Governance and Development

Changing Dynamics and Shifting Agendas

Governance and Development

Changing Dynamics and Shifting Agendas

Edited by
Sharif As-Saber
Aka Firowz Ahmad

OSDER
PUBLICATIONS

Governance and Development
Changing Dynamics and Shifting Agendas

Edited by
Sharif As-Saber
Aka Firowz Ahmad

ISBN: 978-984-92653-1-3

Cover Design
Ahmad Fattah

Computer Makeup
Md. Shahjahan Kazi

Published by **Osder Publications**, 24/2 Eskaton Garden, Dhaka-1000, Bangladesh and printed by Osder Printers.

Printed in Bangladesh, June 2016

Price : Tk. 550.00, US$ 20

Dedicated to

To the victims of governance
and development

Preface

The book ‘Governance and Development- Changing Dynamics and Shifting Agendas’ is the compilation of selected research papers presented in the INSEARCH 2015:International Inegrative Research Conference on Governance in Transition ,Perspectives and Practices held in Bangladesh Academy for Academy Rural Development (BARD) Comilla on 18-19 December, 2015. The conference was organized by Netinsearch International- Network for Integrative Research, GAIN International (Governance and Administration Innovation Network), Centre for Administrative Research and Innovation (CARI), University of Dhaka, Bangladesh Academy for Rural Development (BARD) and the Stamford University Bangladesh.

Development specially in the post World War II has become the most lofty objective both at individual and collective life in the newly independent countries. Development efforts create an urge for new pattern of governance and simultaneously open a wide avenue of corruption for different stalkholders including the public actors.Consequently development and corruption appear to be the two sides of a single coin. In this context the need for good governance has evolved as a universal appeal in the developing countries. As a multidimensional phenomenon development process also involves in multidimensional interventions in the different sphares of life. The current book contains the articles related to three broader areas comprising changing development intervention at rural and peripheral levels, e-governance, climate change, environmental security and disaster management.In the sixteen articles different authors incorporate their research findings that we think will be helpful in understanding development dynamics in particular societies concerned.

We could not employ suffient time to accomplish the compilation work as much the task ideally require.It has been compled in hurry to fullfil our commitment to publish before the next Insearch Conference in December 2016.This time bound work could not have been accomplished without the support of a team of dedicated young academics and researchers. We express our highest gratitude to them and wish their a bright intellectual life.We are also thankful to Osder Publications for publishing, printing, and bringing the book to readers. Since the entire work was done under compulsion within a short period of time there are obviously some mistakes in the book and scope for corrections and development. We own all the limitations and solicit the sympathy of the readers.We hope to do necessary corrections and development in the next edition.

Editors

Contents

Contributors

Nujhat Nuari Islam Shejuty, Lecturer, Department of English, Hamdard University Bangladesh, Newtown, Sonargaon, Narayanganj 1440.

Abdus salam, PhD, Professor, Department of Soil, Water, and Environment, Department of Chemistry, University of Dhaka, Dhaka-1000, Bangladesh
Contact Info: email: muttaki1019@gmail.com
Contact Info: email: muttaki1019@gmail.com

Fatema Khatun, Assistant Professor, Department of Public Administration, Shahjalal University of Science & Technology,Sylhet, Bangladesh

Jenia Mukherjee, PhD, Assistant Professor, History of Ecology and Environment Institute of Development Studies Kolkata, Email: jeniamukherjee@gmail.com

Kamrul Ahsan, PhD, Director (Training), BARD, Comilla, Bangladesh and can be reached with E-mail: kamrul_61@yahoo.com

Kora Hasan Evana, Lecturer, CCN University of Science and Technology, Kotbari, Comilla

Mahfuzul Haque, PhD, Adjunct Faculty, Department of Development Studies, University of Dhaka.

Md. Akhter Hossain Khan, PhD, Professor, Department of Soil, Water, and Environment, Department of Chemistry, University of Dhaka, Dhaka-1000, Bangladesh

Md. Imran Khan, Lecturer, Department of Social Work, Savar University College

Md. Moshiur Rahman, PhD, Deputy Director (Government System), Bangladesh Public Administration Training Centre (BPATC), Savar, Dhaka, Bangladesh, Cell: 01716536726, Email: moshiur007@yahoo.com

Mohammad Yakub, PhD, Coordinator- Monitoring, Evaluation and Documentation, Practical Action, Bangladesh, Email: Mohammad.yakub@practicalaction.org.bd

Mohammed Kamrul Hasan, PhD, Joint Director (Rural Education and Social Development), Bangladesh Academy for Rural Development (BARD), Kotbari, Comilla, Bangladesh. Email: *hasan.kamrul17@yahoo.com*

Mst. Marzina Begum, Associate Professor, Department of Public Administration, Rajshahi University, Rajshahi, Bangladesh.

Nahidul Islam, Researcher, Department of Public Administration, Shahjalal University of Science & Technology,Sylhet

Parvaz Azharul Huq, Ph.D***,*** Associate Professor, Department of Public Administration**,** University of Rajshahi**,** Bangladesh, E-mail:parvazbd@gmail.com.

Sadia Alam Shammi, Graduate Student, Department of Soil, Water, and Environment, Department of Chemistry, University of Dhaka, Dhaka-1000, Bangladesh, Email: sadia.shammi_13@yahoo.com

Jin Wan Seo, *PhD,* Professor of Public Administration at the Incheon National University, Korea. E-mail: sjinwan@inu.ac.kr

Hasan Md Golam Mehedi, Research fellow and PhD candidate of Public Administration at the Incheon National University, Korea. E-mail: hasansheemul@gmail.com

Mohammad Samiul Islam, Assistant Professor, Department of Public Administration, Shahjalal University of Science and Technology, Sylhet, Bangladesh. E-mail:msamiulislam2010@gmail.com

Zayeda Sharmin, Associate Professor, Department of Political Studies, Shahjalal University of Science and Technology, Sylhet, Bangladesh. E-mail: zayeda_sharmeen@yahoo.co.in

Muttaki Bin Kamal, Lecturer, Stamford University Bangladesh.

MD. Arif Chowdhury, Research Associate, Institute of Water and Flood Management (IWFM), Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh.

Introduction

Good governance is considered to be a primary precondition for growth and development. However, it is not an easy task to devise and implement governance from this perspective. While the governance dynamics are different across countries, these have constantly been changing, prompting and shifting agendas for governments and other stakeholders.

This book is designed to provide some important snapshots about the role of governance from a number of key development perspectives. The book is divided into three parts. Part One of the book focuses on several governance perspectives involving the changing development intervention at rural and peripheral levels. Part Two concentrates on a number of selected e-governance issues from a developing country perspective. Part Three consists of articles related to sustainability of governance with specific emphases on climate change, environmental security and disaster management.

Part One of the book consists of seven articles. Article one (Changing International Cooperation for Rural Development in Bangladesh: Perspectives on Governance) aims to explore genesis and contemporary issues of regional and international cooperation in rural development and rural transition with special reference to Bangladesh. The article illustrates the recent standards of mainstreaming international and regional cooperation embedded in bilateral or multilateral interests on governance, accountability, anti-terrorism, historical affiliations, democratization, regionalism, ideologies, exchange of technologies etc.

Article two (Community Action Plan (CAP): Supports Local Level Development Programmes) focuses on decision making process at the local level. The paper exemplifies the decision making process of Practical Action, an international NGO in Bangladesh while implementing five development projects. Development planning of LGIs-Local Government Institutions is based on top-down approach where local people are facing constraints in identifying their own problems and determine their practices. Bottom-up planning can improve the situation because the communities can form the development committees, identify and prioritize the problems, visualize the situation through social mapping and ascertain the action points for the execution and the progress monitoring. The paper suggests that LGIs should be strengthened through improving local

governance by the participation of community people in the development planning, implementation and monitoring.

Article three (The Role of Micro Finance to Alleviate Rural Poverty of Bangladesh: Ektee Bari Ektee Khamar (EBEK) (One House One Farm) Project) tries to explore the role of Microfinance in alleviating rural poverty as well as the effects of Microfinance in increasing standard of living of rural poor of Bangladesh with reference to EBEK Project in Bangladesh. The study reveals that the EBEK project is facing many constraints in the path of its progress. But it is believed if these constraints of the EBEK project can be eradicated; the members of the EBEK community can improve their poor economic condition and can lead a peaceful and poverty free life.

Article four (Technical Education and Training for Changing Rural Income in Bangladesh: Prospects and Challenges) aims to provide an assessment on the ability of technical and vocational education and training institutions (TVET) in their role to create competent and self-reliant citizens to contribute to the economic and social development of the country. The study reveals that the available educational institutes and training organizations can facilitate village level society's members which have significant role in involving poor people in rural society and changing rural income with proactive role.

The next article (Local Level Governance in Input Delivery: A Case of Urea Fertilizer Marketing for Boro Paddy Cultivation in Bangladesh) tries to highlights the local level governance in input delivery with special reference to Boro paddy cultivation in Bangladesh. The country achieved self sufficiency in food grain production where irrigation, fertilizers and quality seeds played the key role. The study has revealed that demands for urea fertilizer from union and upazila level to the district level has been inflated in many cases. The study also recommended some suggestions to improve the food grain production at local level like creation of an environment of involving stakeholders in the need assessment of fertilizers at the union level; need assessment for urea through plot to plot assessment at the field level; and dealers should be made accountable through a closer monitoring by appropriate authorities.

Article six (Can ‘Coproduction’ Address Governance Gaps? Recognizing Unrecognized Practices in Accessing WATSAN Services in Peri-Urban Kolkata) emphasizes on the innovative planning and governance interventions by conceptualizing peri-urban areas not only as regions marked by high levels of inequality but also active experimentation in new ways to fill in provision gaps. The paper also explores if WATSAN governance gap can be addressed by abridging

(or coproducing) community-led efforts with those of the state not just to fill provision gaps but also to make it operational at scales, while integrating watershed management and activating citizens' rights and entitlements.

Article seven (Patron-Clientelism and Community Participation: Lessons from an Urban Poverty Alleviation Project in Bangladesh) tries to explore the logic of patronage and its manifestation in a community-driven development project in two urban poor settlements in Bangladesh. It is seen from the case study that long-term patron-client relationship is more dominant than short-term brokerage type relationship due to the existing typical socio-political culture in Bangladesh. The article also opines that the presence of multi-political parties' influence in a community leads to the lower dominance of patron-client relationship, which in turn contributes to more meaningful participation.

Part Two of the book includes three articles dealing with e-governance related issues. The first article included in this part (Adaptation Strategy of E-Governance in Bangladesh Public Administration: Prospects and Challenges of E-Governance system at the Field Administration) deals with the application of e-Governance at the Deputy Commissioner's offices in Sylhet and Kishoreganj districts in Bangladesh. It mainly focuses on the adaptation strategies of e-Governance in order to reduce the dysfunction of public ddministration and implement e-Governance at the field level administration. The strategies include the creation of websites, raising awareness, ICT training, sharing computers among colleagues and so on. It has also emphasized on pointing out the prospects and adaptation challenges of e-Governance at the Deputy Commissioner's offices in Sylhet and Kishoreganj. It includes non-acceptability of IT system, lack of incentive structure for government officials, lack of proper skill on ICT, lack of Bangla Standardization etc.

The next article (E-government Efforts against Corruption in Bangladesh: What We Have Done and What We Have to Do) provides an overview of e-government efforts against corruption in Bangladesh based on the relationship between e-government and anti-corruption efforts in general. The purpose of this paper is to examine the need for e-government services for the purpose of reducing corruption in Bangladesh and to suggest what we have to do. In particular, the paper analyzes e-government efforts against corruption in Bangladesh. The analysis verifies that corruption decreases when the use of ICT in government increases. It then explores what Bangladeshi governments

have done against corruption through e-government efforts. It also reveals that there are many limitations to these efforts and challenges in maximizing the benefits of e-government and opportunities for reducing corruption in Bangladesh.

The last article of this section (Using Facebook in and Outside of Classroomfor Language Education in Rural Areas of Bangladesh: Prospects and Challenges) focuses on using facebook in and outside of classroom for education in rural areas of Bangladesh. It delineates how facebook can be used for English Language Teaching (ELT) in language classroom. The article eventually focuses on the present status quo of internet facility in rural areas of Bangladesh.

Part Three of the book consists of five articles dealing with sustainable governance. The first article of this part (Impacts of Climate Change on Winter Vegetables and Misery of Peasants to Adapt for Livelihoods in Dinajpur, Bangladesh) intends to present the findings of impacts of climate change on rural peasants and tries to show the adaptive capabilities by identifying root causes of winter vegetables production. Simultaneously, it aims to discover the potential economic development by promoting earning opportunities among the indigenous and poor peasant communities of a remote district areas of Bangladesh. The major findings of the study reveal that production of vegetables are profitable. However, recently farmers get abrupt suffering in vegetable production due to uneven seasonal pattern. Application of more fertilizers and insecticide are found to be a very common practice in vegetable cultivation in modern time than a decade ago. The study has also found that the farmer communities are becoming financially poorer and finds it difficult to combat climate change issues with the negligible resources and technical knowledge that they have at present.

The article on (Intermediate Technology as Environmental Security) examines an existing intermediate technology based small industry of Bangladesh through observation and ethnographic method. It identifies sustaining intermediate technology based industries in the country and critically discusses the possibilities and challenges of such industries. In addition, it highlights how such industries can contribute to environmental security.

The next article (Human Rights Issues in Climate Change Governance in Bangladesh: Adaptation and Migration Perspectives) focuses on the human rights issues in relation to climate change adaptation and migration of people in Bangladesh. Human rights issues such as the right to liberty of movement, freedom to choose one’s own

residence, restrictions imposed on movements, security of person, freedom of expression and assembly, compulsory free education, right to recognition as a person, right to information, employment etc. are protected by national constitution, laws, policies and acts. Furthermore, in the case displaced persons, right to protect against being arbitrarily displaced from his/her habitat, right to seek safety in another place of country, to concern authorities to ensure alternatives to avoid displacement, equal rights to man and women etc. are also protected by national legal systems. However, in the field of protecting properties left behind by internally displaced persons, right to know about missing relatives, to take measures to minimize displacements, involve affected people in relocation planning, to issue displaced persons with all documents for the enjoyment of rights etc. are not fully covered by the legal system of Bangladesh. The article suggests that the Government needs to address this gap with proper governance approach so that climate victims in the context of climate change can get human rights protection through a proper adaptation process.

The article titled ‘Enrichment of Nutrient Status of Water-Soil Systems Caused by Industrial Effluents’ investigates the nutrient status (N, P, K, S, Ca, Mg, and Na concentrations) of water collected from Bangshi river and soil samples collected from agricultural lands of Dhamrai upazila of Dhaka district. Both nitrogen and phosphorus content in water was in excess amount and contributed to eutrophication, indicated by readily visible algal blooms. This may cause shift in habitat characteristics due to changes in assemblage of aquatic plants, replacement of desirable fish by less desirable species, production of toxins by certain algae, and may create taste and odor problems. The present study reveals that the area has been affected by increasing industrial pollution, large amount of untreated effluent discharge and lack of pollution control measures. Effective governance measures need to be undertaken by the relevant government agencies to tackle this problem.

The final article of the book (Coordination Challenges in Disaster Management in the Coastal Areas in Bangladesh) investigates the current disaster management practices in Bangladesh. The study has found that a lack of integration and overlapping of responsibilities prevails among the agencies in Bangladesh that hampers effective disaster management process. Apart from that, there is a lack of coherence among policies in disaster management, and no accountability mechanisms are functioning in an effective manner in order to mitigate disasters in Bangladesh.

Part One
Changing Development Intervention at Rural and Peripheral Levels : Governance Perspectives

1. Changing International Cooperation for Rural Development in Bangladesh: Perspectives on Governance

M. Kamrul Hasan

Abstract

This paper aims to explore genesis and contemporary issues of regional and international cooperation in rural development with special reference to Bangladesh development, rural transition. While no region or country of the world is not self sufficient on its resources so that cooperation is vital for mutual benefits of the people and a country all over the world, which begun at the ancient civilizations, eventually sovereign countries of the modern world at the changing perspectives focuses strategic planning and maximization of benefits. International cooperation is the process for sharing knowledge for mutual empowerment. The recent standards of mainstreaming international and regional cooperation embedded in bilateral or multilateral interest on governance, accountability, view on combat terrorism, patterns of historical affiliations, democratization, regionalism, ideologies, exchange of technologies etc. The standards also may holds disguised ethnocentric views, arms strength. Since independence, Bangladesh is progressing with the dilemmas on foreign assistances and jugglery visions on economic development. The challenges covers to achieve sustainable human development goals, to stop human trafficking, to combat terrorism, to stop smuggling of drugs and arms etc in one hand and equitable water sharing, connectivity for its citizen for mutual welfare and so forth on the other hand. While commitments withdrawn, Bangladesh strongly stands on construction of the Padma Multipurpose Bridge mainly from its own resources reflect new history of national zeal, leadership, and capability. Nevertheless, huge aspects of cooperation explicitly and implicitly influences the rural masses of Bangladesh. Particularly the rural people of Bangladesh breakdowns several miss notions holding by so-called donors from the core.

Introduction

Convincingly cooperation considered as an innate affair of human society and it generates through moral sense. However human have

opposite sentiments[1] that triggers conflict also. Concurrently, the competition is another influencing social process. Since ancient time, world politics are driven by fulfilling the competitive self interest entangled with dynamisms of socio-political processes.

Regional and international cooperation one of the vital aspects of rural development in terms of exchange, assistance, technical support, and participation for improving living standard of rural people. While international relations and trade have been existing since ancient times, it is in the past century that international development theories under modernization[2] or socialistic process has emerged as a branches of knowledge. Colonial policies started rural reconstruction since late 18th century in South Asia subcontinent. From agriculture growth with equity, basic needs approaches, poverty focused cum safety net programs are some of the major broad strategies for rural upliftment in Bangladesh. The thought of humanitarian based cooperation amid critiques has been developed in post colonial time in the middle of 20th century.

While no country of the modern world is not self sufficient on its resources for fulfilling diverse functions according to requirements of its citizen, so that cooperation is vital for addressing some of those wishes on reciprocal basis. Different countries of the world can learn from each other and there are ample scope of agreements to work together. Cooperation may generates new ideas and modus operandi. Collective efforts for benefiting the human being is desirable.

International cooperation and governance in rural development means collective efforts for improving living styles of rural people in sustainable way through agreement on consensus by two or more countries/ organizations. Cooperation mainly classified into bilateral, trilateral, and multilateral. Specific culture and social conditions of a country are important considerations for taking any kind of development projects, which have to be taken by felt need of a country. On the other hand, the aid and assistances classified into humanitarian and military also. Apart from this, obviously people of the planet is benefiting with cooperation in terms of metrology, maritime, air travel, satellite connection etc at modern era. Several agencies of United Nations (UN), institutions and organizations of region-international spheres are working for human welfare on customs of collaboration. At the academic world, international activities formed and generated for

[1] Vilfrado Paroto's sentiments that means non logical behaviour consists of derivation and residues reflects at circulation of elites.

[2] Modernisation means rational institutions and new values.

achieving greater integration of two or more episteme communities. To accelerate the development of economically poor country, the commitment made by economically advanced countries during 1970s, to spend 0.7% of their gross national income on aid for poor countries. That commitment is not followed properly except Scandinavian countries like Norway (1.07%), Sweden (1.02%), Luxembourg (1.00%), Denmark (0.85%), and United Kingdom (0.72%)[3] demonstrates such thing.

In the age of globalization, geo-economic is becoming one of the vital aspects of international trade. The world is now in the threshold of human security issues. It covers the global power game complexity with ideological confrontation in the name of religious fanatics. However, global power game, any forms of neo imperialism are probable conflicting gamut of global unrest. However, in the long run, conflicts produces change in international relations. Latest study revealed that global wealth flowing to the richest. The world now sees the exodus and great migration crisis in Europe due to global inequality, injustice and internal conflicts of a country or region. On the other hand, ethnic cleansing and persecution forces the Rohingya people, Kurds, Yazidis people and other oppressed people to sail by native boats to shelter in safer places. The question of exodus and forced migration is great challenges to the so-called humanistic world. Conversely, the chain on global terrorism is potential threats for progress for any country. The geo ideology new emerging aspects in addition to geo economic and geo politic. However, the existing global power hegemony, class, religiosity, gender, ethnicity ethnocentric views some of the strong hindrances on mutual cooperation efforts.

Since its independence, Bangladesh is participating actively in various international forums. As a democratic country, one of the principles of foreign policy of People's Republic of Bangladesh is friendship to all malice to none. Cooperation from regional and international arenas in sphere of State, organization, and individual very much attached in the liberation war of Bangladesh in 1971.

New dynamic process is shown at global stages. Countries of so called underdeveloped has been proved their potentialities and making new relations at world economic diplomacy. The old notion of development has been challenged by innovative ways from developing countries.

[3] https://en.wikipedia.org/wiki/List_of_governments_by_development_aid

While regional cooperation chiefly nurture and enhance to economic, social, environment development as well as promotion of peace and security, protection against crime, terrorism and extremism and other concerns of mutual. The technologically advanced countries or companies will able to take advantage over technology adaptor countries. It will be reflected another dynamics of market. Besides, several World Summits such as Earth, Social, Population, Gender, Habitat and etcetera has been provided committed guidelines for development. The gamut of international and regional development directly and indirectly includes development of rural areas and its people. Along with international and regional cooperation manifest different interests on military, strategic, political, economic, social, cultural and other matters; the people from diverse ideological backgrounds such as far right, right, middle way, left, and far left are viewing international cooperation in different ways.

