

# AIUB BUSINESS AND ECONOMICS WORKING PAPER SERIES



## Delphi Technique in Poverty Alleviation: A Case Study

**MJB Moral, Farid Ahammad Sobhani and Ruslan Rainis**

Office of Research and Publications (ORP)  
American International University-Bangladesh (AIUB)

Working Paper No. AIUB-BUS-ECON-2008-24

### Citation

MJB Moral, Farid Ahammad Sobhani and Ruslan Rainis (2008). Delphi Technique in Poverty Alleviation: A Case Study. AIUB Bus Econ Working Paper Series, No 2008-24,  
<http://orp.aiub.edu/WorkingPaper/WorkingPaper.aspx?year=2008>



June 2008

Copyright © 2008 American International University-Bangladesh (AIUB)

# Delphi Technique in Poverty Alleviation: A Case Study

*Authors:*

**MJB Moral**

Assistant Professor, University of Rajshahi, Bangladesh and PhD Candidate, Universiti Sains Malaysia  
[Jahan\\_ges@ru.ac.bd](mailto:Jahan_ges@ru.ac.bd) / [jahanboksh2@yahoo.com](mailto:jahanboksh2@yahoo.com)

**Farid Ahammad Sobhani**

Associate Professor, International Islamic University Chittagong and PhD Candidate, Universiti Sains Malaysia  
[sobhani\\_farid@yahoo.com](mailto:sobhani_farid@yahoo.com)

and

**Ruslan Rainis**

Professor, School of Humanities, University Sains Malaysia  
[ruslan@usm.my](mailto:ruslan@usm.my)

**Corresponding author:**

Farid Ahammad Sobhani  
[sobhani\\_farid@yahoo.com](mailto:sobhani_farid@yahoo.com)

# Delphi Technique in Poverty Alleviation: A Case Study

## Abstract

This study aims at investigating scholars thinking intended for poverty alleviation. Two-round Delphi techniques were applied to attain experts' opinion in support of probable resolution of poverty. Government officials, Non-government executives, University academics, and social & political personalities are considered as scholars. The scholars think that limitation of job is the fundamental cause of poverty that is why the poor are bound to live in vulnerable unhygienic places where inadequate services are prevailing. They also argued that by providing home-based work and especial training that will help them to get job for income generation, the poverty problems could be reduced. As well community-based management similar to labor intensive low-cost housing factory and sanitation plant will also been lead to decrease poverty. To avoid hypothetical discover, the study analyzed poverty alleviation activities of UNDP/GOB project. The UNDP/GOB project entitled 'Local Partnerships for Urban Poverty Alleviation' is one of the biggest urban poverty alleviating projects in Bangladesh. There are many successful activities of this project such as community-based micro-credit, sanitation as well as drinking water has been highlighted. The study was undertaken by acquiring primary data from the field survey that employed a structure questionnaire and gathered information emphasis on poverty. Heads of poor households or a member behalf of HH, were used as respondents.

**Key words:** Poverty alleviation, Delphi technique, Rajshahi city, Bangladesh

## Introduction

The present developing world is facing severe development challenges because of rapid urbanization. Owing to rural poverty and unemployment, countryside poor are shifting into urban areas. The consequences in terms of environmental degradation and deteriorating living standards are in fact already visible (Rafael Tuts, 2002) in urban areas. Without alleviation of poverty it is difficult to make sustainable development (GFEP, 1992 cited in Rahman, 1998). The most of the global poor live in the south especially in the tropical and subtropical region. However over consumption in the North, created the greatest threats to achieving sustainable development for the global community. As a result the urban poor exist in inhospitable surroundings (Rahman, 1998, pp. 33-34).

The cities of Bangladesh are facing extremely high growth of population as a consequence of migration. In Bangladesh around 50 percent of urban populations live in absolute poverty and 30 percent of them stay below hard-core poverty (Islam, 1996). The same situations exist in Rajshahi city that has been considered as sample area for this study. Notably, Rajshahi is one of the divisional cities out of six (6) in Bangladesh. Every moment, lots of rural poor are shifting in the city with the intention of obtaining job and improving their livelihood. The city has limited capacity in favor of additional population. That is why the migrated poor suffer from lack of infrastructure and service that created environmental degradation. Because of unhygienic environment, they suffer from different diseases that reduce their working capacity. The study aimed at searching the poverty situation and achievement of UNDP/GOB project activities in favor of improving living standard. Finally the study made an effort to find out scholars thinking in support of poverty mitigation.

## Objectives

The main objective of this study is to know the scholars' view using Delphi Technique regarding poverty alleviation. *Inter alia* objectives of this study are as follows:

- ❖ To explore the poverty situation;
- ❖ To demonstrate UNDP/GOB project activities in favor of improving poverty situation;
- ❖ To identify the problems in alleviating poverty;
- ❖ To suggest necessary measures in policy formulation regarding poverty reduction and improving environmental status of poor people.

