experience of working together in other projects.

There were some expatriates who had to face bureaucracy or corruption to get permissions to set up businesses. They overcame those obstacles by pursuing their cases strongly. It was possible for the expatriates to wait till they got the necessary permissions because most of them used to work in the United States. Both the skilled expatriates and their partners in Bangladesh had their constant source of income. When their business ideas reached a certain level of maturity, they tend to become more committed in terms of time, and other contributions. The partnerships that they had developed in the initial stage of

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development actually kept the entrepreneurial spirits going. Thus partnerships sometimes become the binding factors in the process of overcoming difficulties. While the expatriates benefit from partners' proximity to labor, the partners in Bangladesh also benefit from the expatriates' proximity to consumers. However, this kind of mutual benefit based partnerships are commonly found among certain small businesses in information and communication technology.

The expatriates who transfer knowledge as consultants in certain organizations overcome their challenges differently than others. As the consultants are sometimes hired on contractual basis, their influence on the strategic decisions of the hiring organizations is different than those who partner with other individuals and organizations. Consultants sometimes have the tacit knowledge that are more difficult to transfer because they have to work with organizations that have certain predetermined visions, goals and practices, that were often difficult to change. Whereas in new organizations the goals and visions are determined based on mutual understanding of all partners, in already existing organizations, bringing any change is a difficult process for their tendency to retain long established practices. For example, recommendations made by consultants sometimes do not seem quite compatible with the organizations' existing context. In such cases consultants sometimes make presentations to the decision-making body or organizations to educate them about the new technology and ideas that would improve their business efficiency or create new opportunities in the market.

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Institutions in Bangladesh often do not respond quickly to new changes in technology in the world frontier. The lack of knowledge and absorptive capacity within organizations in Bangladesh make it difficult for the expatriates to communicate in common technological language. The lesser equipped the organizations are with technology, the higher is the communication gap. The expatriates who had to deal with the cutting edge technology sometimes had to put a great deal of effort to educate and inform the Bangladeshi people both in public and private sector. According to the Bangladeshi expatriates living in the United States, it is much easier to build a relationship with people working for private sector than with people working in public sector. However, there are some exceptions depending on the existing nature of the institutional set up. The expatriates overcome this challenge sometimes through educating them when necessary. In such cases, Bangladeshi expatriates sometimes become successful in achieving their goals because of shared regional experience, culture, and language.

Having work experience in different institutional settings, expatriates develop some viewpoints that are different from the viewpoints of those who permanently live in Bangladesh. One major difference originates from the difference in law and regulation situation in both countries. Law enforcement is comparatively weak in Bangladesh than it is in the United States. We know that sometimes the recommendations that developed countries prescribe to

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developing countries do not suit well in the context of developing countries. When Bangladeshi expatriates want to get involved in any economic activity in Bangladesh, they also face problems with the laws and regulations in Bangladesh. Those who work in the existing law and regulation situation, adapt slowly with the existing weak regulatory body. In other word, despite having different viewpoints Bangladeshi expatriates often adapt to the situation by learning about the process and engage in activities that do not require strong law enforcement.

Generally it would seem that the law enforcement situation is probably one of those things on which expatriates do not have any control. Some expatriates think there is option but actually taking it as given when they have to work in Bangladesh. However, there is one example of act on which expatriates had certain influences. When e-commerce soared in the developed countries, Bangladesh did not have any regulation about e-commerce. After consulting with the Bangladeshi expatriates and with some other relevant key organizations in Bangladesh, Bangladesh developed an e-commerce act. Bangladesh has not reached to the level from where e-commerce could be put into effect. However, the e-commerce act is an example of an impact the Bangladeshi expatriates created at a time when there was no guided direction towards developing an e-commerce act.

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Some Bangladeshi expatriates have shown remarkable evidence of overcoming some obstacles mentioned in this chapter. The chapter discusses only the most common obstacles expatriates often face and how some of them have overcome those obstacles. There are a number of other obstacles that are not discussed here which are beyond the scope of the study. For example, how some Bangladeshis directly dealt with lack of infrastructure is not well discussed in this chapter. However, this paper brought examples of some of the cases that show evidence that Bangladeshi expatriates are often found in activities directly related to infrastructure services such as telecommunication, network automation, secured data communication system, and rural renewable energy development. This raises the question “Do the expatriates try to overcome the obstacle of lack of infrastructure by actually helping develop the infrastructure in Bangladesh?” It does not have any strong positive or negative answer because it is still too early to firmly assert this view. However, in a circumstance where infrastructure is identified as an important obstacle, it is fair to look at the evidence, which indicates that a fair amount of activities have initiated that may prove that Bangladeshi expatriates have started to create their own infrastructure because this is where the niche exists.