Emerging economy is challenging balance of power that probably shifted the centre in future. In regards of China, French emperor Napoleon Bonaparte once remarked on "let her sleep, for when she wakes, she will tremble the world."[4] China becomes economic giant in present world economy.

No country of the world is not go with fully isolation. Connection on mutual benefits are very vital for living and sharing. In this juncture the regional and international cooperation for Bangladesh development and people to people contact very essential to harness the resources. To get from Bangladesh present demographic dividend, the presence of vast youth people in present age structure – the following are very imperative human resource development like building skilled people, sustainable employment, and fostering business and trade opportunities.

Suffice to say, only international aid alone could not prosper the developing countries. The development of Bangladesh is remarkable in recent past where poverty reduced tremendously. Bangladesh successfully disprove the view of negative notions professed by the donor countries in 1970s such as test case. Due to remittance earning from abroad the rise of middle class is seen at rural Bangladesh. Rural consumption pattern have changed over time with increased non food

[4] Gyohten, Toyoo. The Future of Asia. In Gill, I., Huang, Y. and Kharas, H. 2007. East Asian Visions. Singapore: Institute of Policy Studies and World Bank. Also see http://www.godlikeproductions.com/forum1/message318437/pg.1

item like clothing and footwear[5]. Increase of consumerism on industrial product and food-beverage items seen at rural Bangladesh. On the other hand small and medium industries should be developed in view of integrated development of agriculture-industry-service sectors.

Sustainable Development Goals (SDGs) and rural development partnership issues

Towards sustainable development that leaves no one behind, which is slogan of SDGs. currently it offers huge challenges in view of leadership development, resource mobilization, and effective partnership.

SDGs adopted at the seventieth session of United Nation General Assembly on 25th September 2015. Head of the government and the State from 193 countries adopted after long discussion, consultations and negotiations. The declaration titled as Transforming our World: the 2030 agenda for sustainable development. SDGs having three pillars like economic, social, environment. There are six interdependent columns viz planet, people, dignity, prosperity, justice, and partnership. "The later is to catalyse global solidarity for sustainable development - the challenges of SDGs are ambitious however it admits economic-social-environment indivisible and people are the key for development. In this juncture national planning and policy processes; management coordination and leadership for SDGs implementation; adequacy of financing, data accumulation and planning; above all partnership and stakeholder participation including institutional arrangements are some of the challenges".[6]

Some of the Cases (Selected) on Regional And International Cooperation and Governance Views For Bangladesh

It is well recognized; developing countries problems are food insecurity, rural poverty and unemployment. The development partners emphasizing those issues with their different views. A new dimension of development has also emerged like global competitiveness. There are twelve pillars for measuring global competitiveness, which includes – institutions, infrastructure, macroeconomic stability, health and primary institutions, education, efficiency enhancers, higher

[5] Household Income and Expenditure Survey of Bangladesh. 2010. Dhaka: Bangladesh Bureau of Statistics.

[6] Rahman, Mustafizur. 2015. Sustainable Development Goals: opportunities and challenges for Bangladesh, a paper presented at national level training workshop on sustainable development goals: land use, food security, and changing pattern of agriculture in Bangladesh. Organised by BARD and financed by AARDO

education and training, goods, market efficiency, labor market efficiency, innovation and sophistication technological readiness and market size.

According to FAO, Bangladesh will need to feed a growing population. There has been significantly increased food in triple since independence and population has increased more than doubled. However Bangladesh has several challenges. Food system is not yet to be diversified as needed for healthy diet for all. There have been problems of food contamination and adulations and food price shocks poor people frequently. The other challenges for Bangladesh are sustainability of increase productivity, need dietary diversification, improvement of animal health and aquaculture, small scale poultry shed - chick and feed, homestead garden, mushroom production, traditional weaving, village based organization, and increase access to fresh food market, and improve food utilization are present priorities of FAO for Bangladesh.

Asian Development Bank (ADB) is focusing the following sectors which are considered as critical to attain and sustain socioeconomic development for Bangladesh. Such as agriculture and natural resources, education, energy, transport, finance, and urban development. ADB[7] also highlighted the challenges like limited infrastructure development; lack of skilled human resources; and management of rapid urbanization of Bangladesh.

Partnership on rural development for Bangladesh manifests two sides, for instance direct benefit and indirect benefit. In regards of direct benefit, Local Governance Strengthening Program (LGSP) jointly financed by Government of Bangladesh and World Bank give block grant for participatory development. Another programs such as universal primary education for all, immunization, rural electrification and renewable energy development project are important to mention of World Bank supported programs.

The role of World Trade Organization (WTO) is vital for any country of present world, which dealt with the global rules of trade between nations. Its main function is to ensure trade flows as smoothly, predictably and freely as possible. The work of the WTO is relevant for achieving a number of SDGs, particularly a global partnership of

[7] Asian Development Bank on Bangladesh 2011.

development in terms of trade and multilateral trading[8] system. Conducive legal and regulatory framework to facilitate growth and development includes standards, Sanitary and Phytosanitary Measures SPS Agreement, government procurement, services, competition and intellectual property are crucial for Bangladesh under WTO monitoring. Bangladesh should require careful and tactful negotiations at WTO with holistic views for achieving the greater betterment of the people of the country.

The areas of intellectual property that covers copyright and related rights (i.e. the rights of performers, producers of sound recordings and broadcasting organizations); Pharmaceuticals another vital issue for Bangladesh at global trade. It is mentionable that WTO allows least developed countries like Bangladesh to produce pharmaceuticals without any patent fees up to the year 2033.

Achieving gender equality also remains a challenge, as significant disparities persist in health, education and income. Victims of a conflict or natural disaster can lose everything they own in minutes. Being prepared for such emergencies is a top priority for World Food Program (WFP)[9] such as early warning systems; rapid impact analysis; early planning, and early actions.

In view of United Nations Educational, Scientific and Cultural Organization – (UNESCO)[10] Bangladesh, children requires following parameters, such as reduce child marriage, elimination child labour under protection policy. Accelerating birth registration, providing education, increase of health facilities for children; reduce drowning, safe hygiene practices and etc.

These cases of foregoing, reflects the dynamism of cooperation in rural development and importance of monitoring and governance in rural wellbeing. The most important things for bilateral relations that, Bangladesh should learn from different countries and apply it with indigenous or wisdom of knowledge. It is clear that only international development could not alone prosper the developing countries. Bangladesh should foster its own inclusive socio economic institutions and domestic resource mobilization and ensure distributive justice. At the same time, take part on struggle for elimination of any forms and

[8] http.www.wto
[9] http://www.wfp.org/countries/bangladesh
[10] http://www.unicef.org/bangladesh/overview_4841.htm

nature of discriminations and oppressions. Concept of counter hegemony[11] provided some of insight of techniques to encounter those.

Challenges of Development Cooperation for Bangladesh: A General Priority

The people of Bangladesh particularly the rural people breakdowns several miss notions holding by so-called donors from the core. People's oriented policies, humanity, self motivation, discipline are some of the soft skill for advancement of the country. Sovereignty of the country is the essential consideration for progress. The present challenges of Bangladesh development efforts for seeking international cooperation is to increase the capacity of the nation in regards of technically cooperation and need based technology transfer.

It is mentionable that private sector of Bangladesh is the major source of employment and innovative businesses. Therefore, public and private partnership (PPP) very much essential for rural development and poverty reduction. In addition it may use for marketing of rural products.

Bangladesh innovation should be outreach through publicity. Patronizing cottage industries also important and that should be integrated with cultural activities and tourism. Art and culture must be disseminated throughout the world. So that rural cultural centre must be established in Bangladesh.

The challenges of Bangladesh development under globalization are:

- Social development, population planning, democratization, humanity and cultural development
- Continue the food production and increase the productivity in sustainable way. The arable land of the country must be protected by zoning. The real farmers-the tillers of the soil rights should be uphold. Side by side, establish agro based industries like juice, potatoes, meat, bamboo, jute, fish processed etc for local and international markets.
- Overcoming the weak infrastructure and bring reduce inequality in urban and rural areas of the country. In addition create best networks.

[11] Anthonio Gramsci's famous concept on hegemony means cultural leadership at different aspects particularly at political and economic fields.

- Providing quality of education for all irrespective of rural and urban areas.
- Strengthening local government, formulate rural planning and strengthening comprehensive village organization. Establishing linkages between villages and local government institutions such as union parishad and Upazila. Strengthening and reform the national and rural institutions and ensure peoples participation
- Gender development and equality for all such as inclusiveness. Develop youth and skill manpower for sustainable income generation.
- Cooperation with neighboring countries for water sharing, energy, trade, people to people work together.
- Harnessing rural and folk culture through literature and patronization by cultural institutional services.
- Enhancing research and development for rural wellbeing including technological transformation by Information Technology and Communication (ITC). Produce quality products and keep global standardizations of products, services.
- Bangladesh has a long standing tradition of craftsmanship and producing the finest quality of home and cottage products, like textile, furniture, pottery, metal works, ornaments and etc. which has huge potentiality in regional and international markets. Besides, people to people contact is potential for cultural exchange.

Challenges On Encountering New Form of Poverty

Recent world demonstrates new form of poverty[12]. These are recession, financial crisis, and refugee due to human and natural disasters. Environmental change and degradation is victimized the people. In addition to that, modern slavery and human trafficking traps are visible in Bangladesh due to lack of knowledge, lack of caring institutions; trafficking syndicate and extortionist group activities, and cross border illegal trades. Another problem is illegal drug trade, which is spoiling young generation. The illegal market of drugs, arms related with each other. Illegal small arms shattered lives, the poor people and unemployed youth are the victims of crime. Legal and illegal arm

[12] Cook, Sarah and Kabeer, Naila. 2010. Exclusion Deficite and Trajectory. In Cook, Sarah and Kabeer, Naila (Eds). Social Protection as Development Policy. New Delhi: Routledge.

trades throughout the world very impediment for humanity. According to human rights groups and peace campaigners, every minute, someone dies from armed violence somewhere in the world. It is recognized that arms fuels poverty and increases suffering of humanity in the world. Irresponsible arms transfers are profitable market that is creating social unrest. Throughout the world, Government forces poses 37.8 percent small arms whereas privately owned by 59.2 percent.[13]

According to Sobhan[14], the poverty syndrome and its structural causes of South Asia is as follows:

- poor people's unequal access to assets;
- their unequal participation in the market;
- unequal access to human development; and
- unjust governance.

To come across injustice are the prime concern in national and global perspectives. It requires improve governance, promote service delivery, and support other development policies that addressed poverty and encouraged the beginning of economic growth[15] eventually leap social development. Ultimately governance is the vital points that included of the development process. Irony of fate that, governance evolved for smooth operation of liberal capitalistic market.[16] Decentralization for development in Bangladesh needs institutional framework and commitments from elected representatives of Bangladesh. At the same time politics of modern risk society[17] should not be only politicians only. The citizen and civil societies should be spoken out with sensively for betterment of the global people.

---

[13] http://www.un.org/disarmament/convarms/SALW/ and see also http://www.un.org/disarmament/convarms/SALW/

[14] Rehman Sobhan. 2010. Challenging the Injustice of Poverty. Sage Publication

[15] Manor James. 2007. Aid That Works: Successful Development in Fragile States. The World Bank.

[16] From Ha-Joon Chang writings**.** Chang is the author of several widely-discussed policy books, most notably *Kicking Away the Ladder: Development Strategy in Historical Perspective* (2002).

[17] Risk society: Towards a New Modernity by Ulrich Beck. The changing nature of society's relation to production and distribution is related to the environmental impact as a totalizing, globalizing economy based on scientific and technical knowledge becomes more central to social organization and social conflict. Also see http://books.google.com.bd/books/about/Risk_Society.html?id=QUDMaGlCuEQC&redir_esc=y. Further reading: Anthony Giddens. 2006. Sociology. 6th Edition. New Delhi: Polity, Wiley India Pvt. Ltd

Bangladesh Development Through Own Fund

The progress of Bangladesh hailed by the world community and several research institutes published in recent past that inspire it's people. Bangladesh gradually stands on its own foot to construct the Padma Multipurpose Bridge, which will connect the southern part of Bangladesh to the other areas with rail and road transports. It demonstrates significant capability show of Bangladesh, which also invites some of academic debates over the matters. On contrary, vision of the Government of Bangladesh and political will has proved as imperatives on mobilize own people and resources to build up the country. It will encourage the people and leader of Bangladesh on basis of people's power and gaining confidence on people can do for local and national development under a visionary zeal. The aspirations of Bangladesh people for progress felt at Liberation War of Bangladesh in 1971, which enduring the spirit of independence crystallized at the Constitution of The People's Republic of Bangladesh. At the transition way from identity of least developed country to lower middle-income country, Bangladesh unlocks new hopes and aspirations, which requires political stability, economic progress, social cohesion and global standards in many aspects of products and services. Therefore, to achieve those, citizen of Bangladesh entails governance for people's welfare, peace, and prosperity. On the other hand, Bangladesh is not reject foreign assistance. Present Prime Minister of Bangladesh, Sheikh Hasina has said in her speech at United Nation's General Assembly in 2015 that, "Bangladesh and other developing countries need global support on finance, technology, capacity building and debt to implement the Sustainable Development Goals (SDGs)". She also mentioned in another occasion that about 90 percent of development fund of Bangladesh comes from own fund of Bangladesh exchequer. Nevertheless, this is significant change for Bangladesh and gradual gain of capability in compare with donor driven views of development for Bangladesh in 1970s and 1980s.

Concluding remarks

International cooperation is vital for Bangladesh rural development in view of need based technology transfer, budgetary allocation, and fulfill the global commitment on dignity and gaining prosperity.

Bangladesh continues to harness the benefit from international and regional cooperation for betterment of its citizen. The Government and

the Citizen of Bangladesh be watchful to reduce inequality and disparity between the new elites and underclass and establishing exploitation free global world. Bangladesh must upholds the spirit of democracy, justice, humanity and self-help. On the other hand, aid and assistance are required for Bangladesh in regards of transfer of felt need technology, which must be commensurate with sustainable human development of the country. Above all ensure justice to the people and expanding abilities of the people are imperatives for Bangladesh.

Bangladesh should not be isolated. Bangladesh keep on international cooperation. The people of Bangladesh is very inquisitive on world issues, economy, politics, and having yearning to take part global skilled labor market, production organizations, innovation and decision making process through cooperation affairs. Value conflicts are other problems of international development. Therefore, global consensus and dialogues are necessary. Aid and assistances termed as business as well. So many problems like poverty and injustice are hampering peoples live of the world. To tackle these obstacles, it is necessary to uphold organic[18] nature of peoples' actions not only local or national level but also at global level with participatory ways[19] for harnessing universal betterment. Bangladesh should harness its optimum capability.[20]

[18] Anthonio Gramsci's thought on organic intellectual those having critique views and way out arguments.

[19] Paulo Freire thought on pedagogy. *Pedagogy of the Oppressed* (Portuguese: *Pedagogia do Oprimido*), written by educator Paulo Freire, proposes a pedagogy with a new relationship between teacher, student, and society. It was first published in Portuguese in 1968. source: http://en.wikipedia.org/wiki/Pedagogy_of_the_Oppressed#Summary

[20] In this view the capability also covers capability approach to development which nurtured by Amartya Sen and Martha Nussbaum in recent past. The capability approach has in recent decades emerged as a new theoretical framework about well-being, development and justice. Also see: http://plato.stanford.edu/entries/capability-approach/

2. Community Action Plan (CAP): Supports Local Level Development Programmes

Mohammad Yakub

Abstract

The constitution of Bangladesh affirmed the fundamental right, "the state shall not discriminate against any citizen on grounds only of religion, race caste, sex or place of birth" (article 28(1): 2010). Laski said, "Rights in fact are those conditions of social life without which no man can seek in general to be himself at his best" (Laski: 1951, Page-91). However, what is the reality in Bangladesh? Development planning of LGIS-Local Government Intuitions is based on top-down approach where local people are facing constraint to identify their own problems and determine their practices (Mashreque: 2013). Bottom-up planning can improve the situation. Practical Action, an international NGO in Bangladesh has been working on micro-planning such as Community Action Plan with involvement of community (people of cluster area) to create enabling situation where the inhabitants can identify specific problems, think about their solution and mobilize resources, money, materials and manpower for execution. This paper focuses upon how the common people perceive their problems and way out to the particular problems. Furthermore, this study assess the mobilization mechanisms adopted by the NGOs this regard. In doing so, the study accomplishes a desk review based on primarily the published or unpublished reports of development organizations working in Bangladesh. In recent years Practical Action implemented 5 development projects on delivering decentralization and implementation of WASH Packages where found a good result from the development of CAP; because the communities formed the development committees, identified and prioritized the problems, visualized the situation through social mapping and fixed the action points for the execution and the progress monitoring. For the leveraging resources the community organized the CAP Fair at Union, Upazilla and Pourashava level where the elected leaders of Local Government Institutions, representatives of donor agencies, private entrepreneurs, government officials and concerned citizens expressed their commitments to provide necessary supports. Our suggestion is that LGIs should be strengthened through improving local governance by the participation of community people in the development planning, implementation and monitoring.

Keywords: Participation, Plan, Governance

Introduction

The constitution of Bangladesh affirmed the fundamental right, "the state shall not discriminate against any citizen on grounds only of religion, race, caste, sex or place of birth" (article 28(1): 2010).[1]Laski said, "Rights in fact are those conditions of social life without which no man can seek in general to be himself at his best" (Laski: 1951, Page-91).[2] Essence of these statements indicate that every people in Bangladesh has a right to get benefits from the development activities run by the state without any discrimination. However, what is the reality in Bangladesh? Development planning of Local Government Intuitions (LGIs) is based on top-down approach where local people are facing constraint to identify their own problems and determine their practices (Mashreque: 2013).[3] Bottom-up planning can improve the situation. Local level planning is the first step of Bottom-up planning which requires 'functional community organisation' to ensure popular participation both in formulation and implementation of planning processes. As an institution for the preparation of local level planning the whole community is organised into various functional groups, such as female group, youth group, landless farmer group, religious group, and occupational groups like fishermen, small traders, rickshaw pullers, school teachers etc. Functional community organisation at the local level calls for establishing a close relation between the village/ward and the central administration (Mashreque: 2013).[4]

Methodology

This paper focuses upon how the common people perceive their problems and way out to the particular problems and find out the mobilization mechanisms adopted by the NGOs this regard. Furthermore, this study assess how the community level planning can be linked-up with the development planning of LGIs and the budget allocation of central government. In doing so, the study accomplishes a desk review based on development literature related with development planning at community and LGIs and primarily the published or unpublished reports of development organizations including Practical Action working in Bangladesh.

NGO Movements and Development Tools

NGOs (Non-governmental organizations) have been playing a vital role in the nation's development process since independence of Bangladesh. NGOs have not been evolved over time. The NGOs throughout the world have evolved in the specific context of the

society. The context of the developed countries and developing countries are certainly different. The last three decades, enormous growth of NGOs in Bangladesh (Haider: 2011).[5] NGOs have been using different tools such as Participatory Rural Appraisal(PRA), Sustainable Livelihood Approach (SLA), Community Led Total Sanitation (CLTS) etc. for the implementation of development projects. Participatory rural appraisal (PRA) is an approach used by non-governmental organizations (NGOs) which aims to incorporate the knowledge and opinions of rural people in the planning and management of development projects and programmes (Wikipedia: 2015).[6]Robert Chambers a key exponent of PRA, argues that the approach owes much to "the Freirian theme that poor and exploited people can and should be enabled to analyze their own reality" (Chambers: 1997).[7] The Community Action Plan (CAP) is being formulated with using some important PRA tools such as resource mapping, social mapping, wealth being ranking, van diagram on institutions, income and expenditure matrix, daily activity clocks, problem identification, prioritizing, and planning for implementing development initiatives.

Experiences of Practical Action on CAP

Practical Action, UK based an international NGO has been working in Bangladesh since 1990 that uses technology to challenge poverty under different programmes such as energy and urban services; extreme-poverty; food, agriculture and markets; and disaster, risk reduction and climate change. Practical Action in Bangladesh uses different tools for the implementation of development projects including micro-planning such as Community Action Plan (CAP) with involvement of community, ‘a group of people with a common characteristic living together within a larger society’(merriam-webster.com: 2015)[8]to create enabling situation where the inhabitants can identify specific problems, think about their solution and mobilize resources, money, materials and manpower for execution. In recent years Practical Action implemented 5 development projects related with delivering decentralization and implementation of WASH Packages such as SHEWAB, UNICEF-UPPR, BWA, CLP-UNICEF and GOB-UNICEF-CATS Project where found a good result in CAP development, implementation, monitoring and CAP updates; more than 1000 communities formed the development committees, identified and prioritized the problems, visualized the situation through social mapping and fixed the action points for the execution and the progress monitoring. For the leveraging resources the community organized the CAP Fair at Union, Upazilla/Pourashava level where the elected leaders of Local

Government Institutions, representatives of donor agencies, private entrepreneurs, government officials and concerned citizens expressed their commitments to provide necessary supports. The municipalities like Faridpur, and Satkhira provided budget allocation against of the Community Action Plan (CAP) for the slum improvements activities.