## Prior Research

At present the world's population is around 6 billion with 1.7% annual growth rates. Around 75% of them live in the developing countries and 30% of them reside in abject poverty. More than 100 million are homeless and jobless. They do not have social security. Most of them exist in south Asia and sub-Saharan Africa. Around 600 million stay in Asia, 200 million in sub-Saharan Africa, 70 million in Latin America and the Caribbean and the rest live in North Africa. Near 80% poor in Latin America survive in marginal land areas whereas 60 percent in Asia and 50 percent in Africa (Rahman 1998). They have various deficiencies such as employment, housing and infrastructure, social protection, access to health, education as well as personal security (Mayo and Mashauri, 1991, Hukka, 1991, Satterthwaite 1999, Mbilinyi and Omari, 1996 UNEP, 2003 , Alex 2003, Rahman, 1998 ). The places, where they live, are unhygienic and vulnerable.

Poverty is originated from social inequality and unequal distribution of wealth and economic benefits. Due to colonial control and exploitation, the present poverty has been created in the South. During that time, resources were oppressed from many developing countries. The Northern developed countries not only broken the social equity of the South but also exploited the natural resources of the South and broken the natural balance of the globe. The industrial countries prepared their economic growth during the eighteenth and nineteenth centuries at the price of the resources of today's under-developed countries (Rahman, 1998).

Trade disparity and uneven growth of economies between the North and the South is another fact of environmental poverty. Lack of good governance, superiority and poor management by government of many emerging and independent countries are distinguished there. United Nations Human Settlements Program (UN-HABITAT) is trying to enhance different forms of capital for the urban poor. Finally some promising mechanisms to enhance the relevance of Local Agenda 21 initiatives used for urban poverty reduction were explored (Rafael Tuts. 2002).

## Methodology

Research is an art in addition methodology is the systematic process of solving the problems. The study is comprised of several distinct. Both primary and secondary data have been used. Field information have been generated through a structured questionnaire. Secondary data have been accumulated from different published journals and books. By using precise questionnaire two-round Delphi Techniques have been used in gathering scholastic opinion in support of poverty cut down. University academics, Engineers, Govt. officials and Non-govt. executives have been considered as scholars. Studying social problem, it is very difficult to investigate the

whole universe. As it is costly, time consuming as well as complex, stratified random sampling has been drawn at the 5% level of significance. Two fields namely Ramchandra Pur Shamprasharitu and Bustuhara in the Rajshahi city have been chosen throughout purposive sampling. The opinion survey was conducted during October and November 2007.

## **Poverty**

Admittedly, there is no unique definition of poverty, and therefore, there is no perfect indicator to measure its change over time. Poverty is a state of deprivation involving multiple dimensions, from limited income to vulnerability. There are mainly two concepts of urban poverty. One is conventional economic approach, which applies income / consumption and range of other social indicators to recognize the poor against a common index of material welfare (Wratton, 1995). The other approach is non-material deprivation and social differentiation.

According to conventional economic approach, poverty is defined as the incapability of getting a minimum standard of living, below which location of people is unwanted. This minimum standard of living is to be measured with reference to food, housing, education, medical treatment, health, security and sanitation (Pigou, 1952).

Islam (1997) states poverty as the failure of a person to make provision for food, housing, education, treatment, health security of life and sanitation for a minimum standard of living. Conventional definition of poverty does not identify the nutrition or required food of individuals that's why poverty is sometimes defined as deficiency of nutrition.

## **Poverty Line**

Poverty line is measured by regular income / expenditure of a household. Although the measurement of poverty line on the basis of income/ expenditure is more satisfactory than the other measures, more significantly, the income/ expenditure-based measure of poverty cannot cover many aspects of social well-being and hence illustrates a partial picture of poverty level. In the setting of the deficiency of income-based determination of poverty, some supplementary social indicators are utilized to recognize the individuals under poverty line. The major social indicators used to categorize the poverty line are life expectancy, infant mortality, nutrition, proportion of household, budget on food, literacy, school enrolment rates and access to health clinics or to drinking water (Wratton, 1995 cited in Islam, et. al. 1997, p. 33).

To determine the poverty line income based measure of poverty has been used and around 40 percent of the household income less than 1 dollar per day. In terms of savings near 50 percent households of both communities have no savings. The environmental conditions of the communities are worse excluding of sanitation and drinking water. Overall condition of sanitation and drinking water is very good due to the implementation of UNDP / GOB Project.

Income is the main indicator used to identify the level of socio-economic condition of households. The income levels of households have been divided into five main groups. The majority of households' incomes are very low. The family members of major households consist of 3 to 5 persons. In most cases, there is only one earning member in a family. In C<sub>1</sub>, around 40% of families income less than 1 US dollar per day and only 4% of family's income more than 46 US dollars per month. Almost the similar picture was found in C<sub>2</sub> (Table 2).