CONCLUSIONS

It is not a new phenomenon that migrants carry tacit knowledge and often transfer new technologies from one country to another. History shows numerous examples of migrants transferring knowledge, creating investment opportunities, and helping countries industrialize. Yet, there is no one systematic way found through which migrants transfer their knowledge. The recent improvement of information and communication technology has created opportunities for migrants to travel worldwide and communicate with people more easily than ever before. Sharing of information and knowledge has greatly increased during the last two decades. Improved information and communication technology has also changed the way tacit knowledge gets transferred over long distances. Capital, labor, and even entrepreneurial skills have become more mobile than ever before. Migration is also changing the way countries absorb knowledge. In this complex situation, developing countries like Bangladesh seek ways to make use of the knowledge of migrants for the development of their countries. However, it is still not clear whether migrants create their own opportunities to come back to their countries or it is the government's role to have them participate in the development process.

CONCLUSION

This paper identifies the cases where expatriates create opportunities by partnering with different types of organizations in Bangladesh. Though there are few examples of such initiatives, this paper suggests that there is potential among highly skilled expatriates, and this potential may be better utilized if in some of these cases, government facilitates participation of expatriates in the knowledge transfer process. However, in order to recognize the ways government could facilitate their participation, it is important to comprehend the nature of existing economic activities and partnerships.

5.1 SOME IMPORTANT FINDINGS

This paper finds that the majority of the expatriates who have created the most economic impacts worked in partnership with the private sector. In other words, the involvement of expatriates is commonly found in the private sectors. Eighteen respondents out of the 20 respondents worked in partnership with private entities. Private sector refers to individuals, non-profit/non government organizations, private limited companies, and business associations.

Interviews reveal that most of the expatriates do not want direct government intervention. From the previous experience of dealing with government, the expatriates recognized that bureaucratic procedure is so lengthy that it sometimes takes years to obtain permissions or approval to start any new

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economic activities, be it business, investment, or technology transfer. However, the expatriates see the role of government as infrastructure provider.

Another interesting finding is that seven out of twenty expatriates are involved in activities related to infrastructure, or infrastructure services. This shows evidence that there are opportunities for Bangladesh to make use of expatriates' skills and knowledge to develop the infrastructure necessary to transfer knowledge. Though most of the expatriates often identify a lack of infrastructure as one of the obstacles, it is interesting to note that this is one of the niches where they found opportunities to transfer knowledge.

5.2 *POLICY IMPLICATION*

The findings of this thesis suggest that the highly skilled Bangladeshi expatriates do transfer tacit knowledge to Bangladesh. Though the sample size is small, and only few people are engaged in such a knowledge transfer process, this thesis provides evidence that some expatriates are able to surmount the obstacles and can actually transfer knowledge to Bangladesh. To facilitate their participation, the government can play an active role, developing an institution that would facilitate networking, information sharing, and provide incentives for investment. The government could also create institutions that would help

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expedite the process of getting permissions for businesses or other economic activities.

In this knowledge transfer process, government's role should be a facilitator, and not a regulator. The evidence suggests that the government has always delayed the process of creating economic activities. The reasons are mainly related to the institutional rigidity of the public sector, which is beyond the scope of this study. However, the Ministry of Expatriates, in partnership with the private sector, may develop some accord through which Bangladeshi expatriates can be given some facilities to support the knowledge transfer.

5.3 FURTHER SCOPE OF RESEARCH

Transnational economic activities are increasing with the increase in trade and migration. Further studies could be done at both the macro and the micro level. While a macro level study could draw comparisons among some countries and their phases of development, a micro level study could be done to explore why some transnational activities are successful, and some are not.

Recently, many Chinese and Indian migrants have started to go back and have become entrepreneurs in their home countries. Each country, having unique opportunities, advantages, and knowledge base, use their resources

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differently. However, all countries at certain stages of their development face similar situations in their countries. For example, those countries faced some common problems such as lack of infrastructure, and other institutional barriers like corruption, bureaucracy, and law enforcement. Further study could be done to compare some of the countries' different phases of development to see how each country deals with those problems in their early stages of development.

In the micro level, further study could be undertaken to understand the organizations with which the expatriates build partnerships. This study could explore the circumstances that determine whether some organizations are in better position to absorb knowledge than the others. This would help explore the conditions under which knowledge transfer over long distance could be most effective.

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