Linkage development among CAP, LGIs Plan and Government Budget Allocation

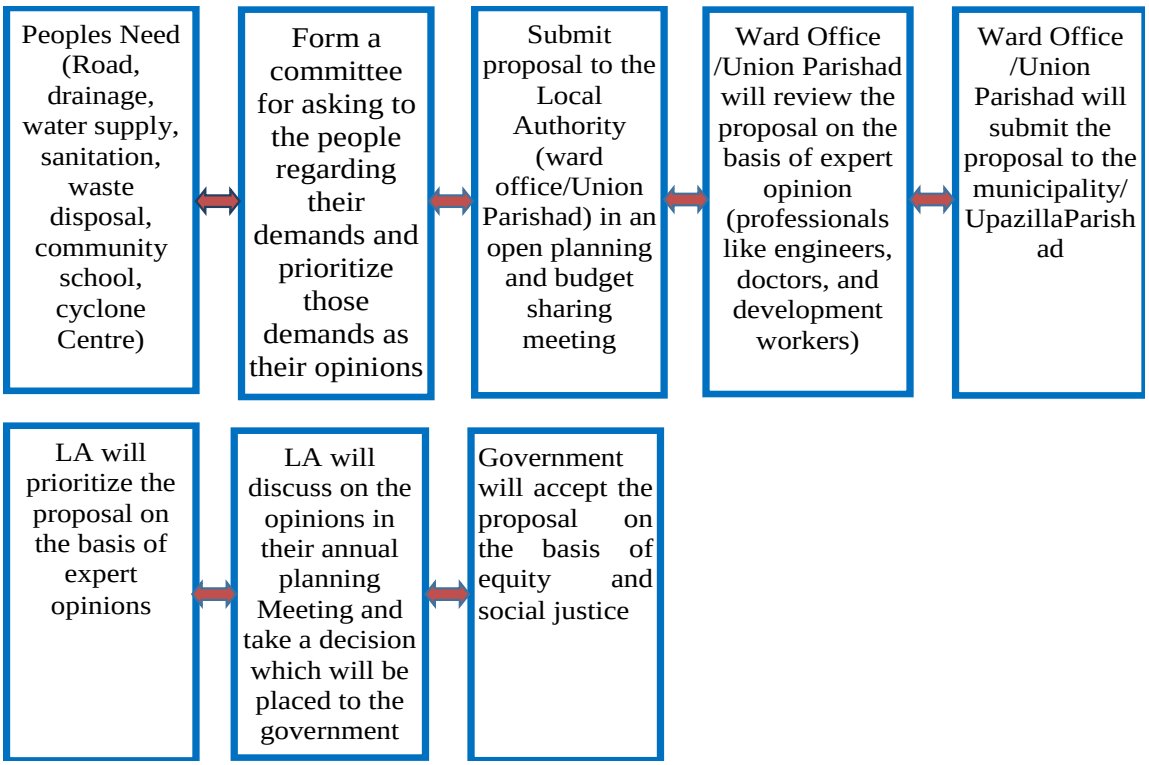
From this study it is revealed that there is a missing link between the Community Action Plan (CAP) and the development plan of Local Government Institutions (LGIs), and development budget allocation by the central government. The CAP has been prepared by the communities with support of NGOs with special focus to implement development initiatives in the low income communities. For this purpose the CAPs achieved a tremendous result and Practical Action is one of the renowned organizations in Bangladesh which successfully introduced and implemented more than 1000 CAPs as a tool of community mobilization and participatory monitoring and evaluation. However, if the CAP is needed to institutionalize in the development process of Bangladesh in that case the local government should be strengthened through improving local governance by the participation of community people in the development planning, implementation and monitoring. How it is possible? Before going to discussion on initialization of Community Action Plan (CAP) should be cleared the understanding on nature of Local Government Institutions (LGIs) and what are the practices in Bangladesh?

Local Self Government and ADP

The United Nations Organization (UNO) defines the Local Government as 'a political subdivision of a nation or a state which is constituted by law and has substantial control over local affairs, including the power to impose taxes, on exact labor for prescribed purposes. The governing body of such an entity is elected or locally selected' (UNO: 1961).[9]According to Encyclopedia of Social Science, 'Local self-government is the government which has a territorial non-sovereign community, having or possessing the legal right to impose taxes and use of it and the necessary organization to regulate its own affairs' (Sarker: 2013).[10] The local government institutions in Bangladesh have been running by the elected representatives which have no adequate income while these institutions can impose taxes to the local market/places. The LGIs mostly depend on government

allocation against of Annual Development Programme (ADP) while some institutions receive aids from development agencies.

Proposed Process for Bottom-up Development Planning:



Conclusion

The results of this study affirmed that Community Action Plan (CAP) is a supportive tool for the bottom-up planning where every people has an opportunity to participate in the development process and the plan should be institutionalized with establishment of a link with planning and budgeting of local government institutions and allocation of resources by the state government on the basis of equity and social justice which leads to performance based targeted resource allocation to reduce inequalities and poverty in rural and urban areas of Bangladesh.

References

1. Legislative and Parliamentary Affairs Division (2010), Article 28(1), **Constitution of the People's Republic of Bangladesh. Dhaka:**Ministry of Law, Justice and Parliamentary Affairs.E-Copy: http://bdlaws.minlaw.gov.bd/sections_detail.php?id=367&sections_id=24576
2. Laski, Harold J. (1951). A Grammar of Politics, London: George Allen and Unwin, Page-91
3. Mashreque, Md. Shairul (2013), Local Level Planning, E-BanglaPedia, Dhaka. E-Copy: http://www.ebanglapedia.com/en/article.php?id=3243&title=Local-Level-Planning#.ViYJ_dIrLcs

4. Ibid
5. Haider, Sheikh Kabir Uddin (2011) Genesis and growth of the NGOs: Issues in Bangladesh perspective, International NGO Journal Vol. 6 (11), pp. 240-247, Available online: http://www.academicjournals.org/article/article1381913083_Haider.pdf
6. Wikipedia (2015).Participatory Rural Apprisal, Available online: https://en.wikipedia.org/wiki/Participatory_rural_appraisal
7. Chambers, Robert (1997). *Whose Reality Counts? Putting the First Last* Intermediate,London: Technology Publications, p. 106.
8. Merriam-webster.com (2015). Community, Available online: http://www.merriam-webster.com/dictionary/community
9. UNO Summer Conference on Local Government in Africa (1961). Cambridge: As quoted by ROF Ola, DA Tonwe 2003. In: Local Administration and Local Government in Nigeria. Lagos: Trust Publishing, P. 2.
10. Sarker, Md. Fouad Hossain (2013). Theoretical framework of Local Government, read in online at http://forum.daffodilvarsity.edu.bd/index.php?topic=13519.0

3. The Role of Micro Finance to Alleviate Rural Poverty of Bangladesh: Ektee Bari Ektee Khamar (One House One Farm) Project

Fatema Khatun
Nahidul Islam

Abstract

This study tries to explore the role of Microfinance in alleviating rural poverty as well as the effects of Microfinance in increasing standard of living of rural poor of Bangladesh. In recent decades poverty alleviation has become an important part of global challenges, specifically in the developing country like Bangladesh. The objective of the study is to reveal the role of Microfinance programs of Ektee Bari Ektee Khamar (One House One Farm) Project in poverty alleviation of rural poor in case of Bangladesh. This is an exploratory study where quantitative approach has been followed. To reach out the research objectives survey method has been applied here for collecting data and information from the members of three Samitees of Tokerbazar union and the personnel of Sylhet Sadar Upazila Branch of the EBEK Project where respondents were interviewed through following a structured questionnaire. Simple Random Sampling is used for selecting respondents from the members of the Samitees and Purposive Sampling is used for Personnel of the project. As most of the rural people are illiterate and their economic condition is worst as well as their earnings are not sufficient for nurturing the family, they have no any savings. Considering this issues, the GoB has inaugurated EBEK project in 2009 in the rural areas to alleviate rural poverty of Bangladesh by means of different Microfinance programs. But after launching, it is facing many constraints in the path of its progress. But it is believed if these constraints of the EBEK project can be eradicated; the members of the Samitee can alter their poor economic condition and can lead a peaceful and poverty free life.

Keywords: Microfinance, Poverty Alleviation, EBEK, Living Standard and Economic Empowerment.

Introduction

There are almost three billion people; half of the world's population, living on the earnings is less than two dollars a day. To boost

international development, the United Nations Organization (UNO) announced the millennium development goals, aimed to wipe out poverty by 2015. In this regard, Microfinance is the form of financial development that has its primary aim to alleviate the poverty. Governments, donors and NGOs around the world responded enthusiastically with plans and promised to work together towards the realization of these goals. Some developed countries as well as developing Countries particularly in Asia have a long history of Microfinance. In Bangladesh several Microfinance institutions came up and have succeeded in reaching the poorest of the poor, and have devised new ground-breaking strategies with time for the fulfilment of their vision. These included the provision of collateral free loans to poor people, especially in rural areas, at lower interest rates that are repayable in frequent instalments. Borrowers are organized into groups and peer pressure among them, which reduced the risk of default. Microfinance is now being considered as one of the most important and an effective mechanism for poverty alleviation. These are also effective mechanisms through which to disseminate precious information on ways to improve the health, education, legal rights, sanitation and other living standards, which are of relevant concerns for the poor. Above all, many Microfinance programs have targeted one of the most vulnerable groups in society-poor people, especially women, who live in households with little or almost no assets. In this regard Bangladesh Government launched Ektee Bari Ektee Khamar Project (One House One Farm) Project is an initiative of the Government of Bangladesh and family farming through e-financial inclusion and empowerment of the smallholders and under privileged. The paper is about Microfinance and to investigate "The Role of Micro Finance to Alleviate Rural Poverty of Bangladesh: Ektee Bari Ektee Khamar (One House One Farm) Project". Therefore this paper focuses on the Microfinance role of One House One Farm Project in alleviating Poverty of Bangladesh.

Research Objectives

The broad objective of the study is to reveal the role of micro finance programs of 'Ektee Bari Ektee Khamar' (One House One Farm) Project in poverty alleviation of rural poor.

To fulfil the broad objective, the research specified the following objectives:

1. To diagnose the socio-economic background and other characteristics of the rural poor.
2. To identify how the microfinance programs operate the project.

3. To find out the barriers to alleviate rural poverty faced by the project.

Statement of the Problem

Bangladesh is one of the least developed countries in the world in terms of per capita income and literacy rate. Bangladesh accounts for a significant portion of the world's poor with nearly 25% people living below the poverty line. Hence the eradication of poverty occupies the foremost place in Bangladesh's development programs. Review of documents and experience over the last three decades both explicit and implicit shows that different strategies and actions were taken in the past to combat poverty in the country. Despite all these efforts and implementation of various programs, poverty still continues to be pervasive and overwhelming. However, there is sufficient evidences to believe that the existing poverty cycle can be broken if the poor are allowed to have access to resources and justice. In that case micro finance, in fact the micro savings and the micro credit concept is considered as an innovative idea in economic discipline and it is perceived that rural existing poverty status can be alleviated through micro finance programs.

Rationale of the Study

A lot of research works have been conducted on the role of Micro Credit programs of Grameen Bank, ASA, BRAC, PROSHIKA etc. in alleviating poverty of rural poor of Bangladesh. But unfortunately, no research is found regarding the Role of Micro Savings and Micro Credit programs of Ektee Bari Ektee Khamar (One House One Farm) Project to alleviate rural poverty of Bangladesh. It is significant because it will explore different dimensions of poverty alleviation by analyzing the financial inclusion concept and the socio-economic background and other characteristics of the rural poor. This study will also meet the academic demands as well as it will bring greater benefits for the society. It will help policy makers, bureaucrats, donors, academicians and interest groups to initiate any effective program for the alleviation of poverty.

Research Types

This study is mainly based on exploratory type of research which attempts to develop a general understanding of the micro finance programs of Ektee Bari Ektee Khamar Project (One House One Farm) in terms of alleviating rural poverty and to explore the perceptions

local poor people regarding the project and the effectiveness of the programs which are conducted by the project in alleviating poverty.

Research Method

Social Survey method has been applied as the method of this research. In this study quantitative approach has been followed. Statistical data has been used conduction the research. Data and information which are related to the research have been collected from Primary and Secondary sources of data. Primary data are those which have been collected directly from the respondents from the field level through questionnaire. Secondary sources of data have been used to enrich this study. Secondary data has been collected from published or unpublished documents, books, journals, articles, newspapers and online documents which are related to the study.

For the purpose of the study, questionnaire has been used for collecting data from the respondents and observation technique has been used for fulfilment of the overall objectives as well. All the men and women living in rural areas of Sylhet district who are the members of the Samitees under Ektee Bari Ektee Khamar project and the officers and employees who are working or engaged in this project and the beneficiaries of the project have been enumerated as population of this study. So it is necessary to collect data from two types of respondents namely the personnel of this project of research area and the members of the Samiteee of the respective research area. In this research, a particular number of individuals have been considered as a unit of analysis from the total population.

Simple Random Sampling and Purposive sampling method have been used and respondents have been selected from the two categories like members of the Samiteee and Personnel of the project. In this Study Purposive Sampling is used for Personnel of the project and Simple Random Sampling is used for members of the Samiteee.

In this study sixty (60) respondents have been selected as sample from the total population of 3 selected Samitees of research area. To meet up the research purpose, there have been taken 31% of the respondent of the total members of the Samitee and around 42% from the personnel of Sylhet Sadar Upazila. Actually, 12 personnel are working in project branch office of Sylhet Sadar Upazilaand there are 60 Samitees affiliated with that branch and every Samitee is comprised of 60 members dividing them into 40 female and 20 male members.

Reflection of Relevant Literature Review

The following review of literature serves to lay a foundation for understanding The Role of Micro Finance to Alleviate Rural Poverty of Bangladesh: Ektee Bari Ektee Khamar (One House One Farm) Project. There is a substantial literature emphasizing the impact of Micro Finance in poverty alleviating in various perspectives.

Yoko Miyashita (2000) stated in his study namely *Microfinance and Poverty Alleviation: Lesson from Indonesia's Village Banking System* that Microfinance is a verified scheme of reducing poverty and has been fruitfully used within Indonesia in government-supported programs. In this article it is spell out Microfinance as a pro-poor, cost-efficient, poverty reduction strategy and the provision of financial services to low-income clients, including the self-employed. He also cited that the lack of access to small amounts of capital especially lack of credit and deposit (savings) is seen as a primary reason why many of the world's poor remain socially and economically immobile.

Arifujjaman and Anisur (2007) said in their study namely *Impact of Microfinance on Living Standards, Empowerment and Poverty Alleviation of Poor People: A Case Study on Microfinance in the Chittagong District of Bangladesh* that Microfinance is now being considered as one of the most important and an effective mechanism for poverty alleviation. Several prominent MFIs are working in Bangladesh such as Grameen Bank, BRAC, ASA and PROSHIKA for empowerment, poverty reduction and improvement of living standards for the poor people for the last few decades. They found in their study that microfinance has the positive impact on the standard of living of the poor people and helped them to empower themselves. They also identified some characteristics of micro finance like, (a) Little amounts of loans and savings, (b) Short- terms loan, (c) Payment schedules attribute frequent instalments (or frequent deposits), (d) Application procedures are simple (e) Short processing periods etc.

International Monetary Fund, Asia and Pacific Department (2013) stated in the article namely *Bangladesh: Poverty Reduction Strategy Paper* that About 80 percent of the Bangladeshi poor live in rural areas and more than 20 percent of rural population lives in extreme poverty. In this regard, considering the potential of micro savings in developing the asset based for the poor, the government has designed and developed the project known as 'Ektee Bari Ektee Khamar'. The project components include: formation of comprehensive village development cooperative societies, introducing contributory micro

savings to attract poor people for making small savings through incentives, providing seasonal microcredit to support micro investment in the farm sector and so on.

A prominent national daily of Bangladesh named Bangladesh Protidin (2015) published an article on 13 May titled A Questioned Project as a top report denoted that, the project named 'Ektee Bari Ektee Khamar' which can be a milestone in the progress of rich Bangladesh but now a looting game is running with that project. The dream project of Prime Minister has been going to be spoilt due to the Project Manager's corruption, irregularities and the lack of commitment. 'EBEK' project was started to conquest the poverty but the dribs and drabs purpose of the project is not implemented within the last five years. In the last five years, ranging from reaching the project beneficiaries products to division, district and upazila levels and the online marketing processing centre was not established yet as well as to facilitate trade and food processing, construction of Warehouses, Solar Panel in rural areas, Cold storage and Co-operation in the upazila level and set up Biogas Plants across the country have not been implemented yet.

The Daily Prothom Alo (2015) published an article on 16 May namely *In 'Hundred Percent successful Project' BDT 631 crores are defaults* as an investigative report which denoted that, 'EBEK' project was started buying livestock, 'half is mine and half is yours'- through this type of distribution. To stop looting micro saving was launched for the poor, later which in turn into micro credit. Though it is claimed that, this project is completely successful in the realm of poverty alleviation, in the field level BDT 631 cores which was distributed, have become defaults. But for poverty reduction, it's a priority based project of the government and the main goals of the project are to provide incentives and loans to build savings, farm and encourage them to return them in timely. But in field investigation it is found that, the tendency of savings is declining on the one hand of the member and on the other hand the loan recovery rate is decreasing.

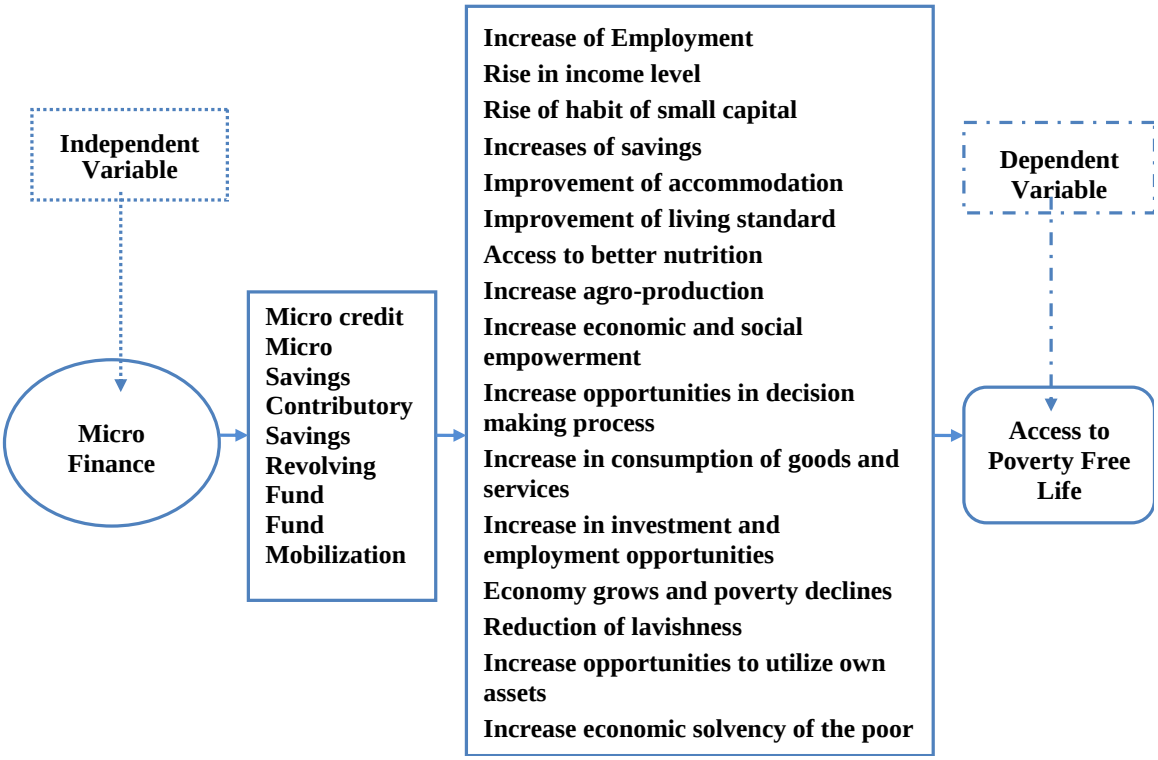
Through reviewing relevant literature, it is appreciated that Yoko Miyashita as well as Arifujjaman and Anisur in their study give more emphasis on credit scheme not on savings scheme as the method of reducing poverty of the rural poor. The two prominent national daily of Bangladesh named Bangladesh Protidin and The Daily Prothom Alo only focus on the irregularities and corruption of the high officials of the project. These two daily not focus on the impact of microfinance program of EBEK in reducing poverty. International Monetary Fund,

Asia and Pacific Department only describe the projects components of EBEK and why the GoB inaugurated the project. But the study emphasizes on the microfinance especially micro credit scheme and micro savings scheme of EBEK project which is playing a very significant role in reducing rural poverty.

Conceptual Framework

In conceptual framework independent and dependent variables have been selected. The study topic is "The Role of Micro Finance to Alleviate Rural Poverty of Bangladesh: Ektee Bari Ektee Khamar (One House One Farm) Project" and in this study 'Micro Finance' is independent variable and 'access to poverty free life' is dependent variable.

Conceptual Framework



Operational Definition

Microfinance

Microfinance is a form of economic development that has primarily concentrated on alleviating poverty through providing financial facilities to the poor. Most people contemplate microfinance as micro-credit i.e. lending small amounts of money to the poor. But in broad perspective, microfinance refers not only as micro credit, but also it includes insurance, transactional services, and importantly, micro savings.

Project

Project refers a temporary endeavour and a planned set of interrelated tasks that has a specific purpose to be implemented over a definite period and within certain cost and other limitations.

Economic Empowerment

Economic empowerment refers as increasing of income, savings, employment and self-employment and thus reducing unemployment and indebtedness.

Extreme Poverty/Absolute Poverty

Extreme poverty is the most severe state of poverty, where people cannot meet their basic needs for survival, such as food, water, clothing, shelter, sanitation, education and health care.

Moderate Poverty

It indicates the condition where people earns about $ 1 to $2 a day, which enables households to just barely meet their basic needs, but they still have go for many of the other things – education, health care –that many of us take for granted.

Relative Poverty

It means that a household has an income below the national average income.

Rural Area

Rural area refers to a geographic area which is located outside or remote from the cities and towns.