**Table 1: Monthly income distribution of the HHS**

Monthly Income (US \$)	C <sub>1</sub>		C <sub>2</sub>		Total	
	F	%	F	%	f	%
<30	19	38.0	39	39.0	58	38.7
30-35	20	40.0	37	37.0	57	38.0
36-40	06	12.0	11	11.0	17	11.3
41-45	03	06.0	08	08.0	11	07.3
>46	02	04.0	05	05.0	07	04.7
Total	50	100.0	100	100.0	150	100.0

Note: f→ frequency, Source: Field Survey

Saving status is found to be most dangerous among the poor. More than 50% families have no saving and most of their incomes are spent to buy their daily consuming foods. The poor go through a critical moment during off day of work or during vulnerable time. As they live in vulnerable places, a lot of local environmental problems exist there. Most of them live out of city services. Inadequate services are common there.

### Multi-dimensions of Poverty

Urban poor suffer from lack of employment, housing, infrastructure, health, education and social protection. Most of them were migrated from different parts of rural areas into cities for better living. The city has limited capacity to provide job. The migrated poor live in unhygienic and polluted environment. They suffer from different diseases and finally lose their working capacity. Most of their income is spent for buying their daily-consumed food. Only limited amount are spent for their medical treatment purpose. Limited basic educational institutions were seen in the areas. Educational costs are high and the poor are unable to bear of it. Land title is another great problem. They have been living for long time without any land title. Due to lack of land title, they could not use their land as productive assets. Their living places are located far from the city main services, so they do not get any important information in the right time. Social discrimination also present there.

**Table 2: Dimensions of urban poverty**

Dimensions	Contributing Factors	Impacts
Income poverty	<ul style="list-style-type: none"> <li>→ Lack of employment</li> <li>→ Employment insecurity</li> <li>→ Unskilled labor</li> <li>→ Unsound health</li> </ul>	<ul style="list-style-type: none"> <li>→ Inability to get services</li> <li>→ Lack of housing, land</li> <li>→ Poor capital</li> <li>→ Poor health</li> </ul>
Health poverty	<ul style="list-style-type: none"> <li>→ Over crowded and unhygienic living environment.</li> <li>→ Polluted areas</li> <li>→ Limited health facilities and Expensive</li> </ul>	<ul style="list-style-type: none"> <li>→ Inability to hold a job</li> <li>→ Inability to earn.</li> </ul>
Education poverty	Limited education facilities and expensive	<ul style="list-style-type: none"> <li>→ Inability to get a job</li> <li>→ Inability to earn</li> <li>→ Poor education</li> </ul>

Security	<ul style="list-style-type: none"> <li>→ Tenure insecurity</li> <li>→ Wage and job insecurity</li> </ul>	<ul style="list-style-type: none"> <li>→ Inability to use house and land as source of income</li> <li>→ Physical and mental health Problems</li> <li>→ Low earning or</li> <li>→ decrease earning opportunities</li> </ul>
Lack of Empowerment	<ul style="list-style-type: none"> <li>→ Isolation of communities</li> <li>→ Lack of information of jobs</li> </ul>	<ul style="list-style-type: none"> <li>→ Increase the intensity of Poverty</li> </ul>

Source: Field Survey

Lack of one dimension of poverty generates other deprivations. In general poor people do not get credit for housing or business from the formal banks. Without mortgage, banks do not sanction any loan. They do not own any resources for mortgage. Hence they are deprived of getting loans. The lack of credit leaves them to inability to afford adequate housing. The places where they live are generally unhygienic and isolated from the main service system. Owing to living unhealthy environment, they suffer from different diseases that make them unhealthy. There is also scarcity of jobs and insecure wage rate. All of these factors make them more vulnerable.

### **Project Activities**

UNDP / GOB project is one of the biggest anti poverty projects in Bangladesh to eradicate poverty and improve their services. UNDP project's achievements in terms of poverty reduction are one of the greatest success stories in economic development. This project is running in twelve cities of Bangladesh along with Rajshahi city. The main objective of the project is to alleviate poverty by the empowerment of urban poor. It tries to increase the ability of local organization and local government for the support of urban poor. It is also trying to provide services in addition to socio-economic development. There is another effort to integrate the activities of government, local government and NGOs to increase the efficiency of the activities. Urban poor people are deprived of lot of facilities like jobs, training, education and services. That is why the projects are trying to make availability of the above services.

UNDP / GOB project is doing many activities to improve the socio-economic condition along with providing the infrastructure and services. Still the activities are going on and some of the successful activities like self-micro credit program, improving the sanitation system, solve the drinking water problem by providing hand pump tube well. They also provide both formal and informal education including with training for health awareness and others. Some of them are discussed into the following.

Overall environmental and socio-economic conditions of the communities are going to improve day by day due to implementing of the project. People are more conscious than earlier along with good knowledge of environment. Previously people didn't use the sanitary latrine but maximum of the families now are using the pit sanitary latrines. All of these sanitary latrines are provided from the project. Previously poor people sometimes used the open space for their toilet purpose that polluted their environment and the surrounding local environment. By force the non-sanitary latrines were destroyed by the staff of the project. The problems of water are now more or less solved. Hand pumps are supplied among the poor communities to solve the water problems. Lack of land title is a great issue into the communities.