Rural Population

Rural population refers to people living in rural areas as defined by national statistical offices. It is calculated as the difference between total population and urban population.

Rural Poverty

Rural poverty refers to poverty found in rural areas, including factors of rural society, rural economy, and rural political systems that give rise to the poverty found there.

An Overview of Ektee Bari Ektee Khamar (One House One Farm) Project

Ektee Bari Ektee Khamar is a poverty alleviation project through family farming of the government of Bangladesh. The goal of the project is to alleviate poverty through e-financial inclusion (i.e. fund mobilization) followed by family farming livelihood and income generation of the under privileged and smallholders of the country.

Project at a Glance

Project Title	**:**	**One House One Farm (Ektee Bari Ektee Khamar)**
Sponsoring Ministry/Division	**:**	Rural Development and Cooperative Division, Ministry of Local Government, Rural Development & Cooperatives
Executing Agency	**:**	Rural Development and Cooperative Division, Ministry of Local Government, Rural Development and Cooperatives with District Administration in particular Deputy Commissioner and his officials. Bangladesh Rural Development Board (BRDB) as the main support agency along with other departments like Co-operatives, Bangladesh Academy for Rural Development (BARD), Comilla, PDBF, SFDF and Rural Development Academy (RDA), Bogra.
Project Implementation Period	**:**	Original: July 2009-June 2014 Revised: July 2009-June 2016
Cost of the project (Taka in Crore)	**:**	Original:1197.00 Revised: 3163.00
Location of the project (Revised DPP)	**:**	Division: 7; District: 64; Upazila: 485; Union: 4503; Village: 40527

Source: http://www.ebek-rdcd.gov.bd/images/project_at_a_glance.pdf

Vision of the Project: Poverty alleviation and sustainable development through fund mobilization & farming.

Mission of the Project

- Assistance for capital formation of the poor farm families
- Sharpening their skill by training & motivation
- Allow them to sit together at courtyard meeting
- Enable them to take decision independently
- Enabling them to develop need based small family farms
- Ensure marketing facilities for their product

Major Activities

- Selection of the poor and under privileged farm families.
- Formation of cooperatives with 60 small farm families (40 female and 20 male) Involve them in fund mobilization through electronic device i.e. e-financial inclusion.
- Enable the poor farmers for savings BDT 200 (USD 2.50) per household per month and the project provides the same amount BDT 200 (USD 2.50) per month as incentive.

- Provide revolving fund BDT 150,000 (USD 1920) annually to each of the cooperatives.
- Provide them training in related fields of agriculture and farming.
- Enable them taking decision independently about farming & development sitting in the evening courtyard meeting.

Data Analysis and Interpretation

To conduct a research on "The Role of Micro Finance to Alleviate Rural Poverty of Bangladesh: Ektee Bari Ektee Khamar (One House One Farm) Project (A Study conducted on Sylhet)", the data is collected from the three Samitees of a union namely Tokerbazar union of Sylhet Sadar Upazila of Ektee Bari Ektee Khamar project using questionnaire. The research is conducted using quantitative method of social research. Analyzing these data, statistical treatment like encoding, percentage, average and tabulation have been made. Analyzed data are presented in the paper by the table format.

Demographic Information of Samitee Members

Table- 7.1.1 Age and Gender of the Respondents (Samitee Members)

			Age of the Respondents of the Samitee (In Years)				**Total**
			18 - 30	**31- 43**	**44 - 56**	**57 - 69**	
Gender of the Respondents of the Samitee	Female	Count	4	1	20	10	35
		% of Total	7.3%	1.8%	36.4%	18.2%	63.6%
	Male	Count	3	11	6	0	20
		% of Total	5.5%	20.0%	10.9%	0.0%	36.4%
Total		Count	7	12	26	10	55
		% of Total	12.7%	21.8%	47.3%	18.2%	100.0%

In this study 55 male and female respondents have been selected as the sample using simple random sampling from the members of the Samitee of OHOF. The table shows that, 63.6 percent respondents are female and 36.4 percent respondents are male among the total respondents from the Samitee. It is also seen that, between 18 years to 30 years 7.3% are female and 5.5% are male; between the ages of 31years to 43 years 1.8 % are female and 20% are male; between the ages of 44 years to 56 years 36.4% are female and between 47 years to 69 years 18.2% are female respondents but in that range there is no male respondents. Here it is found that major portion of the members are female and maximum female members' age is more than 44 years.

Table- 7.1.2 Respondents' Family Members and Familial Monthly income

			Familial Monthly income (In BDT) of the Respondents (Samitee Members)			Total
			0.00- 5000	5000- 10000	**10000- 15000**	
Number of Family Members of the Respondents (Samitee Members)	1-3	Count	2	0	0	2
		% of Total	3.6%	0.0%	0.0%	3.6%
	4-6	Count	10	6	0	16
		% of Total	18.2%	10.9%	0.0%	29.1%
	6-9	Count	10	12	0	22
		% of Total	18.2%	21.8%	0.0%	40.0%
	Above 10	Count	7	5	3	15
		% of Total	12.7%	9.1%	5.5%	27.3%
Total		Count	29	23	3	55
		% of Total	52.7%	41.8%	5.5%	100.0%

This table demonstrates the number of family members in terms of monthly income of the Respondents' (Samitee Members). The majority of the respondents' (around 18.2%) familial income is (BDT 0.00 to BDT 5000) where numbers of family members lies between (6-9) which indicates the scenario of the poor economic status of Bangladeshi people in terms of monthly income. Only a very small portion of the respondents' (around 5.5%) family monthly income lies between (BDT 10000- BDT 15000) where family members are above 10. A handful number of the respondents' (around 21.8%) family monthly income lies between BDT 5000 to BDT 10000. It is also seen that a large portion of respondents' (around 52.7%) family monthly income lies in (BDT 0.00 to BDT 5000) and (around 41.8%) respondents' familial monthly income lies in (BDT 5000- BDT 10000).

Table- 7.1.3 Members Coherence in the Samitee

		Frequency	**Percent**	**Valid Percent**	**Cumulative Percent**
Valid	1 months- 6 months	4	7.3	7.3	7.3
	6 months- 1 year	6	10.9	10.9	18.2
	1 year- 1.5 years	9	16.4	16.4	34.5
	1.5 years- 2 years	14	25.5	25.5	60.0
	2 year- 3 years	16	29.1	29.1	89.1
	above 4 years	6	10.9	10.9	100.0
	Total	55	100.0	100.0	

In this study it is found that, 7.3% members with Samitee is about (1 months- 6 months), 10.9% members are here for (6 months- 1 year), 16.4% members here for (1 year- 1.5 years), 25.5% members are here for (1.5 years- 2 years). And the large portions around 29.1 % members are here for (2 year- 3 years) and only 3% members are with the Samitee above 4 years.

Table- 7.1.4 Ability of Micro savings to alter the Standard of Living

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Increasing Income	31	56.4	56.4	56.4
	Increasing Capital	6	10.9	10.9	67.3
	Increasing Opportunities for Self-employment	4	7.3	7.3	74.5
	Increasing Income and Capital	13	23.6	23.6	100.0
	Total	55	100.0	100.0	

This table expresses that more than half of the respondents (56.4%) think that Micro savings are able to make positive changes in the standard of living by dint of increasing income. Besides, 23.6% respondents ruminate Micro savings are able to make positive changes in the standard of living by increasing income and capital. Moreover, 10.9% respondents consider that Micro savings increase Capital of a member and only 7.3 respondents consider, it increase Self-employment opportunities for the poor people.

Information Related to Personnel's Professionalism

Table- 7.2.1 Providing Adequate Trainings on Job to the Personnel

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	2	40.0	40.0	40.0
	Yes	3	60.0	60.0	100.0
	Total	5	100.0	100.0	

This table shows more than half of the respondents (60%) ruminate that they are provided adequate training on job and on the contrary about 40% respondents consider that training are not adequate for them.

Table- 7.2.2 Sufficiency of Stationeries for Rendering Official Activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	3	60.0	60.0	60.0
	Yes	2	40.0	40.0	100.0
	Total	5	100.0	100.0	

This table picks out 60% respondents contemplates office stationaries are not sufficient for rendering official activities for the personnel and 40% respondents satisfy on it.

Table- 7.2.3 Personnel knowledge and skills to operate of official activities

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	No	1	20.0	20.0	20.0
	Yes	4	80.0	80.0	100.0
	Total	5	100.0	100.0	

This table reveals 80% respondents consider their knowledge and skills are adequate to operate official activities of EBEK but only 20% respondents consider they have lacking sufficient knowledge and skills to operate official activities and for this more tarring facilities are needed to be provided them.

Table- 7.2.4 Considerable matters for Selecting the Samitee Members

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Considering Poverty and Honesty	1	20.0	20.0	20.0
	Not Applicable	2	40.0	40.0	60.0
	Considering Poverty, Honesty, Property Variable (Land) and Educational Qualification	1	20.0	20.0	80.0
	Considering Poverty, Honesty, Educational Qualification and Economic Position	1	20.0	20.0	100.0
	Total	5	100.0	100.0	

About 20% respondents said that they select Samitee's members by considering poverty and honesty of a person. The 20% respondents said they select members considering Poverty, Honesty, Property Variable (Land) and Educational Qualification. And rest of the

respondents said they select members for Samitee by considering Poverty, Honesty, Educational Qualification and Economic Position.

Findings and Discussion

In this section key findings of the study have been discussed. The goal of this study is to reveal the role of micro finance programs of Ektee Bari Ektee Khamar (One House One Farm) Project in poverty alleviation of rural poor.

In this study it is found that Ektee Bari Ektee Khamar (One House One Farm) Project specially is a project of rural poor and illiterate people. In this Project majority portion around 60% are female and 40% are male members. It is notable that only 5.5 percent respondents' familial monthly income lies between (BDT 10000- BDT 15000) where family members are above 10. But a large portion of respondents' (around 52.7%) familial monthly income lies in (BDT 0.00 to BDT 5000). Moreover the members of the Samitee possessed a very limited land. These express that their earnings are not sufficient for nurturing their family and they can't easily make savings from their earnings. Sometimes they had to operate their family by taking loan from the local money lender or from the different NGO's with a higher rate of interest. And for this the rural poor people can't get rid of the vicious cycle of poverty. By considering this state of affairs OHOF (One House One Farm) project is launched for poverty reduction through ensuring capital formation and skill development of the poor followed by livelihood (agro farming) which are exclusively their need based economic activities.

In addition, the analysis of the data obtained in this study reveals some unique features of Ektee Bari Ektee Khamar (One House One Farm) Project such as low rate of interest, flexibility in paying up loan, no need to extended collateral, Contributory Fund, Revolving Fund and project based loan which make it different from any other Conventional Banking System or Non-Banking Financial Institution. In addition the procedure of obtaining loans from OHOF is easier than conventional banking or non-banking Financial Institution.

Furthermore, a result of this study demonstrates that the members of the Samitee can make savings and they are given loan in different sectors in terms of their savings. A significant number of Members of the Samitee started their business by taking loan from OHOF Project as compared to other sources. They were able to increase their income

and provided not only with the financial help to their families but also had positive impact on other factors of daily life. In this respect, almost more than half of the respondents (56.4%) consider that Micro savings are able to make positive changes in the standard of living by dint of increasing income and 23.6% respondents ruminate Micro savings are able to make positive changes in the standard of living by increasing income and capital and a handful respondents about 7.3% consider that it increases Self-employment opportunities for the poor people. Besides, Microfinance Scheme of EBEK gives opportunity to the poor women and man to bring a positive change in their financial and social situation and gives an opportunity in taking active part in the decision making process of the family and society.

Maximum respondents (60%) contemplates that they are provided adequate training on job. On the contrary about 40% respondents told that there are needed more trainings related to their job. Besides, majority portion of the personnel contemplates that office stationeries are insufficient for rendering official activities where minority portion are satisfied on office stationeries for rendering official activities in OHOF Project.

Here it is found that many Samitee members become self-dependent and create employment opportunities for others by getting loan from EBEK Project. In fact, people join in the EBEK to increase income for ensuring better future for their Children.

In this study a lot of loopholes are found regarding the respective Project. Though it is claimed that, this project is completely successful in the realm of poverty alleviation, in the field level the scenery is quite different. Only the positive image has been uploading to the government's policy making body as well as to the Prime Minister. In field investigation it is found that, the tendency of savings is declining and the loan recovery rate is decreasing. Moreover, the personnel are not cooperative with them and they do not visit Samitees regularly.

To sum up, it is noticed that though there are some drawbacks, there is significant impact of microfinance activities on improvement of the living standard of the family not only in economic term but also in social term. From this study, it can be come to the conclusions that there is a noticeable and positive impact of microfinance activities on the living standards, empowerment and poverty alleviation among the poor people in the society as well as it can make a path of poverty free

life if the project activities can be accomplished effectively and efficiently.

Recommendation and Conclusion

Recommendations of Samitee Members

1. Provide loan in accordance to demand to the members and in time of work.
2. Arrange adequate training programs for the members of the Samitee.
3. The personnel have to increase their cooperative attitude towards the Samitee members.
4. To visit the Samitee regularly.
5. To ensure members participation in group meetings.

Recommendations of personnel of EBEK Project

1. Provide adequate T.A.D.A and stationary to improve the activities of EBEK Project.
2. Take proper action for bring back the default loan.
3. Ensure adequate human resource in EBEK Project.
4. Enhance Cooperative attitude of Supervisor.
5. To increase the speed of internet modem.
6. To establish a bank for them.

Proposed Recommendations for Accelerate the activities of EBEK Project

1. Make the Project free from the political interference.
2. Take proper steps to recover the default loan.
3. Take initiatives to prevent and eliminate corruption of the Project.
4. Ensure skilled and experience adequate human resources.
5. Make ensure the visiting directed project of EBEK by the personnel regularly whether the loan money are properly invested.
6. The attitudes of personnel should be cooperative as well as they should be dedicated more to the project.

Concluding Remarks

Ektee Bari Ektee Khamar is an exclusive initiative to the small farmers by the government. Earlier many projects were undertaken in the country in the name of poverty alleviation and those were meant for business purposes. But with the ‘Ektee Bari Ektee Khamar’ project, the

government is trying to eradicate poverty from rural areas. Fund limitation of the poor farmers proficiently addressed in this project. Micro savings instead of microcredit, the theme of the project is a new and unique initiative. It is believed that Based on the idea of micro savings, it is an effective means which helps help the poor to come out of the vicious cycle of poverty. Need based investment to the family farming ensure their livelihood and income leading to poverty alleviation. If the project activities can be achieved properly, the vision 2021 is a mid-income nation would be achieved. It is also believed, this will ensure their right to work and right to develop them as cherished in the constitution of Bangladesh. If the project EBEK can be executed fruitfully, this model would be a widespread and ideal practice of poverty alleviation for the poor across the world particularly for developing countries.

References

A Questioned Project (13 May, 2015).*Bangladesh Protidin.*

Banglapedia (2006). *Asiatic Society of Bangladesh*, Retrieved October 26, 2013, from http// www.banglapedia.org

High Officials' Corruption (17 May, 2015) *The Daily ProthomAlo*.

In 'Hundred Percent successful Project' BDT 631 crores are defaults (16 May 2015). *The Daily ProthomAlo*.

International Monetary Fund.Asia and Pacific Department (2013).*Bangladesh: Poverty Reduction Strategy Paper*, International Monetary Fund, Retrieved May 29, 2013, from

https://books.google.com.bd/books?id=LmqM8I_8nH0C&pg=PA406&lpg=PA406&dq=what+is+meant+by+micro+savings+by+akti+bari+akti+khamar&source=bl&ots=iuipLPFwZ_&sig=mGu7vjvh1KKpfo2aF0PYnTFrlQ&hl=bn&sa=X&ei=iiR0Vfz7E8TEmwX9lICAAw&ved=0CDMQ6AEwAw#v=onepage&q=what%20is%20meant%20by%20micro%20savings%20by%20akti%20bari%20akti%20khamar&f=false

Roy, Dr P.K. (2014). *Gudelines for the Imlementation of Ektee Bari Ektee Khamar Project*, Ministry of LGRD

Khan, M. A., &Rahaman, M. A. (2007).*Impact of Microfinance on Living Standards, Empowerment and Poverty Alleviation of Poor People: A Case Study on Microfinance in the Chittagong District of Bangladesh*, Umea School of Business (USBE), Department of Business Administration, Retrieved May 28, 2013, from

http://www.diva-portal.org/smash/get/diva2:141240/fulltext01

Miyashita, Y. (2000). *Microfinance and Poverty Alleviation: Lesson from Indonesia's Village Banking System*, *Pacific Rim Law & Policy Journal*, VOL. *18*(1), Retrieved May 28, 2013, from

https://digital.lib.washington.edu/dspacelaw/bitstream/handle/1773.1/781/10PacRimLPolyJ147.pdf?sequence=1

ShahriarT. H. (October 5, 2012). Poverty Alleviation; Ekti Bari Ekti Khamar; can make a lot of difference, *The Daily Sun.*

http://www.ebek-rdcd.gov.bd/images/project_at_a_glance.pdf accessed on May 24, 2015

http://www.ebekrdcd.gov.bd/index.php?option=com_content&view=article&id=1597&Itemid139 accessed on May 24, 2015

http://www.ebek-rdcd.gov.bd/images/roadmap_to_zero_hunger_mission.pdf accessed on May 24, 2015

http://www.ebek-rdcd.gov.bd/images/stories/resources/operation%20manual%20part-1.pdf accessed on May 24, 2015

http://www.ebek-rdcd.gov.bd/images/project_digest.pdf accessed on May 24, 2015

http://ebek-rdcd.gov.bd/blog/?p=1 accessed on May 24, 2015

http://www.bssnews.net/newsDetails.php?cat=0&id=88289&date=2010-02-10 accessed on May 24, 2015

http://scholarship.law.cornell.edu/cgi/viewcontent.cgi?article=1153&context=ijli accessed on May 24, 2015

4. Technical Education and Training for Changing Rural Income in Bangladesh: Prospects and Challenges

Kora Hasan Evana

Abstract

Technical education and training is a tool to improve employability of individuals, increase micro entrepreneurs' initiatives as well as productivity of industry and reduce poverty. This article aims at providing an assessment on the ability of technical and vocational education (TVET) seeks to create competent and self-reliant citizens to contribute to the economic and social development of the country, thus improving the livelihoods and sustain ably reducing poverty in order to increase the life skills in changing the quality of life. Quantitative and qualitative methodological techniques have been used to collect the primary data. This article is based on survey findings conducted among the rural people who are getting technical education and skill based special training on entrepreneurship development, economic outcomes, and measures of well-being. The respondents (n=120) have been selected for KIIS (key informant interviews). Findings revealed that the available educational institute and training organization can facilitate village level society's members which have significant role to involving poor people in rural society and changing rural income with proactive role. In addition, more than 80 percent of the rural workforce in studied area is self-employed through small businesses and household enterprises (as opposed to wage work), making entrepreneurship and vocational training programs in this context more relevant than formal job training programs. Vocational training intends to impart practical skills, increase awareness of higher-paying job opportunities, and improve knowledge of how to access better jobs and how to connect to potential employers. Proper technical education has different positive impacts on livelihood development, changes in life styles by creating employment opportunities and increasing productivity. On the basis of findings, it is recommended that peoples interest for technical education, collaboration of public-private technical training, priorities of need based and diversified technical training with materials according to industrial and mechanical skills and workforce development, efficient operation and maintenance skill as well as availability of necessary equipments and technology for training should be strengthened for sustainable development in Bangladesh.

Introduction

“Education is the back-bone of a nation"- is the foundation for creating moral and other human related socials values among people. Quality education is not an easy concept to qualify. Scholars argue that countries need a well diversified education system in order to gain sustainable development through education. The recent approval by the Government of Bangladesh of the National Skills Development Policy is a major milestone in the country’s history. The term Technical / Vocational Education and Training (TVET), as used in this systematic review, follows the definition used by UNESCO as “those aspects of the educational process involving, in addition to general education, the study of technologies and related sciences and the acquisition of practical skills, attitudes, understanding and knowledge relating to occupation in various sectors of economic life”. It incorporates: technical education, vocational education, vocational training, on-the-job training, and apprenticeship training (or any combination thereof). Training and development encompasses three main activities: training, education, and development (UNDP 2004, PP-34).

- **Training**: This activity is both focused upon, and evaluated against, the job that an individual currently holds.
- **Education**: This activity focuses upon the jobs that an individual may potentially hold in the future, and is evaluated against those jobs.
- **Development**: This activity focuses upon the activities that the organization employing the individual, or that the individual is part of, may partake in the future, and is almost impossible to evaluate.

The conceptual definition of TVET used in this review cuts across education level, type of learning arrangement, mode of delivery, setting, and type of provider/regulator [9]. It includes provision of (i) initial training for young people from the age of 15/16 years after compulsory school, but prior to entering work; (ii) continuing education and training for adults in the labor market leading to personal, flexible and/or vocational competencies; and (iii) training for unemployed persons currently available for and seeking work (including retraining for those made redundant). Single- and multi-service TVET interventions were eligible for inclusion in the review, as were interventions delivered for any length of time or frequency.

This paper explores the situation for Bangladesh for its development by providing technical and vocational education. The World Bank

(2002) described Bangladesh as lagging behind the economic growth of technical and technological modernization, but went on to note that "Bangladesh's greatest strength is its people (World Bank, 2002, p.6). The World Bank also noted that Bangladesh has no more alternatives in order to gain development, except properly utilizing its population. To improve the quality of employees, Bangladesh's people need to be trained in modern professional based and job oriented technical, technological and vocational programs. To address employability and promote self-employment, the Government of Bangladesh launched some technical Education and vocational training program for the vulnerable youth and rural people with opportunities for skill acquisition and employment. Working with the government, researchers conducted a randomized evaluation of the program's effect on skill development, economic outcomes, and measures of well-being. While the results indicate that the training generally led to increased skills development and improved well-being. Human development is about much more than the raising of national incomes. It is about creating an environment in which people can develop their full potential and lead productive, creative lives in accordance with their needs and interests. People are the real wealth of nations. Development is thus about expanding the choices people have to lead lives that they value. And it is thus about more than economic growth, which is only a means–if a very important one– of enlarging people's choices UNDP (2002, p. 2). Investment in education and training produces benefit both to the individual and to society as a whole. The return on investment for society will be a skilled workforce that will enable global competitiveness and economic growth, while the return of the individual will be a better career path, increased earning and a better quality of life (Alam, 2007). The number of polytechnic institutions is also low in comparison with most other countries, and the Bangladesh population. One government vocational teachers training institute offers in service training for the teachers, but its effectiveness is questionable (World Bank, 1990). This brings question how effectively TVE teachers are performing in teaching. Additionally, the present TVET system does not provide any in service training for workers. So secondary school leaver workers have little chance to undertake professional training in their lifetime, and instead gain experience from work. It seems that Bangladesh has not made desired progress to moderate and to innovate and provide up to date TVET programs (Rafique, 1996; World Bank, 1990).

Objectives

The general objective of the study was an assessment on the ability of technical and vocational education and training to focus upon prior work to provide a clearer picture of the types of TVET interventions being used to improve employment prospects for rural people,

The specific objectives of the study were to:

a. review the development activities of village societies member through some projects with special emphasis on training on technical education and vocational training;

b. assess the socio economic characteristics of respondents and the overall effectiveness of TVET in order to increase their life skills in changing the quality of life;

c. Make recommendation and way out based on the findings of the study.

Scope of the Study

This study was conducted among the people of village societies, which has been implemented by some projects of government and non government organization as like Bangladesh Academy for Rural development BARD (CVDP), rural youth who got technical and vocational training from Technical Training Centre (TTC), CCN Polytechnic Institute and Comilla Government Polytechnic Institute. Minimum thirty people from each institute were participated in the interview schedule. The scope of the study was confined to the following variables:

- Respondents Socio economic condition i.e. respondents by age, sex, house hold size;
- Occupation, income and expenditure;
- Training and educational status;
- Interlink with the entrepreneurship development, economic outcomes, and measures of well-being and support services.

Methodology of the study

Selection of Sample Area

In order to assess the effectiveness of rural people, the sample survey method was followed. This study was conducted in four different institutes i.e. BARD (CVDP), Technical Training Centre (TTC), CCN

Polytechnic Institute and Comilla Government Polytechnic Institute. Mainly purposive sampling procedure has been followed in this study.

Selection of Respondents

The primary data of this study were collected through structured questionnaire and checklist of the sample villages. The respondents 30 from each institutes (n=120) for KIIs (key informant interviews) have been selected through purposive sampling procedure from the village society members who received relevant training and utilize that acquired knowledge and skill for increasing access to quality of life of rural people.

Methods of Data Collection

Survey methods were used to collect relevant data from the study areas, which were purposively selected and key informant interviews (KIIs) was conducted through structured questionnaire and checklist. Relevant data were collected from both primary and secondary sources.

Data Processing and Analysis

Collected data were processed, analyzed and presented in such a manner that the reader could get a clear idea of potential, uses and scope of technical education and vocational training in rural areas of Bangladesh. Data were collected during July to October 2015.

Findings and Result Discussion

The profile of the Study Institutes is given bellow:

Table 1: Location, catchments area and establishment of the study institutes, 2015

Issues	Name of the institutes			
	CCN Polytechnic Institute	**BARD (CVDP)**	**Govt. Comilla Polytechnic Institute**	**Technical Training College (TTC)**
Upazilla	Sadar Dhakkin	Sadar Dhakkin	Sadar Dhakkin	Sadar Dhakkin
District	Comilla	Comilla	Comilla	Comilla
Year of Establishment	2001	1957	1962	1979
Total area	30 acres	156 acres	20 acres	10 acres

Source: *Primary data from field survey, 2015.*

From the above table, it has been found that, Comilla Polytechnic Institute, TTC, BARD bears the sign of ancient tradition among these four institutes. All of these institutes are situated in green beautiful areas.

Table 2: Physical Facilities of the study Institutes, 2015

Issues	Name of the Institutes			
	CCN Polytechnic Institute	**BARD (CVDP)**	**Govt. Comilla Polytechnic Institute**	**Technical Training centre (TTC)**
Physical structure	**pucca & tin**	**pucca**	**pucca**	**pucca & tin**
Total class Rooms &Teachers Rooms	54	48	65	55
Teacher student/Trainer ratio	1:16	1:40	1:37	1:57
Electricity in Institutes	Yes	Yes	Yes	Yes
Safe Drinking water supply	Inadequate	Adequate	Adequate	Inadequate
Toileting facility	Inadequate	Adequate	Adequate	Inadequate
Teachers Quarter/ Hostel	No	Yes	Yes	Yes
Auditorium and library use	Not Satisfactory	Satisfactory	Satisfactory	Satisfactory
Proper laboratory use	Satisfacatory	Not atisfacatory	Satisfacatory	Satisfacatory

Note: *pucca* means permanent structure

Source: *Primary data from field survey, 2015.*

In Bangladesh the shortage of adequate physical facilities for training institutes is a major problem. But among the four studied institutes situated at kotbari, comilla Bangladesh Academy for Rural Development (BARD) has made an effort for rural development endeavour under village based cooperative organization through Comprehensive Village Development Programme (CVDP). CVDP is a national project of the Bangladesh Government. The CVDP believes in individual's entrepreneurship in one hand and inclusiveness of villagers on the other, motivate the members for own initiative development through training and capability improvement. Therefore, these provides training for the eleven-fifteen extension workers of village societies on various fields such as leadership, trade based skill training, eco sanitation, agricultural development and income generation through entrepreneurship development. On the other hand CVDP arranges technical training for the youth members of the society and giving training on electrical, plumbing, refrigeration, tailoring and solar installation training. Data reveals that village societies under CVDP project villages of BARD, out of the total respondents 51% in service and work in abroad. The rest 19% household people engage in trade with petty business. In the study village, average 78% people are literate because of project initiatives and better school facilities. The village society's member under CVDP program revealed that on an average yearly 55% and 58% respondents of selected institutes got training on electrical and solar installation, mobile servicing and management from the Technical Training Centre (TTC) of Comilla. It was observed that trained rural people utilize the acquired knowledge

to be self employed in their respective fields. It was found that out of the total people of the studied village, 70% use solar PV system in maintaining light, fan, television, charging of electronic devices etc. Again the trained member of CVDP program gives expertise in repairing and maintenance support to the solar PV using families according to their needs. Again solar PV powered Street light has been installed. Government Polytechnic Institute has comparatively better physical facilities such as the adequate teaching equipment, availability of safe drinking water and healthy toilet facilities than that of TTC and CCN Polytechnic Institute.

Table 3: Number of currently attending learners and trainees by gender in the study Institutes, 2015.

SI. No.	Name of the Institutes	Total Students			Percentage (%)	
		Male	Female	Total	Male	Female
1.	CCN Polytechnic Institute	127	139	266	47.74	52.25
2	Govt. Comilla Polytechnic Institute	413	332	745	57.14	44.56
3.	Technical Training College (TTC)	440	320	770	53.33	46.67
4.	BARD (CVDP)	320	160	480	66.67	33.33

Source: *Primary data from field survey, 2015*

From the above table it is found that the total numbers of learners/trainees are 770 in TTC which is higher then that of other three institutes due to substantial number of other institutes exists near by same area. Among the total students, number of male is 440 and female is 320. The percentage of male is 53.33 and female is 46.67 respectively.

Table 4: Types of training received by the respondents, 2015.

Subjects	CVDP (N=30)	Govt. Comilla Polytechnic Institute (N=30)	TTC (N=30)	CCN Polytechnic Institute (N=30)
Electrical	10	9	19	5
Plumbing	6	-	8	-
Solar	8	-	10	2
Civil	-	11	3	12
Electronics	9	5	10	7
Garments Design	12	-	14	8
Computer Technology	2	13	11	11
Medical Technology	-	-	-	19
Mechanical Technology	-	17	12	15

Source: *Primary data from field survey, 2015 (multiple answers are given)*

From the above table it has been found that, electrical, solar, civil, electronics and computer technology are the common subject for all the four institutes. On the other hand, only CCN polytechnic Institute deals with the medical technology which leads to access the quality of life.

Table 5: No of persons utilized their learning and training knowledge and skills received through in the study area, 2015

Name of the Institutes	No. of total respondents	No. of person utilized	Percentage of total
CVDP	30	30	100
Govt. Comilla Polytechnic Institute	30	27	90
TTC	30	24	80
CCN Polytechnic Institute	30	26	86

Source: *Primary data from field survey, 2015*

It has been found that all of the respondents utilized their learning skills under the CVDP project. TVE has two roles - preparing skilled manpower for the world of work, and opening the door for TVE students to pursue higher education with a solid foundation. The majority respondents informed that they utilized their acquired knowledge and skills in respective areas.

Again some of them couldn't utilize their learning because of not using their acquired skill and knowledge which they received through different training programmes. Unfortunately, higher education is very limited for TVE school graduates in Bangladesh. In addition, once a student has a gap of two years academic study, he/she cannot enroll in further higher education. In these circumstances if a TVET graduate joins his/her job after completion of secondary and higher secondary education, he/she cannot come back into further education.

Table 6: respondent's opinion regarding TVET, 2015

Issues	BARD (CVDP) (N=30)	Govt. Polytechnic Institute (N=30)	CCN Polytechnic Institute (N=30)	Technical Training Centre (N=30)
Competency achieved	23 (76%)	20 (66%)	17 (58%)	20 (68%)
Improved skills and creativity	22 (75%)	20 (68%)	21 (70%)	21 (69.5%)
Raising rural income	23 (77%)	19 (63%)	20 (65%)	22 (72%)
Qualification divert to industry	21 (69%)	20 (67%)	19 (63%)	21 (71.3%)
Employability	22 (75%)	21 (69%)	20 (66%)	21 (69%)
Quality training and teaching	23 (78%)	21 (71%)	21 (69%)	22 (72%)
Focus on gender equality	21 (71%)	20 (68%)	19 (64%)	21 (69%)
Flexible and responsive TVET	21 (69%)	19 (62%)	19 (63.2%)	20 (68%)

Source: *Primary data from field survey, 2015*

From the respondent's opinion, it has been observed that as a poor country, achieving a high budget for education is a real challenge for Bangladesh. It is also added that budget for TVE is very low in comparison with other sectors of education. Providing good TVE needs more money for practical workshop facilities, and also demands industrial attachments for internships vocational and practical subjects ‘pedagogic systems have unusually multifarious expensive requirements (such as equipments materials, resources, curriculum, support system, personnel, managements requirements, etc.), which are not easily met. Trainer opines that training increased participants’ ability to calculate profit and increased the likelihood that a respondent knew how to start a business, to examine whether study, participant and intervention characteristics to improve upon prior work by systematically examining the evidence base to provide a clearer picture of the types of TVET interventions being used to improve employment prospects for youth, to identify the overall effectiveness of TVET, to examine whether study, participant and intervention characteristics.

Table 7: Problems faced by the respondent's in the study Institutes, 2015

Issues	**Name of the Institutes**							
	BARD (CVDP) (N=30)		**CCN Polytechnic Institute (N=30)**		**Govt. Polytechnic Institute (N=30)**		**Technical Training Centre (TTC) (N=30)**	
	Opinion	**No.**	**Opinion**	**No.**	**Opinion**	**No.**	**Opinion**	**No.**
i) Problems faces for overall course curriculum system	rarely	30	frequently	24	sometimes	26	sometimes	22
ii) Location and communication	Suitable	28	Less suitable	26	Suitable	30	Less suitable	24
ii) Systematic and lesson preparation	Yes	27	Yes	26	Not much	18	Yes	21
vi) Uses of equipments for training	Not much	25	Yes	23	Yes	27	Yes	29
viii) Fear of getting future job	Not much	28	more	25	Not much	26	more	25

Source: *Primary data from field survey, 2015.*

It has been found that most elite parents think that their children should not become a labourer. Even if their children are less academically able, parents try to push their children into higher education disobeying

the law. Social elites and political leaders in Bangladesh do not bother much about the law. They also send their children to study abroad. In such circumstances, poor parents become disappointed about their children's education. Again most of TVET schools are also located far from rural areas; meaning village students cannot have access to them easily.

Finally tables depict that, those who graduate with distinctions and with a high number of credits have good chances of finding employment in prestigious companies or of going on to further studies. Feedback from industry where the graduates find employment suggests that all is well in the institute, which has striven to improve and maintain the high performance of trainees. Although instructors were highly qualified and dedicated to their work and had high morale, which has tended to counteract this burden. The administration ensures that the competencies of faculty and all workers in the institution have been improved on a continuous basis. Graduates from the institution also share information about the institution and their experiences with prospective students. The data analyzed revealed that the performance standards of the students are high. Additionally, career guidance and counselling personnel regularly advise students on their academic and social life. The rural setting seems to provide a suitable ambient learning environment. Some graduates even went on to further studies. Enterprising graduates entered self-employment. The institute lays emphasis on quality and seeks to improve and maintain the high performance of its trainees. The feedback mechanism from industry helps the institute evaluate its standards and to improve its programmes. Facilities are adequate and trainees gain hands-on experience, as well as being exposed to working practices during a three-month industrial attachment. In our country situation, it is observed that in almost all the lower classes the numbers of students both male and female are more, but in the upper classes students' participation is lower. Because some of the students discontinue education cycle before completing their study at the school level of education.

Conclusion and Recommendation

Within the scope of this paper, it is not possible to present a full picture of TVET for Bangladesh. But it was possible to make an argument of the proposed topic. In the present circumstances, it is seems that dropout rate at the secondary level is quite high.

Furthermore, it is clear that inadvertently and haphazardly offering TVET programs not only increases the use of scarce educational resources, but also raises questions about the achievements of

education, and may well make barrier to achieving national and individual educational aims.

To progress well in the face of increasing global competition, it is essential to provide modern up to date technological knowledge to students; − On the other hand, it is notable that not all students have the academic ability or interest to gain technological knowledge; and In addition to the above issues, other professions such as agriculture, the garment industry and so on, can pay a vital role in country's developmental progress. After all, a balanced, skilled workforce can play a separate more holistic role in national development. Considering the above, few TVE subjects such as agricultural science (in all its diversity), computer science, information technology, garments and textile technology, fashion and design, need to be offered especially at the secondary school level, and students should take several TVE subjects. This may help the drop out students to become more skilled in a variety of tasks, and in addition provide a solid foundation to continue into higher education. It also should be noted that Bangladesh needs to provide in service training programs at different levels, and for different subjects. This may help employees to cope with changes in TVE, and help primary school leavers to cope better with their jobs. In conclusion, the following overall recommendation is made. A well timed TVE program may help Bangladesh to improve its economic growth, which may then aid social equity and freedom; the country urgently needs to take substantial steps (such as, increasing budgets, preparing modern course curriculum etc.) if it wants to develop TVE education.

The following recommendations are put forward:

1. Higher authority and staffs of TVET institutions should be highly qualified individuals in the relevant technical areas and should also have some administrative skills.
2. Goal-setting or some kind of (theoretical) framework that ties in with the vision and mission of the institution and its strategic plan are an asset in helping the institution to carry out its functions.
3. Higher authority and staffs should carry out their responsibilities in such a manner that their staff perceives that management is working in their favors and is responsive to their needs; one such example being to undertake corporate social responsibility.
4. Tangible targeted results should be recorded every time they occur in order to encourage persons to work harder and achieve more. This, in itself, is an incentive scheme. Payments should be related to production; for every result there must be a reason or an explanation.

5. Higher authority and staffs should apply modern approaches in human-resource management since these are critical in changing the perceptions of moribund institutions.
6. Bureaucracy should be flexible and not the only agency responsible for the running of a TVET institution. People outside the administration must be allowed to give suggestions about what can be done to overcome a particular problem and should be permitted actually to perform some activities themselves.
7. The system should have a real time online service that accepts forecast data from industry and from Government for both skill demand and supply.

My personal feelings are that, with the support of academic staff, workers, trainees, the community and other stakeholders, it has become a centre of excellence able to prepare trainees to meet the challenges of the job market. This requires dynamic leadership of the calibre demonstrated by the principal.

References

Keen, D. (2001) In a class of its own: The story of a century and a quarter of teacher education at the Dunedin Training College, Dunedin Teachers' College and the Dunedin College of Education. Dunedin: Dunedin College of Education.

Alam, G.M. (2007). Private HE in Bangladesh: the impact on HE governance & legislation. Unpublished PhD thesis, University of Nottingham, United Kingdom.

Bangladesh Bureau of Educational Information and Statistics (BANBEIS) (2007), Pocket book on educational statistics. Dhaka, Bangladesh: BANBEIS Press.

Bangladesh Technical Education Board (BTEB) (1994), A study of job market for VTI graduates. Dhaka, Bangladesh: BTEB Press.

World Bank (2004), the challenge of development: World development report. Washington, DC: World Bank.

United Nations Development Programme (UNDP) (2005). Human development report. New York: UNDP.

United Nations Educational, Scientific and Cultural Organization (UNESCO) (2001). Statistical yearbook. Paris: UNESCO.

Alam, The Role of Technical and Vocational Education in the National Development of Bangladesh, Asia Pacific Journal of Cooperative Education, 2008, 9(1), 25-44http://www.ervet-journal.com/content/5/1/3

Nairobi: Oxford University Press. Simiyu, J. 2007.

Terminology of technical and vocational education. Paris: UNESCO. UNESCO. 1990.

Trends and development of technical and vocational education. Paris: UNESCO. (Trends and issues in technical and vocational education, 5.) UNESCO-UNEVOC. 1996.

Financing technical and vocational education: modalities and experiences. Berlin: UNESCO-UNEVOC. UNESCO-UNEVOC. 2000.

5. Local Level Governance in Input Delivery: A Case of Urea Fertilizer Marketing for Boro Paddy Cultivation in Bangladesh[1]

Kamrul Ahsan

Abstract

Bangladesh had food deficit of about 3 million metric tons per annum in early 70's for a population of about 75 million. The country achieved self sufficiency in food grain production for a population of 160 million in 2014 having the limitation of losing agriculture land out of cultivation of about 0.92 percent per annum for other use. This huge achievement in food grain production particularly paddy production is mainly blessed with improved production system where irrigation, fertilizers and quality seeds played the key role. Over fifty percent of the total food grain of the country produces in Boro season (November- May). The country needs about 4 million metric tons of chemical fertilizers like Urea, TSP, MP etc. in year of which urea alone claims about 3 million metric tons. This urea partly produces in the country by using costly natural gas and partly imports from other countries. The marketing channel of fertilizer from industry or buffer stock up to the end users (farmers) is a major issue considered for optimum paddy production. The present study addresses governance issues in urea fertilizer distribution for Boro cultivation.

The study was conducted in four out of the six major ecological zones of the country. Data were collected through interviews, focus group discussions and consultations of different secondary materials. It reveals from the study that demands for urea fertilizer from union and upazila level to the district level has been inflated in many cases. The number of dealers varied from upazila to upazila and the consequent allocation of fertilizers among the dealers also varied widely from upazila to upazila and also from union to union. The profit was significantly different for the dealers of different upazilas although the security money of each dealer was similar (Th. 2 lakh). Among the recommendations–creation of an environment of involving stakeholders in the need assessment of fertilizer at the union level; need assessment for urea through plot to plot assessment at the field level; and dealers should be made accountable to a closer authority particularly UP and UZP should be ensured were important.

Keywords: Food Security, Boro Paddy, Local Level Governance, Urea Fertilizer, Fertilizer Dealer etc.

[1] The paper has been developed from the research work conducted by BARD with the financial support of Common Wealth Secretariat, UK

Introduction

Agriculture production system in Bangladesh ensures food security and reduces magnitude of poverty. The country has been experiencing on an average of losing 0.92 percent of cultivable land every year for non-agricultural uses during the last two decades. The major challenges for achieving food security concerns are increased production through intensified rice production and proper preparedness against natural disasters like flood, cyclone and drought during rice production season.

The coverage of irrigation areas of the country increased from 4.832 million hectares (MHs) in 2003-04 to 5.954 MHs in 2008-09. The remarkable increase of irrigated area for rice cultivation over the years reveals the government's commitment to increase rice production. According to Bangladesh Bureau of Statistics (BBS), the food grain production of the country increased from 27.68 million metric tons (MMTs) in in 2003-04 to 36.94 MMTs in 2009-10. The irrigated rice 'Boro' alone claims over 50 percent (18.72 MMTs) of the total grain production of the country in 2009-10 (GoB, 2010). Increase in coverage of irrigated areas and irrigation efficiency are considered as the main factors on achieving increased rice production.

The government introduced the use of chemical fertilizers in the country with the introduction of HYV seeds in 1960s. In the initial years, the use of fertilizer was less than 50,000 tons per year that gradually increased with the popularity of improved agricultural technology. Meanwhile the demand has crossed 2.7 MTs.

The availability of fertilizers within upazilas or even districts varies. The amount of fertilizers that a dealer gets to withdraw and sell mainly depends on the cultivated area, cropping pattern, fertilizer requirement according to soil type and even on supply of fertilizers on the basis of availability. So, 'commissions' or profits among the dealers vary from one area to another. In that case, apprehension arises whether the expected return of the dealers at the union level interfere in ensuring prescribed price to the farmers or not. In addition, proper selection of dealers and even locations of their godowns or sales centers of fertilizers in their respective unions or villages concerns the distribution system of fertilizer.