The project is now trying to solve the problems associated with local administration. The solution of land title will be impact on their socio and economic condition. Both formal and informal education is facilitated by the project for the poor communities. It is also providing

health facilities to the poor people through community health centre. From the community health centre two types of programs such as treatment facilities and health awareness programs are provided. Through treatment facilities poor people get medicine free for their treatment. Through training program poor people get training and awareness regarding on their health. The project also provides them self micro-credit program that is fundamental tool for poverty alleviation of the community. The management of the project has also future plan to construct road, community base solid waste management and waste water treatment plant to improve their local environment.

### **Delphi Technique**

The Delphi Technique is a systematic means to obtain opinion from a group of knowledge persons or panel of experts (Delworth, James B., 1993). It was developed by the Rand Corporation in the 1950s (Aquilano et al, 2003). This technique is widely used for the study to obtain professional and expert opinion. It can usually achieve satisfactory results in three rounds. In some cases two rounds is also sufficient to get expected result. The time needed is a function of the number of participants, how much work is involved in getting opinion and their speed in responding. As stated before Government implementers, non-government implementers, academicians and social & political personalities have been considered as knowledge persons or experts regarding reduction of poverty and improvement of environmental status of the poor.

### **Government Organizations (GOs) viewpoint**

As opined by the Govt. officials, urban poverty is flourishing because of inadequate employment. That is why people are unable to fulfill their basic needs. Due to lack of job rural poor are migrated into urban areas. After shifting into urban, the poor are living into very vulnerable places. Creating jobs opportunities could be helped to improve the situation.

Awareness on the importance of better environmental condition must also be created within the community of the poor. Providing infrastructures and services to the poor community is also pre-condition toward better environment.

### **Non-governmental Organizations (NGOs) point of view**

According to the opinion of NGO executives, due to riverbank erosion huge numbers of rural people are migrated towards the city for income and subsistence living. Most of them are living in very overcrowded unhygienic places in the city. The city has limited competence to afford them work, education in addition to providing infrastructure and services. All of these factors go in front to malnutrition of the urban poor that finally leads to unhealthy of them that influence also productivity. The NGO implementers are also thinking that there are numerous organizations are working to reduce the poverty that is why its level decreased from 80% to 40-50%. They emphasis their opinion on micro-credit that create income generation. Many activities such as education, sanitation, training and awareness program are going on to reduce poverty and improve their environment. They suggest that income generation is possible by micro-credit. The people are not satisfied to the credit programs run by the NGOs because of high interest rate.

### **Academicians' opinion**

The academicians viewed that the budgets of poverty reduction are never utilized properly. They also said that every moment due to push and pull factors, many rural populations are coming to the city. They suggested for the decentralization of industry from Dhaka to regional cities and make rural agro-based industry to generate income of the people that will influence or reduce the



migration from rural to urban. They also recommended to run the registration system and long-term soft loan to remove the land management problems.

### Views of Social and Political Personalities

‘Demand is higher than supply’ the citation was uttered by a politician during the interview. Lack of finance and rural-urban migration the level of poverty is high. Lack of resources and administrative complexity is the main barrier to solve the problem. The politicians are trying to provide them infrastructure and services but according to them, the demand is higher than supply and hence they could not provide them all.