Research Objectives

Keeping in mind the above discussion the present study addressed governance issues in urea fertilizer distribution for Boro cultivation. The specific objectives of the study were to:

a. assess gaps or short comings in different tires or chains of urea fertilizer distribution during Boro cultivation;

b. find out the causes of gaps and short comings of urea fertilizer management if any in Boro season; and
c. make recommendations on the basis of study findings.

Research Scope

The study was conducted in four of the six major ecological zones of the country. These ecological zones are Haor, Borind, flood affected, and flood free zones. Coastal and hilly zones were excluded from the study for their' lesser involvement in Boro cultivation. The following variables were included in the study.

a. Fertilizer Distribution: Analyze the chain of fertilizer distribution in Boro production (from store/godown to the farmers' fields) with special emphasis on:
    a.1 People's participation (directly or through their representatives) during assessing demand and responsiveness of the authority during making available of urea in areas of production (planning);
    a.2 assess the accountability and transparency in the performance of fertilizer distribution administration at different tiers i.e. from district to upazila, from upazila to fertilizer dealers at union level and from fertilizers dealers to farmers (implementation); and
    a.3 analyze the existing service and monitoring system of fertilizer distribution in terms of equity, inclusiveness, effectiveness, efficiency and enforcement at district, upazila and union level;
b. any other related issues that comes up during study.

Research Methods

a. Fifty upazilas from the four major ecological zones i.e., haor, flood affected, flood free and barind areas were considered primarily for selecting five upazilas for the study. Average use of urea fertilizer per unit of area for the years of 2007-08, 2008-09 and 2009-10 was considered to select upazilas for the study. The average urea use in Boro per unit of area for consecutive three years under the study was found lowest in Derai among all seven upaziles of Sunamganj District as per data collected from BCIC. The Upazila was selected for the study on the basis of low urea utilization per unit of area from amongst the other upazilas of the district. Similarly Upazila like Neyamatpur was selected where the use of urea fertilizer was higher among other Upazilas of the district.

b. Data Collection: Data were collected both from primary and secondary sources. The primary source of data included

   a. interviewing respondents with checklists which included:

      a.1. Deputy Director (DD), DAE and concerned officials of DAE;

      a.2. Elected representatives like Upazila Chairman, Upazila Vice Chairmen, Union Parishad Chairmen and Members who had been consulted for having their experience & opinion on fertilizer marketing issues;

      a.3. Upazila officials like Upazila Nirbahi Officers (UNOs) and Upazila Agriculture Extension Officers (UAEOs) were consulted for having detailed idea about urea marketing of their respective upazilas;

      a.4. BCIC Fertilizer Dealers & sub dealers were also consulted on sample basis in each of the five Upazilas under the study. Visits were also made to dealers and sub dealer's godowns and shops for getting practical idea of selling process of urea fertilizer.

      a.5. Randomly selected Boro farmers of the study area were also interviewed with specific objectives for the study.

   b. Data relating to fertilizers use in production of Boro, cropping intensity etc. both in the selected upazilas and respective districts were also consulted.

   c. Focused Group Discussions (FGDs) were carried out at district and upazila level. Secondary data were collected from various published materials. Information relating to fertilizers marketing was collected from BCIC.

Limitations of the Study

Data collected from the district and upazila level and data collected from BCIC for Boro production could not be computed and compared for not having disaggregated data as per requirement of study. For example, data collected from BCIC was on the monthly basis of urea marketing where Boro and other crop are the consumers of urea at the same time. But data collected from the upazila and district was only for Boro production. So, marketing of urea for solely Boro production could not be cross checked with the amount at source and field level.

The data of urea used per unit area of Boro production suffered from the limitation of assessment of infiltration of or drainage to nearby upazilas or elsewhere during peak season. During the discussion, the issue came up for several times informally, but could not be quantified and merged with the available data at the upazila level.

The quantity of cultivable land of the upazila differs with the total area at a range of 10 to 35 percent in four out of five upazilas under the study. The quantity of cultivable land could not be cross checked from any other source during the study.

The major limitations of the study were the time and resource constraints. The study areas were scattered throughout Bangladesh making field visit very costly and time consuming. The need for subsequent visits for verifying the collected data remained unmet. Moreover, the researchers had to perform the study alongside their own official responsibilities which also limited the opportunities of collecting disaggregated data through frequent visits.

Results and Discussions

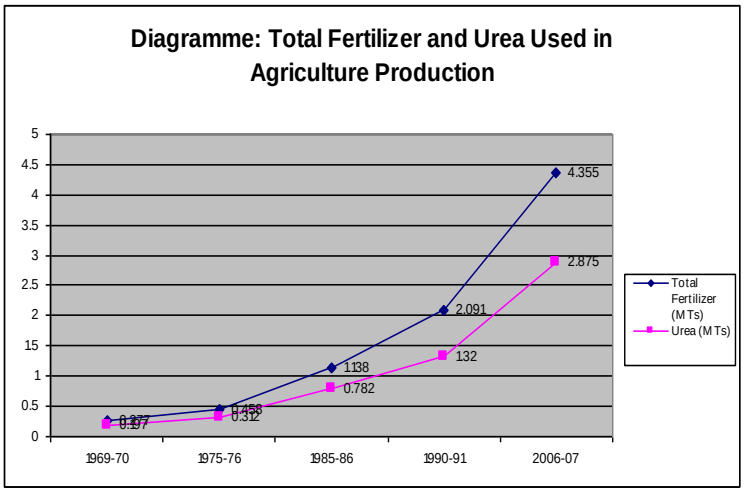
Trend of Boro Production and Irrigated Areas in Bangladesh

Increased Use of Fertilizer: 1969-2007

Fertilizer supply in Bangladesh comes from two sources. First one is domestic production, it produces Urea, Diamonium Phosphate (DAP), Single Super Phosphate (SSP) and Triple Super Phosphate (TSP) and Gypsum. The domestic production cannot meet the requirement of the country. The second source is import; it imports urea, DAP, SSP, TSP, Muriate of Potash (MoP) and NPKS.

The government has set a target of 19 MMTs of Boro production from less than 4.8 MHa of land by 2009-2010. To achieve the targeted production of Boro in the year, timely supply of fertilizer has been considered as one of the major factors of the whole production chain. The major fertilizers such as Urea, TSP, MoP, Gypsum and Zinc were provided to the tune of 1.383, 0.565, 0.694, 0.041 and 0.306 MMTs respectively (Basak, n d).

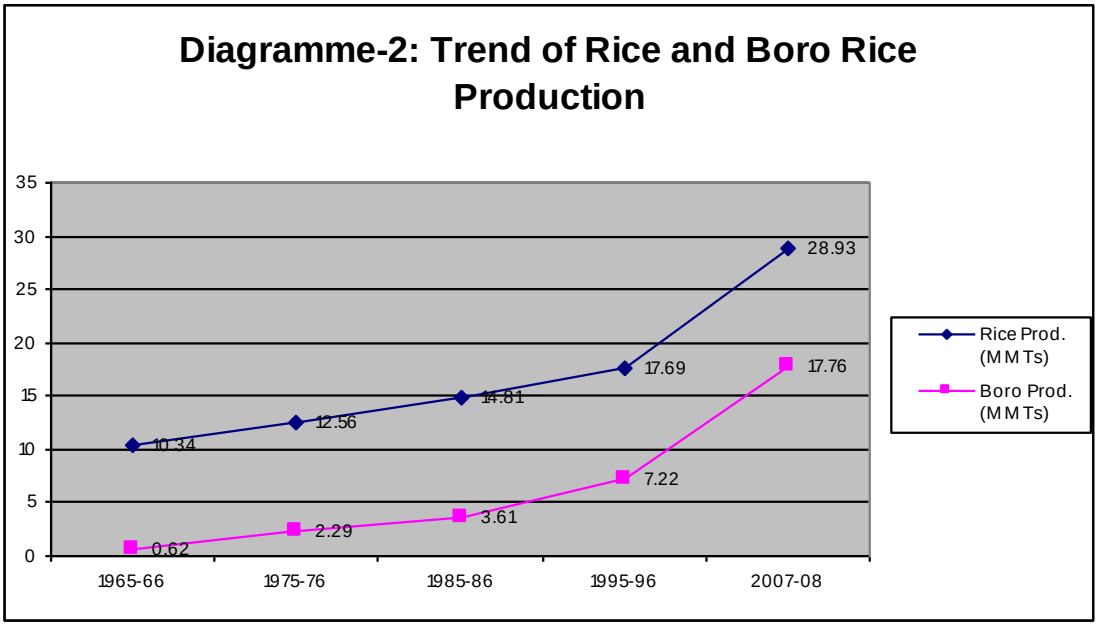
The diagram below shows that fertilizer utilization from 1969-70 to 2006-07 has increased many folds. Utilization of Urea increased from 0.196 MMTs in 1969-70 to 2.88 MMTs in 2006-07.



Source: *BBS, 1978, 1996 and 2011*

Rice Production: 1965 – 2008

Total rice production increased from 10.34 MMTs in 1965-66 to 32.26 MMTs in 2009-10 (BES, 2011). In the past amon was the largest crop sharer in terms of volume of rice production which was crossed by Boro in 2000. The total quantity of amon produced in 1995-96 was 8.79 MMTs whereas the production of Boro in the same year was 7.22 MMTs. In 2005-06, amon and Boro production was 10.81 and 14.97 MMTs respectively. The potentiality of irrigated rice in terms of higher profit, higher yield and comparatively lower risk from natural disaster; and policy supports made this crop the most prospective one for achieving food self-sufficiency.



Source: *BBS, 1978, 1996 and 2011*

Utilization of Urea in Boro Production in Selected Upazilas

Acreage of Boro and Use of Urea: The acreage of Boro in selected five upazilas under the study varied widely. It reveals from the data (table-2) that a fluctuating trend of Boro coverage was observed in the sleeted upazilas. In Derai, Madargonj and Sreepur the trends of coverage of Boro were found gradually increasing from 2007-08 to 2009-10. The incremental value from one year to other was nominal in case of Derai and Sreepur in this regard but comparatively higher in Madargonj during the last three years. In Bhangura, the Boro coverage continued a slightly declining trend over the last three years. In Neyamatpur, the Boro acreage increased in 2008-09 compared to 2007-08 but declined in 2009-10 compared to 2008-09.

It is to be noted that all the areas of Boro cultivation mentioned above were not under cultivation of HYV only, but coverage of

hybrids and local varieties were also included here. However, HYV dominated to a large extent in all the cases.

Table-1: Acreage of Boro and Use of Urea: 2007-2010

Name of Upazila	2007-08			2008-09			2009-10		
	Cov. of Boro (ha)	Amount of Uread Use (MT)	Av. Use (MT/ha)	Cov. of Boro (ha)	Amount of Urea Used (MT)	Av. Use (MT/ha)	Cov. of Boro (ha)	Amount of Urea Used (MT)	Av. Use (MT/ha)
Derai	26,280	2,610	0.10	26,720	2,900	0.10	27,410	3,758	0.12
Bhangura	8,500	2,203	0.259	8,045	1936	0.241	7,470	1936	0.259
Madargonj	NA	NA	NA	15,140	4060	0.268	17,500	4740	0.271
Sreepur	3,500	803	0.229	3570	798	0.224	3,600	790	0.220
Neyamatpur	15,700	3,500	0.223	16,200	3,600	0.222	15,770	3,550	0.225

Source: *DAE, 2008, 2009 and 2010*

***Recommended Dose and Actual Use of Urea*:** The recommended dose of urea for Boro cultivation was computed with the dose prescribed by Bangladesh Agricultural Research Council (BARC).

The Recommended doses of urea for HYV Boro cultivation in five upazilas under the study were taken from the Fertilizer Recommendation Guide of BARC. The average actual use of urea for HYV Boro for the year 2007-08, 2008-09 and 2009-10 in five upazilas were calculated and computed with the recommended doses of urea for the same. It was evident from the table-2 that only in Derai upzila, the farmers used less amount of urea compared to recommended dose.

Table-2 : Recommended Doses and Actual Uses of Urea in HYV Boro Production

Name of Upazila	Ago ecological Zone	Recommended Doses (kg/ha)	Average Use of Urea (kg/ha)*
Derai	AEZ 20 AEZ 21 AEZ 22	228	106
Bhanpura	AEZ 7	217	253
Madargonj	AEZ 8 AEZ 9	260	270
Sreepur	AEZ 11 AEZ 12	208	224
Neyamatpur	AEZ 5 AEZ 6	174	223

****** *Average use of urea in Boro production for the years of 2007-2008, 2008-2009 and 2009-2010*

Dealer and Allocation of Urea

The number of dealers varied from 9 (in Sreepur) to 21 (in Madargonj) among the five upazilas under study. The allocation of fertilizers per dealer also varied widely among the upazilas for the five months (November-March). The lowest average allocation of urea (168 MTs) got by a dealer in Derai and the highest in Neyamatpur (394 MTs) in 2007-08. In 2008-09, the gap increased between lowest (169 MTs) and the highest (430 MTs) of average urea allocation. In 2009-10, the gap decreased to some extent as average allocation of urea per dealer increased to 192 MTs in Derai whereas the highest allocation of 430 MTs in Neyamatpur remained the same.

Table –3: Allocation of Urea and Number of Dealer

Name of Upazila	No. of Dealers	2007-08		2008-09		2009-10	
		Allocation of Urea for the year (MT)*	Allocation of urea in 5 Months per dealer (MTs/D)	Allocation of Urea for the year (MT)*	Allocation of urea in 5 Months per dealer (MTs/D)	Allocation of Urea for the year (MT)*	Allocation of urea in 5 Months per dealer (MTs/D)
Derai	12	2,015	168	2,025	169	2,300	192
Bhangura	10	3,450	345	2,850	285	2,150	215
Madargonj	21	4,788	228	4,817	229	5,625	268
Sreepur	09	3,130	389	3,130	348	2,660	296
Neyamatpur	11	4,331	394	4,730	430	4,730	430

* Data available from BCIC and counting the amount of Urea for all crops from November to March

Source: *The table above reveals that allocation of urea per dealer varied substantially.*

The issues have several significances. Some of them are important for dealers and some are important for farmers. Firstly, all dealers have deposited Tk. 2.0 lacs as security money to BCIC. Now they have an expectation of equitable business opportunities. When the business opportunities differ the dealers may try to maximize their profit through pursuing any means, whatsoever.

Secondly, the number of service receiving clients becomes too many or too less which create difficulties for the dealers. Many of their clients may remain unserved or under-served in case of too many members. On the other hand, if clients are too less, they may remain out of focus due to under-attention or serving them seems to be un-remunerative for a dealer.

Thirdly, farmers also cannot reach to the dealer when their member is too many. They can be denied from equal treatment.

Fourthly, apprehensions remain regarding underutilization of administrative and financial resources. In some instances, strains may be seen on these resources.

Fifthly, rationality in decision making is seemed to be ignored.

From the discussions above, it transpires that there are a number of areas where discrepancies remain, and they need attention for remedial measures. At present the system is working, but it is neither efficient nor effective. It also provides no scope for the farmers who are the real target of the system to engage themselves as an active stakeholder but a passive recipient.

Local Government and Governance in Rural Areas

Local self-government is defined in the Encyclopedia of Sciences as "the government, which has a territorial non-sovereign community possessing the legal right and the necessary organization to regulate it own affairs (Siddiqui, 2008).

In Bangladesh two separate local governments are mandated to perform in the rural areas called Union Parishad (UP) and Upzila Parishad (UZP). The framework of these two local governments is structured through Acts of the Parliament. The representatives of these local government bodies are directly elected by the people of the area. Government provides manpower to both of these local government bodies to undertake development plans and implement the same for the welfare of people and locality. In performing their duties, both the institutions are supported by a number of standing committees constituted by them

The state is the largest provider of some basic services to its population relating to health, education communication and productive services for increased production. Rural population mainly in Bangladesh receives the services through the government departments as services providers. The service providers particularly from government sector use a variety of channels such as door-to-door delivery (advices on contraceptive use), delivery at the community level (advices on improved technology and input delivery in agriculture), service providing at village or union level (schools, health care centres), service providing at the upazila level (hospitals, colleges). But Governance in service delivery suffers from a number of setbacks and limitations like inadequate resources, deep seated organizational problems and procedural flaws (World Bank, 1996). **Need *Assessment of Urea:*** The process of fertilizer marketing begins with the estimation of the requirements of fertilizers for different crops in a union. During discussion the DAE officials opined that the

standard procedure for correct assessment would be to visit plot-to-plot and contact the farmers for data collection, verify the data with land records to ascertain if there were any information distortion, and work out the requirement with recommended doses of fertilizer for each crop. But they have experienced that due to interaction of several factors like price of different fertilizers, farmers' capacity to invest, lack of knowledge about recommended doses of fertilizers, biasness towards a particular fertilizer (urea) etc., the farmers generally do not follow the recommended dose. Therefore, based on their experiences, in a very simplistic way, SAAO at the union level estimates the requirement of fertilizers like urea, TSP, MoP, DAP, etc. on the basis of cultivated areas under different crops in the previous years.

The marketing of urea for Boro production took place from early January to first week of April in different parts of the country. SAAOs keep an extra margin over the actual requirement at the union level or the offices at the upazila level or both do the same through consultations. Tendency of estimation of fertilizers, particularly urea, got inflated in one or more tiers. Under these circumstances, scope of participation, either direct or through representatives, in estimating the actual requirement of urea becomes too limited for all practical reasons.

Marketing of Fertilizers

Government channelizes fertilizers through BCIC appointed dealers. They are the members of the private business community. BCIC allots urea in their favour according to the monthly requirement of a particular upazila. As has been seen earlier, officials of DAE prepares the monthly requirement according to cropping plan, pattern, soil type and time. On the other hand, the purchase of fertilizer by the farmers is regulated by their own investment plan. The investment plan may, also be affected by among others, their apprehension of availability of fertilizer at the dealers end. The larger the investment capability of farmers, the greater their willingness is to buy the whole amount of his requirement once at a time. This type of one-time buy provides him a sense of safety, lowers his transportation cost and saves time from frequent visit to the dealers. It creates a genuine panic among the small farmers. So, creation of an environment of trust of supplying required fertilizers in the chain should be ensured.

Dealer's Shop at the Union Level

It has been observed that 'one dealer for one union' was not farmer friendly for several practical reasons. Generally, the dealers have

established their shops or stores or both at their convenient places and those are the Upazila HQs or large business centres. It reduces their transport cost, but increases carrying costs of the farmers. It also takes a lot of time for the farmers to reach there too. However, the appointment of sub-dealers has lessened the magnitude of the problem. Even then, the farmers are obliged to visit the dealers for more than once to buy fertilizer, particularly the small farmers.

Buying of urea in the present system works as "farmers should come to sales centre to buy fertilizers and stand in cue". In a number of cases the dealers are reluctant to deal with the farmers sincerely and with helping attitude. Farmers opined that helping attitude of dealers and attachment of UP in the process might help in creating better environment at the village level and even can generate need based action during the time of fertilizer crisis, if any.

Profit Issues

The allotment of fertilizer to the dealer should be made on the basis of cultivable land of the respective union. Still then there seem problems. The variation of allocation of fertilizer among the dealers was common in the study upazilas. It varied from 192 MTs per dealer in Derai to 430 MTs per dealer in Neyamatpur during the Boro paddy cultivations in 2009-10. This variation has another implication from the point of view of dealers' own business. Lower allocation of urea to a dealer led him to earning less profit. As all the dealers deposited Tk. 2.0 lakh as security money to BCIC for getting the dealership, the variation of profit is real issue for them. Dealers particularly who got comparatively less quantity of fertilizer expressed their dissatisfaction for getting less profit compared to those who got more. They felt that there should be some policy measures relating to getting fertilizer with minimum variations so that their equal investment as security deposit may be rationalized.

Accountability of Dealers

It was observed that the dealers do not have any accountability to the UPs or UZPs or UF&SMC. They are accountable to BCIC for any violation of their assigned jobs (as mentioned in the policy). Neither UPs nor UZPs nor UF & SMCs nor even the DF&SMCs can take penal measures against any dealer for any misconduct on his part. If any problem arises due to dealer's fault, it takes a longer time to settle. This long process for taking any measures against a dealer creates frustration among the stakeholders at the upazila and/or union level and among the farmers. The farmers feel that they are at the mercy of the dealers.

BCIC allocates urea in two installments for a month. The dealers draw the allocated fertilizer at the end of each fortnight. This type of allocation does not match with the requirement of farmers, since they use urea at different growth stages of crops. In every case, the farmers have to wait 5 to 15 days for urea application to Boro, which hampers production.

Incorporation of farmer's opinion, accountability of SAAO to local governments, making responsible and accountable the dealers to UZPs and district committees and preparation of area specific allotment plan of BCIC can help reduce hazards for farmers in timely procuring urea, utilizations thereof and boost production.

Coordination and Monitoring of Fertilizer Marketing

The elected members of UPs can build awareness of the farmers against hoarding of fertilizers. This will help in minimizing the artificial crisis in the peak demand period. The UP Chairmen sit with the UNOs at Upazila Parishad meetings once a month. Fertilizer marketing can be an important issue to be discussed in the meeting and fruitful decisions can be taken there. Involvement of elected representatives of UPs might be an opportunity in better monitoring of fertilizer marketing at the grass root level.

Business Deal of Urea

Dealer is a businessman and he has deposited an amount of Tk. 2 lakh for getting the dealership; in addition, fertilizer cost, rental cost of godown, transportation cost and labour cost etc., are the investments of a dealer in this business. The sum total of these investments is substantial for a dealer.

The demand of urea varied widely from upazila to upazila. The demand of urea as calculated for Derai was 2,300 MTs in 2009-10, whereas the demand of the same as calculated for Neyamatpur was 4,730 MTs for the same year. The number of dealers in Derai was 9 and in Neyamatpur was 11. The consequent allocation of fertilizers among the dealers also varied widely from upazila to upazila, and thereby from union to union. The profit was also significantly different for the dealers of different upazilas.

These limitations in the existing system can be well coordinated by the involvement of UPs and UZPs. UPs can play effective role in planning, implementing and monitoring of fertilizer marketing and coordinating among the dealers, farmers and local SAAO.

Conclusion and Recommendations

Conclusion

Urea fertilizer is considered as a determining input for growth in Boro production. The utilization and thus requirement of urea for Boro production is much higher than other fertilizers. This fertilizer is highly subsidized and its supply is mainly dependent on import from other countries. Government provides much effort for proper marketing of this input timely and adequately to the farmers following the guidelines of "The Comprehensive Policy on Dealer Appointment and Fertilizer Distributions 2009". Need assessment of fertilizers is done by the officials of DAE. Marketing is being done through dealers appointed by BCIC. The supervision and monitoring of area-specific marketing are undertaken by district and upazila administration, where officials of DAE play important roles.

The study examines the governance of urea fertilizer marketing starting from its need assessment to marketing in the field situation. It reveals from the study that demands for urea fertilizer from union and upazila level to the district level has been inflated in many cases. This type of inflated estimation provides a sense of security to the concerned officials at the field level in the way that in no cases they could be held responsible for any short supply. It was found that the monitoring documents like ID card of farmers, drawl and sales registers of dealer etc. were not meticulously maintained in most cases. It was known from the farmers and dealers that there was no scarcity of urea in the field and there was no need to use these documents. Both farmers and dealers opined that strict adherence to the procedures like documentation of purchasing fertilizers through farmers ID card may create panic about fertilizer scarcity in the area. This might lead urea market to become unstable. Participation of stakeholders in need assessment of fertilizers, involvement of local government bodies particularly UPs and UZPs in fertilizer governance, responsiveness of fertilizer providers, coordination among concerned departments or persons and monitoring of fertilizer marketing might provide a self driven marketing system of this very important input of Boro production which ultimately help to reduce the cost of production and ensure better governance. Governance issues require looking into the capacity building of the farmers through continuous training and dissemination of knowledge through DAE personnel. The DAE may also require building their capacity to carry out the function. In the existing technology efficient and effective input management can produce higher yield. Government may and should strive for innovative technologies in future. For the time being, improvement in

local level governance for input marketing like urea government can increase productivity in Boro, reduce cost of production, and ensure accountability of the marketing system through people's participation.

Recommendations

1. Create an environment of involving stakeholders in the need assessment of fertilizer at the union level. Local UP can play an important role through adopting initiatives and reviewing the need assessment of fertilizers with the participation of farmers, local cooperative leaders, elected representatives and other stakeholders. This can reduce the risk of excess assessment of urea fertilizer.
2. The need assessment for urea should be done at the field level. Plot to plot assessment, and preparation of a data base at the union level should be considered. The technical information that the data base may examine by experts. The process will take a longer time, and DAE may undertake a special program for the task. Whenever the data base is completed, necessary adjustment can be done every year very quickly. This will also accommodate the people's representations role and responsibilities in the assessment process.
3. Upazila Parishad as a local government institution should be entrusted with the responsibility of finalizing the demand of urea of the upazila. Upazila Parishad may discuss the issue at a special meeting that may also have representative from the upazila fertilizer dealers association of the concerned Upazila.
4. The present dealer appointment system (one dealer for one union) may be recruited to explore the possibilities to appoint dealer in accordance with the demand of urea in a particular upazila.
5. The dealers should be made accountable to a closer authority and hence there accountability may be ensured through the Upazila Parishad.
6. For efficient supervision and monitoring of the marketing channel, the Union Parishads may be considered as the most convenient institution for their proximity to the customers and responsiveness of their needs. The existing monitoring system through the administrative machinery may continue side-by-side for the time being, to make it more effective.
7. The government can provide policy administrative and technical support to the local government for their capacity building to undertake the responsibilities.
8. Under all circumstances, the need assessment for fertilizer in general and for urea in particular, will have to be done by the DAE officials. Therefore, their capacity building for performing the job

is of crucial importance. Through regular training modern techniques and technologies, their capacity will be increased over the time.

9. To increase the capacity of the dealers as well as for their motivation, regular orientation and awareness building courses may be arranged either through the DAE or through the Upazila Parishads. Regular sensitization of the dealers may yield better services from them.
10. Farmers are the ultimate beneficiary or the worst victim of the fertilizer marketing. They are also the demand creator and the end user. Therefore, their knowledge, skill and attitude towards efficient and economic use of urea matter the most. They need regular training on urea as well as non-urea fertilizer application, their recommended doses, application procedure and training etc. that enhance their capacity to encourage and optimize rice production.
11. Side by side yearly planning, midterm need assessment practices may be undertaken for urea related issues
12. The issue of equal security deposit of the dealer may be reviewed and this can be refixed proportionately according to the urea requirement of a particular upazila, so that the cost of doing business is rationalized.

References

Finance Division (2010), *Bangladesh Economic Review: 2011*. Dhaka: GoB, Ministry of Finance

Basak, Jayanta Kumar (n d). Fertilizer Requirement for Boro Rice Production in Bangladesh.

Dhaka, Unnayan Onneshan-The Innovators (unpublished)

BARC (2005). *Fertilizer Recommendation Guide-2005*. Dhaka. Farmgate.

Siddiqui, Kamal (2008). *Local Governance in Bangladesh Leading Issues and Major Challenges.* The University Press Ltd. Dhaka.

World Bank (1996). The *Governance: The World Bank Experience.* World Bank, Washington, DC

6. Can 'Coproduction' Address Governance Gaps? Recognizing Unrecognized Practices in Accessing WATSAN Services in Peri-Urban Kolkata

Jenia Mukherjee

Abstract

The world appears to be on track to halve the number of people without access to safe clean water. However, in the urban Global South, this success masks regional and local inequalities and this is particularly acute in the growing peripheries or peri-urban fringes of existing cities. These areas are marked by high levels of inequality where the marginal people lack access to basic infrastructural amenities like piped drinking water supply and sanitation. Water supply and sanitation (WATSAN) services in these areas are characterized by lack of public policy-driven initiatives and there now seems to be widespread agreement that in developing countries the state alone will be unable to meet the internationally agreed targets for reducing the number of urban dwellers with no access to these services. On the other hand, recent attempts to involve private investors in this sector have not yielded the desired results of expanding network coverage to low-income urban and peri-urban settlements which are regarded as less profitable than wealthier and more central areas of cities

Within this context, the study emphasizes on building upon innovative planning and governance interventions by conceptualizing peri-urban areas not only as regions marked by high levels of inequality but also active experimentation in new ways to fill in provision gaps. It moves beyond dichotomous public-private debates to explore and recognize the potential of alternative needs-driven WATSAN arrangements for and by the peri-urban poor. Along with an emphasis on understanding and documentation of needs-driven initiatives from below, the paper also explores if WATSAN governance gap can be addressed by abridging (or coproducing) community-led efforts with those of the state not just to fill provision gaps but also to make it operational at scales, while integrating watershed management and activating citizens' rights and entitlements. It inquires if 'coproduction' can be considered as the major innovative strategic intervention towards new configurations of WATSAN governance. The theoretical framework of the paper is based upon thorough empirical research findings in peri-urban parts of eastern Kolkata.

Keywords: coproduction, WATSAN, water supply, sanitation, peri-urban, East Kolkata Wetlands, Kolkata

Introduction

The world appears to be on track to halve the number of people without access to safe clean water. But in the urban Global South, this success masks regional and local inequalities and this is particularly acute in the growing peripheries or 'peri-urban' fringes of existing cities. Rapid urbanisation or urban sprawl today in the Third World is marked by numerous problems and challenges including the burgeoning slums and squatter settlements; lack of citywide infrastructure such as housing, health, sanitation, privatisation and commercialisation of infrastructure; conversion of ecosystem resources affecting the livelihood opportunities of ecologically dependent marginal communities; and the changing nature of the rural–urban divide leading to formulation of 'peri-urban' in urban and regional planning discourses (Mukherjee, 2015). 'Peri-urban interface' (PUI) can be conceptualised 'as a specific context where both rural and urban features co-exist, in physical, environmental, social, economic and institutional terms' (Allen, 2010, 28). It is estimated that approximately 45% of the 1.4 billion people who will join the world urban population by 2020 will live in peri-urbanizing areas (Webster 2004). These areas are marked by high levels of inequality where the marginal people lack access to basic infrastructural amenities like piped drinking water supply and sanitation (WATSAN). Here, WATSAN characterized by uncertain dynamics, interlocking social, technological and ecological or hydrological dimensions of water and sanitation. Moreover, the lack of formal, public utilities can be explained by overlapping jurisdictions in the PUI along with poor clarity and coordination of management responsibilities (Allen, 2003, 2010).

There now seems to be widespread agreement that in developing countries the state alone will be unable to meet the internationally agreed targets for reducing the number of urban dwellers with no access to clean water. This is partly a legacy of decades of supply-led engineering approaches with high operating costs and under-utilized investment, unrealistically high standards of per capita service to formal urban areas and a general disregard for the needs of unregulated or 'illegal' urban and peri-urban settlements (Allen, 2010). Often the infrastructure costs of extending a water line and sinking in new pipes are much more expensive than installing a new system all together (Marshall et al., 2009). On the other hand, recent attempts to involve private investors in water supply and management have not yielded the

desired results of expanding network coverage to low-income urban and peri-urban settlements which are regarded as less profitable than wealthier and more central areas of cities (Cook & Kirkpatrick, 1988; Johnstone & Wood, 2001).

While publicly or privately operated policy-driven utilities fail to serve the majority of the peri-urban poor, the latter seems to rely mainly on a wide spectrum of needs-driven and demand-driven practices which often remain invisible and hence unrecognized to policy makers and lack formal support strategies and mechanisms (Allen et al., 2006). Again, various actors and stakeholders from the state, private agencies and consumers engage together to ‘coproduce’ services. The concept of ‘coproduction’ has found strong ground recently to help us avoid binary and normative categorisations surrounding ‘public’ and ‘private’ as distinct entities (Ostrom, 1996). Coproduction describes ‘a process where hybrid service provision modalities are produced as a result of the articulation of socio-political, economic, biophysical and infrastructural drivers whose interaction constitutes new practices, thereby producing new meaning’ (Alhers et al., 2014, 2). It is an important conceptual tool to capture the spectrum of practices and arrangements through which the peri-urban poor access basic services’ (Allen, 2010, 29) including WATSAN. The form, nature of and modalities involved in the coproduction of services vary according to variegated specific contexts. The paper asserts the need and importance of identifying and recognizing unrecognized and neglected networks and explores the presence, potential and challenges of coproduction by capturing the wide spectrum of hybrid practices and arrangements in the hybrid land (water)scape of peri-urban Kolkata.

Kolkata’s Peri-Urban Interface: Wetlands on the East

The peri-urban interface (PUI) in the eastern part of Kolkata is dotted with 264 waste water fisheries, agrarian lands and waste-fed vegetable farms that together constitute a hybrid land (water)scape. This is popularly known as the East Kolkata Wetlands. [1]

The sustenance of Kolkata heavily depends upon its interaction with its PUI (Mukherjee 2015a). The city does not have any separate sewage treatment plant. The EKW and Dhapa landfill area absorb 750 million litres (approximately) of waste water and 2,500 metric tonnes of waste generated by the city per day and received by the canals. It is

1 The nomenclature owes to Dhrubajyoti Ghosh, an environmental engineer who first discovered and documented the resource recovery features of the landscape.

the world's largest resource recycling ecosystem, fully managed by local inhabitants using inter-generational knowledge. Low-cost, traditional and indigenous recycling practices undertaken by fishermen and farmers residing in the area have paved the way for three major eco-environmental practices: wastewater fisheries, effluence-irrigated paddy cultivation, and vegetable farming on garbage substrates (Table 1). The EKW not only treats the waste water and waste at minimum cost but also generates employment opportunities and provides livelihood to around 1,00,000 people living in the core and buffer zones and flocking to *Dhapa* as daily labourers. The sustainable flows between Kolkata and its PUI is an example of the mutually – reinforcing relationship between the city and its wider ecological infrastructures (Mukherjee, 2015a, 2015) (Figure 1).

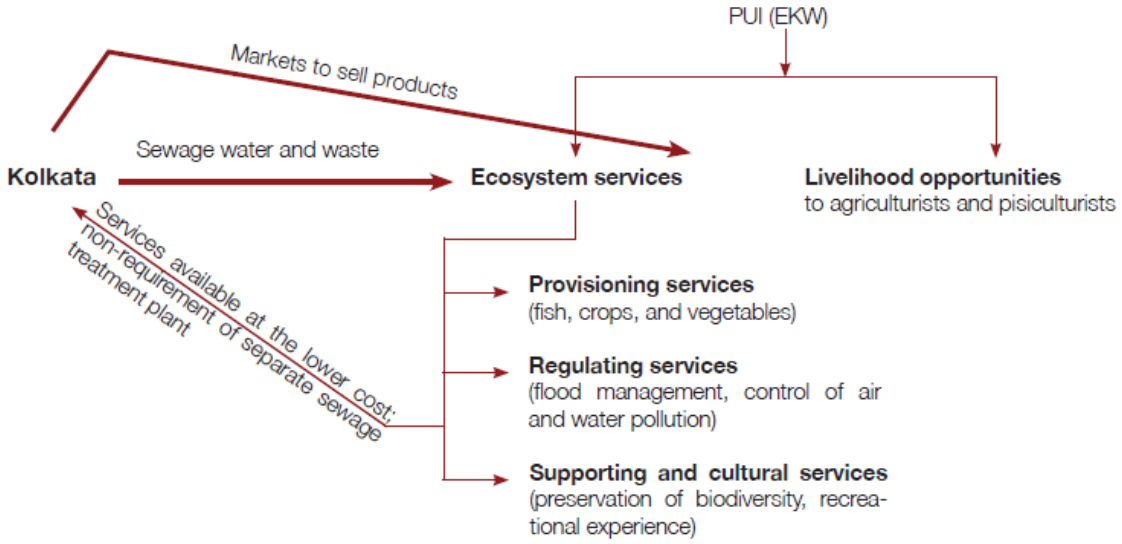


Figure 1: Sustainable flows between Kolkata and its peri-urban interface.

Source: Mukherjee, 2015, 2015a

Land use	Area
Substantially Water Body-oriented Area	5852.14 Hectares
Agricultural Area	4718.56 Hectares
Productive Farming Area	602.78 Hectares
Urban/Rural Settlements	1326.52 Hectares (91.53 ha. Urban +1234.99 ha. Rural)
Total Area	12500.00 Hectares

Table 1: Land use status in EKW

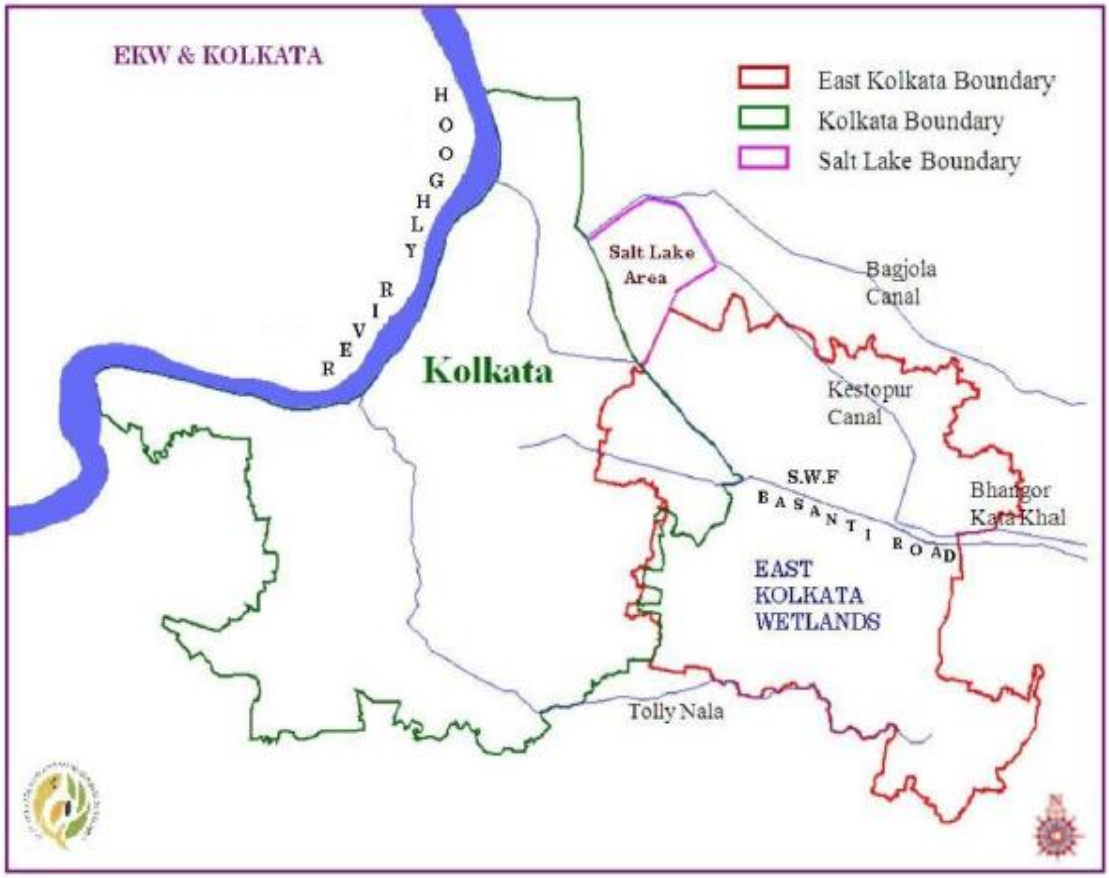
Source: *Kundu et al., 2008, 869*

The evolution of this scape owes back to colonial history and the British project of Kolkata’s urbanization (Mukherjee, 2015). Kolkata’s natural ecology, with the Hooghly River on the west, the saltwater marshes on the east, and the Ganges and her numerous tributaries and distributaries intersecting the whole area, played a key role in the selection of the city as the seat of the imperial capital (Mukherjee, 2009–10). Urbanization occurred in parallel with canal construction and marsh reclamation. The colonial history of excavation of canals (which finally evolved into the city’s Eastern Canal System; Inglis, 1909) and reclamation of marshes offers a unique insight into the growth of an expanding city. While the system emerged to make space for the colonial motive of interconnecting Kolkata with her hinterland, ensuring an unobstructed flow of raw materials and commodities to the city and the port, exploitation of economic opportunities was the most important factor behind Kolkata’s expansion as one of India’s largest urban centres. Inevitably, how to deal with the drainage and sewerage problem for the gradually expanding city became a major challenge. The Eastern Canal System (Table 2), along with some additional cuts and excavations (which were then integrated into it), was built to drain the sewage into the saltwater marshes that existed since historical times (Chattopadhyay, 1990; Mukherjee, 2009-10). An underground drainage system for disposing of sewage and stormwater through a combined drainage system of stormwater flow (SWF) and dry weather flow (DWF) canals into the saltwater swamps, which were then finally connected to the Bay of Bengal through the Bidyadhari River was designed by the then sanitary engineer William Clark and completed by 1884. When the Bidyadhari River became absolutely defunct (due to natural reasons and also constant excavation and re-excavation of canals that speeded up the process of silt deposition on the river bed) and was officially declared dead for both drainage and navigation in 1928, the Kulti Outfall Scheme was executed and commissioned in 1943. This led to a gradual transformation in the aquatic environment of the area from saline to non-saline; from saltwater marshes to sewage-fed freshwater wetlands. The eastern marshes were saline in nature, as the Bidyadhari River carried saline water from the Bay of Bengal and spilled over the low-lying area. The silting-up of the Bidyadhari River caused a decrease in the inflow of saline water. Moreover, with the decay of the river, sewage and stormwater came to be diverted into the saltwater lakes through canals, turning them into freshwater lakes. When the Kulti Outfall Scheme was implemented, an

adequate water-head was raised for supplying sewage to most of these fishponds by gravity, which resulted in the extension of wastewater fishponds further east and south-east for about 8,000 hectares. The EKW lies between the levee of the River Hooghly on the west and the Kulti River on the east, and is distributed nearly equally between the two sides of the DWF and SWF channels that finally reach the river (Ghosh, 2005) (Map 1). The EKW evolved as an output and input produced and required by the city; it developed as the space of informal, 'untamed' practices by marginal peri-urban fishing and farming communities (Mukherjee, 2015).