**Table 3 Result of First Round Delphi**

Parties Involved	Perceptions / Opinions	Action	Result	
	Emphasis on Poverty	Emphasis on Poverty	Expected	Actual
Implementer GO	<ul style="list-style-type: none"> <li>• Out of main stream</li> <li>• Lack of coordination among the organization</li> <li>• Due to rural urban migration</li> <li>• Scarcity of jobs</li> <li>• Low income.</li> <li>• Vulnerable place</li> <li>• Lack of infrastructure</li> <li>• Lack of services</li> <li>• Lack of income leads environmental degradation</li> <li>• Due to rapid rural-urban migration</li> </ul>	<ul style="list-style-type: none"> <li>• Providing training for skill development of the poor in order to improve their awareness on environment</li> <li>• Providing jobs in order to solve unemployment and improve their environment</li> <li>• Self micro-credit facilities.</li> <li>• Trying to integrate among the organizations to increase poverty reducing and environment activities..</li> <li>• Trying to provide the infrastructure and services in order to improve poverty.</li> <li>• Trying to include the main stream in order to simultaneously improve the nexus.</li> </ul>	<ul style="list-style-type: none"> <li>• Trying hundred percentage to include to main stream and provide them infrastructure and services in addition to jobs and training</li> <li>• They have a future plan to give training to develop awareness and management of community solid waste management .</li> <li>• Have a future plan to build up road, drainage and solid waste management</li> </ul>	<ul style="list-style-type: none"> <li>• Due implementing of UNDP/ GOB project, sanitation specially latrine and drinking water problem have been solved.</li> <li>• Self-fund micro credit program of the project is successful because the community people now has created their own fund and distributing loan among the members.</li> </ul>
Implementer NGO	<ul style="list-style-type: none"> <li>• Due to river bank erosion, huge number of population migrated towards city</li> <li>• Lack of income</li> <li>• Lack of employments</li> <li>• Lack of education</li> <li>• Suffering from Malnutrition</li> <li>• Lack of solid waste management</li> <li>• Lack of drinking water</li> <li>• Lack of social awareness</li> <li>• Very congested environment</li> <li>• Lack of housing</li> <li>• Lack of land title</li> <li>• Due to poverty, they live very worst environment</li> <li>• Due to loss of every thing of river bank erosion , they live most risk place.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduce poverty from 80 to 40-50%.</li> <li>• Providing fund specially micro-credit for better income generation</li> <li>• Providing training to build up awareness</li> <li>• Provide latrine</li> <li>• Provide informal and formal education</li> <li>• Providing sanitation</li> <li>• Providing training for awareness</li> <li>• Income generation by micro-credit and awareness building leads to reduce poverty and improve environment.</li> <li>• Providing sanitation, education, drinking water that lead good health and able to income that leads reduce poverty and improvement environment.</li> </ul>	<ul style="list-style-type: none"> <li>• Poverty will reduce hundred percent and possible to provide them all the services</li> </ul>	<ul style="list-style-type: none"> <li>• Micro credit program of different NGO are very successful but other environmental program like sanitation, housing, education etc are very limited program in the field.</li> <li>• Although maximum people of the communities are satisfies to the micro-credit program but they think that if the interest rate would reduce then they would be more benefited.</li> </ul>
Academicians	<ul style="list-style-type: none"> <li>• Lack of proper use of fund for the poor</li> <li>• Maximum of the fund for poverty reduction are used for the salary of the staff and official and other purposes</li> <li>• Lack of jobs</li> <li>• Lack of income</li> <li>• Suffering from malnutrition</li> </ul>	<ul style="list-style-type: none"> <li>• Decentralization</li> <li>• Rural agro-base industry that will create jobs for income generation</li> <li>• Home base income generation program</li> <li>• Infrastructure development</li> <li>• Development of public health care centers</li> <li>• Land management</li> </ul>	<ul style="list-style-type: none"> <li>• It is possible to reduce the poverty and improve their environment if the fund for poverty use properly and if population growth would be control</li> </ul>	<ul style="list-style-type: none"> <li>• Due to high rate of rural and urban migration and high growth of population still the poverty situation is high</li> </ul>

	<ul style="list-style-type: none"> <li>• Lack of awareness</li> <li>• Lack of education</li> <li>• Push and pull factors</li> <li>• Unhygienic living environment</li> <li>• Vulnerable place</li> <li>• Live urban slum</li> <li>• Vicious circle of poverty and environment</li> </ul>	<ul style="list-style-type: none"> <li>• Long term soft loan</li> <li>• Community base water, waste and sanitation management</li> <li>• Community base monitoring and maintenance</li> <li>• Employment = income = better living = better environment.</li> </ul>		
Social and Political Personalities	<ul style="list-style-type: none"> <li>• Lack of fund</li> <li>• Due to rural – urban migration</li> <li>• Demand is higher than supply</li> <li>• Administration complexity</li> <li>• Lack of resources like limited land</li> <li>• Have the relation between them</li> </ul>	<ul style="list-style-type: none"> <li>• It is very difficult to provide all because demand is high but resources are very limited. Trying to provide them infrastructure and services as possible as. It is possible to reduce poverty and improve their environment, if every body or all the institution take integrated action.</li> </ul>	<ul style="list-style-type: none"> <li>• It is very difficult to eradication of poverty hundred percent</li> </ul>	<ul style="list-style-type: none"> <li>• The rate of poverty is still high.</li> </ul>

### Result Obtained from Second Round

Second round of Delphi evaluates the preference of the programs. Their respective preferences are ranked according to their opinion of significance. Their preferences are presented in Table 4. In Ranking GOs laid more emphasis on job creation and training to improve the poverty situation but NGOs stress on micro-credit. Emphasis on proper utilization of poverty reduction fund is given weight by experts.

**Table 4 Result of Second Round Delphi**

Parties Involved	Intervention preferences of scholar views		
	Rank	Emphasis on Poverty	Expected results
Implementer GO	1	<ul style="list-style-type: none"> <li>• Providing training that will create the opportunities of jobs</li> </ul>	<ul style="list-style-type: none"> <li>• Providing training and better jobs that will increase their income to eradication poverty</li> </ul>
	2	<ul style="list-style-type: none"> <li>• Micro-credit for better income</li> <li>• Rural agro-base industry that will create jobs for income generation</li> </ul>	<ul style="list-style-type: none"> <li>• Income generation by micro-credit and awareness building that leads to reduce poverty and improve environment</li> </ul>
	3	<ul style="list-style-type: none"> <li>• Due to rural – urban migration/ push-pull factors</li> <li>• Home base income generation program</li> </ul>	<ul style="list-style-type: none"> <li>• Home base income will reduce rural urban migration</li> </ul>
	4	<ul style="list-style-type: none"> <li>• Lack of jobs, income, training, education and awareness.</li> <li>• Decentralization</li> </ul>	<ul style="list-style-type: none"> <li>• To begin registration system, community base monitoring, long term soft loan for land management and community base solid waste management.</li> </ul>
	5	<ul style="list-style-type: none"> <li>• Lack of proper use of fund</li> </ul>	<ul style="list-style-type: none"> <li>• Proper monitoring</li> </ul>
Implementer NGO	1	<ul style="list-style-type: none"> <li>• Micro-credit for better income</li> <li>• Home base income generation program</li> </ul>	<ul style="list-style-type: none"> <li>• Income generation by micro-credit and awareness building leads to reduce poverty and improve environment</li> </ul>
	2	<ul style="list-style-type: none"> <li>• Providing training that will create the opportunities of jobs</li> <li>• Rural agro-base industry that will create jobs for income generation</li> </ul>	<ul style="list-style-type: none"> <li>• . Providing training and better jobs will increase income that will lead to eradication poverty and improve their environment</li> </ul>
	3	<ul style="list-style-type: none"> <li>• Lack of jobs, income, training, education and awareness.</li> <li>• Decentralization</li> </ul>	<ul style="list-style-type: none"> <li>• Providing sanitation, education, drinking waters that will lead good health and able to work and income that will leads to reduce poverty and improvement environment</li> </ul>
	4	<ul style="list-style-type: none"> <li>• Due to rural – urban migration/ push-pull factors</li> <li>• Trying to include the main stream and provide infrastructure and services including health facilities, education, training and awareness.</li> </ul>	<ul style="list-style-type: none"> <li>• To begin registration system, community base monitoring, long term soft loan for land management and community base solid waste management.</li> </ul>
	5	<ul style="list-style-type: none"> <li>• Lack of proper use of fund</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
Academics	1	<ul style="list-style-type: none"> <li>• Lack of proper use of fund</li> <li>• Rural agro-base industry that will create jobs for income generation</li> </ul>	<ul style="list-style-type: none"> <li>• To begin registration system, community base monitoring, long term soft loan for land management and community base solid waste management.</li> </ul>

	2	<ul style="list-style-type: none"> <li>• Due to rural – urban migration/ push-pull factors</li> <li>• Home base income generation program</li> </ul>	<ul style="list-style-type: none"> <li>• . Providing training and better jobs will increase income that will lead to eradication poverty and improve their environment</li> </ul>
	3	<ul style="list-style-type: none"> <li>• Micro-credit for better income</li> <li>• Decentralization</li> </ul>	<ul style="list-style-type: none"> <li>• Income generation by micro-credit and awareness building leads to reduce poverty and improve environment</li> </ul>
	4	<ul style="list-style-type: none"> <li>• Lack of jobs, income, training, education and awareness.</li> <li>• Trying to include the main stream and provide infrastructure and services including health facilities, education, training and awareness.</li> </ul>	<ul style="list-style-type: none"> <li>• Providing sanitation, education, drinking waters that will lead good health and able to work and income that will leads to reduce poverty and improvement environment</li> </ul>
	5	<ul style="list-style-type: none"> <li>• Providing training that will create the opportunities of jobs</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>
Social and Political Personalities	1	<ul style="list-style-type: none"> <li>• Micro-credit for better income</li> <li>• Decentralization</li> </ul>	<ul style="list-style-type: none"> <li>• To begin registration system, community base monitoring, long term soft loan for land management and community base solid waste management.</li> </ul>
	2	<ul style="list-style-type: none"> <li>• Due to rural – urban migration/ push-pull factors</li> <li>• Rural agro-base industry that will create jobs for income generation</li> </ul>	<ul style="list-style-type: none"> <li>• Providing sanitation, education, drinking waters that will lead good health and able to work and income that will leads to reduce poverty and improvement environment.</li> </ul>
	3	<ul style="list-style-type: none"> <li>• Lack of proper use of fund</li> <li>• Home base income generation program</li> </ul>	<ul style="list-style-type: none"> <li>• Income generation by micro-credit and awareness building leads to reduce poverty and improve environment</li> </ul>
	4	<ul style="list-style-type: none"> <li>• Lack of jobs, income, training, education and awareness.</li> <li>• Trying to include the main stream and provide infrastructure and services including health facilities, education, training and awareness.</li> </ul>	<ul style="list-style-type: none"> <li>• Providing training and better jobs will increase income that will lead to eradication poverty and improve their environment</li> </ul>
	5	<ul style="list-style-type: none"> <li>• Providing training that will create the opportunities of jobs</li> </ul>	<ul style="list-style-type: none"> <li>•</li> </ul>

## Concluding Remarks

The socio-economic condition of the sample population was not good. On an average, around 58% of the total households' income remains below 1 USD per day. Fifty-one respondents have no savings and 30 percent of them save less than one dollar per month. UNDP/GOB project entitled on 'Local Partnerships for Urban Poverty Alleviation' is one of the biggest projects to alleviate urban poverty and to improve their status especially in the study area in Bangladesh. There are many successful operations of the project are introducing micro-credit scheme, ensuring sanitation as well as drinking water. The project has future plan to manage other issues of environment like solid waste management specially community based solid waste management, road construction, road lighting, finance for housing, land cooperation for solving the problem of land title as well as to build drainage. The study highlighted opinion of different experts including scholastic ideas. It is noteworthy to mention here that there is no coordination among their opinions. GOs are thinking to emphasize on self-micro-credit and training, NGOs emphasize on micro-credit, experts like academicians are thinking that there is lack of proper utilization of poverty reduction fund. On the contrary, social and political personalities believe that demand is more than supply. Great lack of integration among different opinion is evident from the opinion survey. As the result, the poverty reduction efforts show insignificant achievement in view of the poverty reduction.

## Recommendations

The study recommended suggestions for formulating policies in urban poverty reduction as well as improving local environment at community level, regional level, as well as national level that is talked about subsequently.

## **Community Level**

Interventions in the community level are considered as the most direct solutions to the persistent problems of poverty, hence interventions at the community level are strongly recommended as itemized below.

- Home based work similar to hand loom industries or cottage industries are proposed as it requires meager amount that can be easily generated by the poor people and that will lead to the improvement of their environment.
- The regulations for the wage particularly minimum level of wage as well as security of the jobs are required to ensure that poor people are sufficiently protected from job dismissals.
- Soft loan for business is suggested for the earning opportunities of the poor.
- Training and finance for small business similar to tailors, shops, and informal businesses are proposed. This will create the income earning among the poor people along with improving their living environment.
- It is required to increase the number of informal education that will create the awareness and skill among the poor people. Due to skill development, the needy people will get the job easily; on the contrary, awareness will help them to improve their environment.
- It is recommended to enhance number of primary schools and providing financial support like scholarship to those poor children who could easily access the education in order to improve the nexus.

## **Regional Level**

- Creation of rural agro-based income generation schemes is recommended. Without control of rural urban migration, reduction of urban poverty will be quite impossible. This is also required to reduce the incident of rural to urban migration. It is expected to lead towards the reduction of urban poverty along with improvement of their environment.
- Since garment industry provides major contributions to the National GDP of Bangladesh, therefore, it is suggested to build garment factories in the regional levels that will significantly reduce the poverty in the areas and will improve the environment as people income will be increased. The increase of income will impede the environment degradation due to poverty.

## **National Level**

- Increasing national budget on urban poverty alleviation along with improving their local environment is strongly recommended.
- A separate division / department regarding poverty alleviation or the like should be introduced.
- The assessment and monitoring of the activities related to poverty reduction or alleviation must also be integrated into the national policies. This step will ensure well coordination and proper implementation of various efforts on poverty alleviation.

## References

- Aquailano, Chase and Jacob (2003). *Operations Management for Competitive Advantage*. Tata McGraw-Hill Publishing Company Limited, New Delhi
- Banuri, Tarip. (1998). The Case of the Environmental Kuznets Curve. Background Paper for the Human development Report 1998. Human Development Report Office, UNDP. New York. January.
- Cox, A., J. Farrington, J. Gilling. (1998). Reaching the poor? Developing a Poverty Screen for Agricultural Research Proposals. Oxford Policy Management & Overseas Development Institute.
- Delworth, James B. (1993), *Production and Operations Management: Manufacturing and Services*, McGraw Hill, Inc.
- Grepperud, S. (1997). Poverty, Land Degradation and Climatic Uncertainty. *Oxford Economic Papers* 49:586-608
- Hukka, J.J., Katko, T.S. and Mashauri. D.A. ( 1991). Shanty Towns - Urban Challenge for Research and Development Cooperation in Water and Environmental Engineering. *Rakennustekniik-ka, RT7/91*. 49-54 (Finnish Journal of Civil Engineering).
- Islam, I. and Khan, H. (1996). Income Inequality, Poverty and Socio-Economic Development in Bangladesh: An Empirical Investigation. *The Bangladesh Development Studies*. 14: 75-92.
- Islam, N. (1985-86). The Poor's Access to Residential Land in an Unfairly Structured city, Dkaka. *Oriental Geographer*, Dhaka.
- Islam, N. (1990). Housing in Bangladesh, Keynote paper for Rural Housing Seminar, 17 January, Dhaka.
- Islam, N., & et. al. (1997). *Addressing the Urban Poverty Agenda in Bangladesh: Critical Issues and the 1995 Survey Findings*. UCL: Dhaka.
- Islam, N., and Chowdhury, A. I. (1992). *Urban Land management in Bangladesh*. Ministry of Land. Bangladesh.
- Jahan, S (2003) Sustainable Development in Southern Africa: Mobilising Partnerships and Capacity for Achieving MDGS, Sustainable Development and the Millennium Development Goals the Environment-Poverty Nexus in the Southern African Context, UNDP, 2-4 July, 2003.
- Jahan, Selim and Alvaro Umana. (2003). "The Environment-Poverty Nexus". *Development Policy Journal*, Volume 3, April. Bureau for Development Policy, UNDP. 53-70.
- Jahan, S., and Umana, A. (2003). " The Environment-Poverty". *Development Policy Journal*, Volume 3, April, Bureau for Development Policy, UNDP. 53-70.
- Johnstone, N. (1997). Economic Inequality and Theurban Environment: The Case of Water and Sanitation. *Environmental Economics Programme Discussion Paper Dp 97*.
- Mallik, A H. (2002). Improving Urban Services Deliver for Environmental Management: A Study of Poor Settlement in Rajshahi City, Bangladesh. Bangkok: AIT (Unpublished MSc Thesis).
- Mascarenhas, A. (1995). The Environment Under Structural Adjustment in Tanzania with specific Reference to the Semi-Arid Areas. in (eds) Bagachwa and Limbu, *Policy Reform and the Environment in Tanzania* Dar es Salaam: DUP.37-59.
- Mashauri, D.A., and Omari, C.K. (1998). Poverty and Environment: Priorities for Research and Policy an Overview Study. Prepared For The United Nations Development Programme and European Commission Tim Forsyth And Melissa Leach With Ian Scoones September 1998.
- Mathieu, P. (1998). Population, Poverty and Environment Degradation in Africa World Development 31: 1987-1998.
- Mayo, A.W., and Mashauri, D.A. (1993). Lessons from Management of Solid Wastes in Dar es Salaam, *IET Journal* 1.4: 21-29.
- Mbilinyi, D.A.S., and Omari, C.K. (1996). *Rural-Urban Migration and Poverty Alleviation in Tanzania*. Dar es Salaam: DUP.
- MOL. (1989). Report of the Dhaka Mahanagori Basteer Niroshan Committee, Ministry of Land. Bangladesh.
- Moser, C. (1998). The Asset Vulnerability Framework: Reassessing Urban Poverty Reduction Strategies. *Development*, 26 (1): 1-19.
- Munasinghe, M., and Cruz, W. (1995). " Economy-wide Policies and Environment: Lessons from Experience" (mimeo). World Bank. Washington D.C.
- Ngalula, T.F., and Omari, C.K. (1996). Social Policy Process as a Strategy Towards Poverty Alleviation: Tanzania Experience" Paper Presented at a Seminar Consequences of the World Social Summit for the Social Policy of East African Countries, Berlin 30<sup>th</sup> November - 14<sup>th</sup> December 1996.
- OECD. (2001). "Poverty Environment Linkages". Working Party on Development Cooperation and Development, February 14. Paris.
- Ostrom , E.C. Burger., e. Field, R. Norgaard and d. Policansky. (1999). " Revisiting the Commons : Local Lessons and Global Challenges" *Science*. 284(5412): 278.282.
- Parnell, S. (2000). *Environment and Poverty in Southern Africa –Regional Linkages*. Cape Town: University of Cape Town.
- Pigou, A.C. (1952). *The economics of Welfare*. London: Macmillan.
- Rafael, T. (2002). Exploring the linkages between Local Agenda 21, Good Urban Governance and Urban Poverty Reduction: Lessons from UN-HABITAT's Experience over the Past Decade. Urban Governance Section, UN-HABITAT.
- Rahman, A.A., & et. al. (1998). *Environment and Poverty: Key linkages for Global Sustainable Development*. UPL: Dhaka.

- Rahman, M. M., and Ali, M. A. (2000). Waste Management and Environmental pollution in Bangladesh. Seminar Proceedings on Bangladesh Environment 2000.
- Rahman, M. M. (2000). A Comparative Study of GO Managed and NGO Managed Water Supply and Sanitation Facilities for Urban poor in Dhaka City, unpublished MURP Thesis, BUET: Dhaka.
- Satterthwaite, D. (1999). The Links Between Poverty and the Environment in Urban Areas of Africa, Asia and Latin America. International Institute for Environment and Development.
- Sethuraman, S.V. (1997). Urban Poverty and the Informal Sector: A Critical Assessment of Current Strategies. Development Policies Department International Labour Office, Geneva and United Nations Development Programme New York .
- UNDP. (2003). Sustainable Development in Southern Africa: Mobilising Partnerships and Capacity for Achieving MDGs : Sustainable Development and the Millennium Development Goals the Environment-poverty Nexus in the Southern Africa Context, from <http://www.undp.org/mdg>.
- UNDP/GOB. (2001). Urban Poverty Alleviation Project Manual of Rajshahi. Bangladesh
- UNEP. (2003). “Alex 2003” Meeting Report on Poverty –Environment Nexus.
- UNFPA, UNEP., and IUCN. (1998). Report of the International Workshop on Population-Poverty-Environment Linkages: Key Results and Policy Actions, Co-organized by UNFPA, UNEP and IUCN, IUCN: Switzerland.
- United Nations Development (UNDP) Bangladesh. (1993). *Towards an Integrated Employment Promotions and Poverty Alleviation*. Dhaka: Bangladesh.
- World Bank. (2000/2001). *World Development Report 2000/2001: Attacking Poverty*. Washington D.C.
- Wratten, E. (1995). “Conceptualizing Urban Poverty”, *Environment and Urbanization*, 7(1).