Name of the excavated canal	Year of execution
Beleghata Canal	1810
Circular Canal	1831
New Cut Canal	1859
Bhangar Canal (canalized)	1897
Krishnapur Canal	1910

Table 2: Eastern Canal System
Source: Inglis, 1909



Map 1: The Location of EKW
Source: *http://www.ekwma.com (date of access: 27.11.2015)*

WATSAN scenario: Examining policy-driven and needs-driven arrangements

The city of Kolkata is often described as 'triple-blessed': possessing a river for drinking water, another to dispose of waste, and the wetlands between to treat its sewage and produce its food (Banerjee & Chaudhuri, 2012). Yet, despite these rich advantages, significant disparities exist across the growing population of 14.38 million of Kolkata Metropolitan Area (KMA) — and particularly in relation to the access to and control over water and sanitation services (Census, 2011). Two agencies are jointly responsible for water supply and sanitation of Kolkata: Kolkata Municipal Corporation (KMC) and Kolkata Municipal Water and Sanitation Agency (KMWSA). While the KMC is in charge of water supply to all the wards within KMC, KMWSA covers the rest of the metropolitan area. KMC officials claim to cover 85% of the population by piped supply and 50–55% by sewerage network. [2] The recently published Technical Assistance Consultant's Report of Asian Development Bank entitled India: Preparing for *Kolkata Environmental Improvement Project Phase II* claims that the municipal piped water supply system covers almost 92% of the KMC population, the current coverage being higher than the national average of 81% but 8% short of the 100% national target benchmark. However, the water supply service level is distinctly different for the various water supply zones – respectively supplied from Palta, Garden Reach, Jorabagan and Watgaunge Water Treatment Plants or by ground water supply (Map 2). Similarly, the sewerage and drainage service level in the central city area is distinctly different in the outer areas (ADB, 2012). Though water is provided free of charge by the municipality, this piped coverage is disproportionately lower (and almost non-existent) in the peri-urban areas of the city. Here, lower-income communities residing in informal neighbourhoods are instead reliant upon groundwater extraction of poor quality, or the use of water vendors that costs between rupees five and rupees 20 for a jar of 20 litres (0.08 - 0.4 USD approximately).

[2] Series of interviews were conducted with officials of KMC and KMWSA between December 2014 and February 2015 as a part of the project.

Map 2: Major WTPs and STPs

Source: *Banerjee and Chaudhuri, 2012, 390*

This unequal distribution of services is perhaps nowhere more evident than in the south eastern peri-urban interface (PUI) of the city, known as the East Kolkata Wetlands (EKW). Here, the vast majority of residents lack access to filtered public piped water supply and instead rely upon a number of other policy-driven and mostly needs-driven and demands-driven arrangements ranging from purchasing water from municipal tankers, private vendors, and NGO-supported community drinking project (water treatment plant) (at lower prices than vendors), or for the poorest households to collecting water from the *bheris* (Figure 2; Annexure 1). [3]

[3] The findings are based on field studies conducted in the three selected areas of EKW: Bidhannagar (ward no. 17), Bantala and Dhapa as a part of the project.

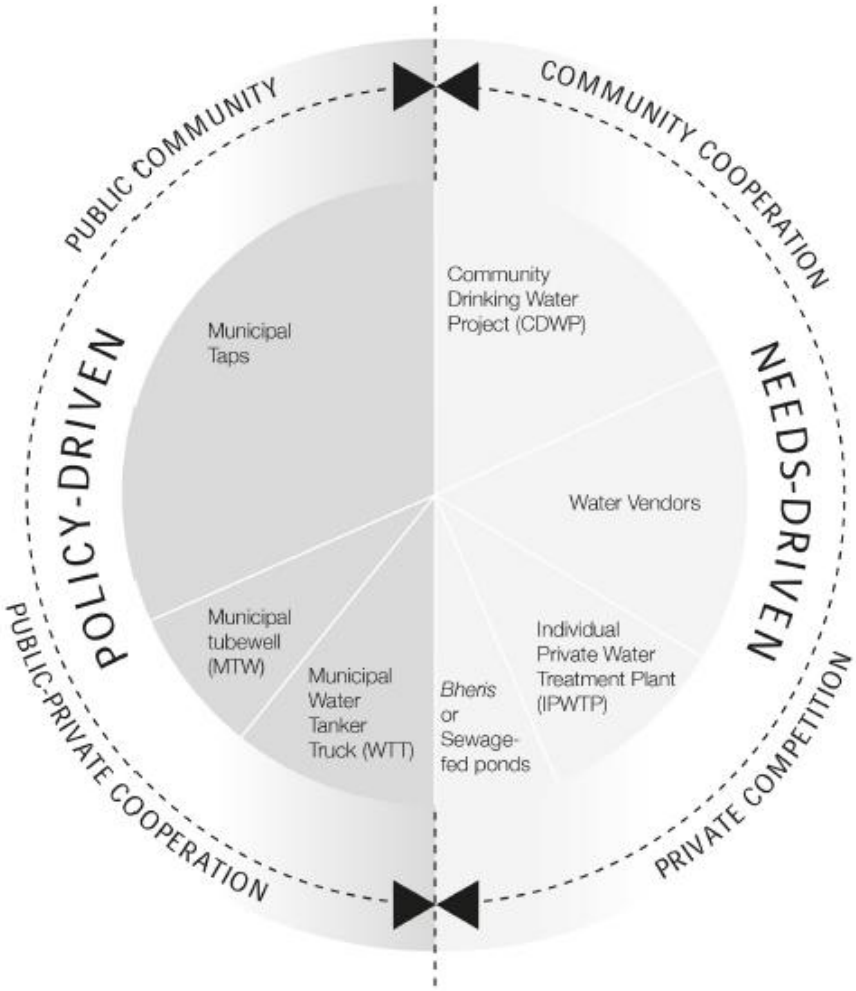


Figure 2: Water practices in peri-urban EKW

Source: *Mukherjee & Ghosh, 12*

So far as sanitation is concerned, 50% of Kolkata's population and 55% of the KMC area is covered by sewerage network measuring 1,610 km, and consisting of 1,430 km of piped sewers and 180 km of brick sewer line. The city has no sewage treatment plants (STPs) within municipal boundaries. There are three small plants located outside the municipal limits at Bangur, Garden Reach and BaghaJatin (Map 2) with little capacity of 45 mld, 48 mld and 2 mld respectively. The EKW serves as the only and major natural recycling infrastructure, relying upon low-cost techniques adopted and practised by poor farmers and fishermen following a complex mechanism (Ghosh, 1991; 1997; Kundu et al., 2008; Carlisle 2013; Mukherjee, 2015). The city drains the bulk, over 75% of its rainwater and sewage through channels (functioning since the British period) into the Kulti River (which acts as the major outfall channel) through the EKW. However, despite this significant contribution to the overall 'environmental sanitation' of the city, at the household level residents of EKW lack adequate access to sanitation options. Here, individual sanitation practices vary from the

use of single and double pit latrines connected to septic tanks, to makeshift community sanitation systems inter-connected to municipal canals (CSIMC), to open defecation (Figure 3). While these options remain limited, cooperative fisheries operating in the area are now highly discouraging open defecation and CSIMC practices as this ultimately degrades the *bheris.* Though fish in the *bheris* consume fecal matter, recently cooperative members have become aware that this may reduce the prices that the fish are able to generate in the Kolkata market. Some cooperative fisheries like the *Baro Chaynavi* (with 67 members) in Bidhannagar ward no. 17 have begun to allocate funds and/or loans to their own members with zero interest rates for constructing pit latrines in their respective households. 60 out of 67 members have now pit latrines which they have constructed through support from the cooperative.

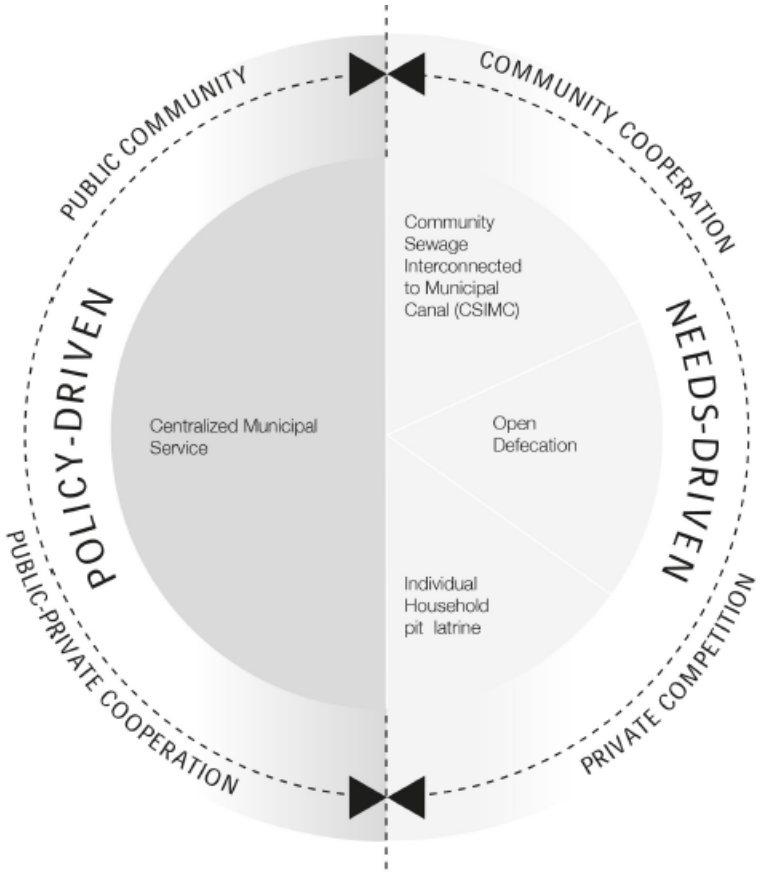


Figure 3: Sanitation practices in peri-urban EKW

Source: Mukherjee & Ghosh, 2015, 15

Coproduced practices: Challenges and opportunities

Coproduction i.e. the participation and involvement of more than one organization or stakeholder is present in the delivery of service provisions and more strongly and naturally embedded in the waste water and waste recovery practices carried out in EKW. Coproduced

waste water management (CWM) practices in EKW must be contextualized in relation to the wider socio-political forces and legal restructuring which occurred in West Bengal. The *West Bengal Estates Acquisition Act* and *West Bengal Land Reforms Act* were implemented in 1953 and 1955 respectively, to abolish *zamindari* (aristocrat) ownership of land. However, these acts contained exemptions covering tea gardens, orchards and fisheries, and as such individual fish farms in peri-urban Kolkata largely remained intact until recently. In 1995, the *Land Reforms Amendment Act* was passed, at which time the fisheries were covered. This led to the cooperativisation of a number of *bheris*, when private holdings were vested from their owners by the state and transferred to fisheries groups and cooperatives. This led to the decline of large privately owned fisheries; however a number of smaller, household-managed ponds continued to exist. At this time, some of the large fisheries were also directly acquired by the government, through the State Fisheries Development Corporation.

A wide range of dynamic CWM practices involving multi-level stakeholders can be identified in EKW impacting both waste water and waste arrangements. Fishermen and farmers depend on the municipal supply of waste water and solid waste for pisicultural and agricultural activities. Fish production in the *bheris* depends on a number of factors including coordination among various stakeholders ranging from government authorities like Kolkata Municipal Development Authority (KMDA), Kolkata Municipal Corporation (KMC), Department of Irrigation and Waterways (DoIW), Dept. of Environment (DoE), Dept. of Fisheries (DoF) and West Bengal Pollution Control Board (WBPCB) to fish producers associations and fishermen and women (table 2). Since the last one and half decade, it also include external supporting agencies and programmes such as the Asian Development Bank-funded *Kolkata Environmental Improvement Investment Programme* (KEIIP). Vegetables are cultivated in the adjoining dumping ground called *Dhapa* which is owned by the KMC and worked upon by farmers as tenants or sub-tenants, responsible for the entirety of the farming operations and marketing. At present some 325 ha of garbage farms are located within the EKW, and particularly in and around the Dhapa area. There are around 3000 farm plots in Dhapa, ranging in size from 5-30 cottahs (1 cottah = 720 sq. ft). Farmers produce 11-16 different varieties of crops and vegetables (Table 5), with sewage water from the *bheris* used to irrigate the farms.

Stakeholders	Roles and Responsibilities
KMDA	Operation and maintenance of drainage
KMC	Urban authority for the city, administers part of the EKW and has significant land ownership
DoIW	Management of the sewage canals that carry waste water to the wetlands and associated sluice gates
DoE	Formulation of the wetlands management plan
WBPCB	Monitors pollution and the quality of water discharged from Kolkata
KEIP	Restoration of canals and development of infrastructure that would impact the EKW
DoF	Manages and runs some of the largest fisheries; provides support to the cooperative fisheries and advice on technical aspects of fish production
Fish Producers' Association	Association of fishermen employed in the bheris; plays an important role in determining wage rates along with other social issues
Fishermen and women	Provide skill and labour in fish production; further hierarchies are noted within this group

Table 2: Roles and responsibilities of multi-level stakeholders

Source: *Mukherjee & Ghosh, 2015, 18*

Around 8,500 people are employed in the 264 bheries that make up the waste water fisheries in EKW. A further 4,000 people are involved in agrarian activities spanning across the eastern wards of the KMC, ward no. 17 of the BMC, and some gram panchayats. Though there is no estimate on the exact number of waste pickers from the *Dhapa* landfill, it can be roughly assumed that around 25,000 people are engaged in this occupation.

Apart from permanent agricultural, horticultural and fish farm labourers or harvesters, a number of labourers are employed on a contractual basis especially during peak seasons. The fishery workers range from fish harvesters (early morning fishermen completing 3/4 hrs of work per day during harvest time), carriers (men and women transporting goods to the markets, carrying 12-20 kg of fish, and completing 3/4 hrs of work per day during harvest time), guards (men keeping watch for poachers at night, 8-10 hrs of work every day) and weeding labourers (men and women responsible for cleaning weeds and plants in the bheris, completing 6 hrs of work every day). There is variation in both wages and tenurial security for fishermen and women across the three categories of fisheries, determined primarily by their ownership patterns: government, private and cooperatives (Figure 3).

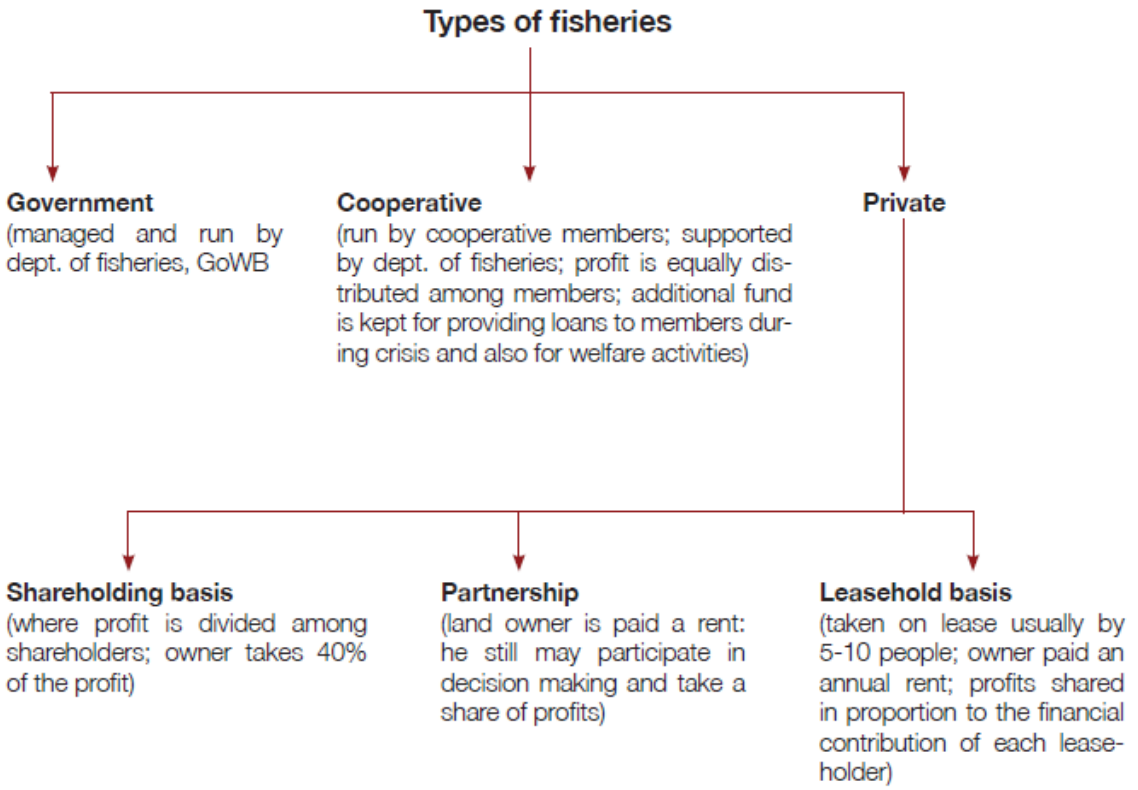


Figure 3: Sanitation practices in peri-urban EKW
Source: *Mukherjee & Ghosh, p. 19*

In recent years a number of threats have been experienced to the detriment of the ecological and socio-economic fabric of the EKW. Cooperative fisheries are increasingly becoming privatized, selling *bheris* to commercial companies operating in the region. This has been particularly problematic for the fishermen making a living in the EKW, who generally receive lower wages from private companies, and suffer from a greater level of job insecurity. Unlike fish farms managed under the cooperative model, private farms focus primarily on the generation of profits and do not engage in the distributive activities of the cooperatives including allocation of funds to members for welfare measures such as the construction of pit latrines, or other community and household goods.

This area has undergone tremendous land-use change due to the rapid eastward sprawl of Kolkata, being one of the lucrative space for real estate speculation of the neoliberal times (Mukherjee, 2015, 2015a; Bose, 2014, 2015). 'It is here, therefore, that the most striking changes can be seen. Yet it is remarkable not only that the wetlands has now been invaded by gleaming new office towers, theme parks, golf courses and shopping malls but also for the manner in which this transformation is occurring, as well as its broader purpose' (Bose, 2014, 136).

In recent times there has been an escalating conflict amongst the KMC, KMDA, DoIW and Fish Producers Association over the operation of the lock-gates on the Bantala sewage canal, which controls the flow and supply of waste water into the *bheris*. Traditionally, the lock gate control at Bantala, which controls the distribution of sewage, should be maintained at a maximum GTS (Grand Trigonometric Survey) of 9 points, which is lowered to 4.5 during the monsoon season. This arrangement ensures that there is an appropriate amount of sewage water flowing into the *bheris* during peak fish cultivation season. At the Bantala point however, the irrigation department has been diverting water into the Kulti River after an accumulation of just 7.5 rather than the regulated 9. This has generated two significant problems. Firstly, it has impeded the flow of nutrients to the fish in the sewage fed ponds, impacting the livelihoods of the fishermen working in the *bheris*. Secondly, the water flowing into the Kulti River has been untreated, affecting the ecology of the river as well as the health and well-being of more than 20,000 people residing in the Sundarbans (Mukherjee & Ghosh, 2015).

Conclusion

The mutuality between the livelihoods strategies of communities living in the EKW and the ecological sustainability of the city represents a key mode of co-production at work in peri-urban Kolkata. Moreover, these practices, while holding a critical impact at the city-scale, have also offered hints for alternate modes of cooperation which could address some of the everyday challenges of water and sanitation for residents of the EKW. For instance, cooperative fisheries in the Bidhannagar area have played an important redistributive function amongst their members, and have been particularly active in supporting educational and financial investments for safer sanitation strategies at the household level.

There is a lack of understanding of the presence and potential of the roles, responsibilities and functioning of multi-level stakeholders for (co)producing collective benefit: ensuring treatment of sewerage at the least cost for municipal authorities, production of fish, crops and vegetables from waste and effluent for fishermen and women and most affordable prices for these edible products for inhabitants of Kolkata (Fig. 1). Again, coproduction is not symmetrical and collaborative but instead tensed and riddled with power asymmetries and diverse political aspirations and there are contestations over which water (and also waste water) flows where, at what pressure and facilitated by which infrastructure (Ahlers et al. 2014) and who has better control

over agency (for example the dispute over waste water flows and the control over the Bantala lock gate).

With the losing out of the wetlands to real-estate hubs, the mutually reinforcing relationship between the city and the PUI is transforming into a truncated relationship. The role of KEIP seems to be facilitating foreign funded, state led and bourgeoisie supported environmentalism (Bose, 2014, 2015). Within this context, a nuanced understanding and recognition of the value of coproduced networks might generate the conditions and opportunities to foster greater dialogue and interdependence among multi-level stakeholders to protect the age-old ecosystem of Kolkata. Coproduction as a collaborative venture, and built upon the notion and persistence of co-responsibility can be an effective tool not only to deliver WATSAN service provisions but also address some of the major challenges leading to rapid and rampant conversions in Kolkata’s PUI.

References

Ahlers, R., Cleaver, F., Rusca, M. & Schwartz, K. (2014). Informal space in the urban waterscape: Disaggregation and co-production of water services. *Water Alternatives,* 7(1), 1-14.

Allen, A. (2010). Neither rural nor urban: service delivery options that work for the peri-urban poor. In M. Khurian & P. McCarney (Eds.), *Peri-urban water and sanitation services: policy, planning and method*. NY: Springer.

Allen, A. (2003). Environmental planning and management of the peri-urban interface: perspectives on an emerging field. *Environment & Urbanization*, 15, 135–148.doi:10.1177/095624780301500103

Allen, A., Davila, J. & Hofmann, P. (2006). *Governance of water and sanitation for the peri-urban poor: A framework for understanding and action in metropolitan regions*. London: Development Planning Unit, UCL.

Asian Development Bank. (2012). *India: Preparing for Kolkata Environmental Improvement Project Phase II*. Technical Assistance Consultant’s Report. Available from:

http://www.adb.org/sites/default/files/project-document/78767/42266-012-ind-tacr-01.pdf [date of access: Nov. 12, 2015].

Banerjee, S. & Chaudhuri J. (2012). *Excreta Matters: 71 Cities – A Survey.* New Delhi: Centre for Science and Environment.

Bose, P.S. (2015). *Urban Development in India: Global Indians in the Remaking of Kolkata.* Routledge, 2015.

Bose, P.S. (2014). Bourgeois environmentalism, leftist development, and neoliberal urbanism in the city of joy In T. Samara, H. Shenjing & G. Chen (Eds.), *Locating Right to the City in the Global South.* UK and NY: Routledge 2014.

Carlisle, S. (2013). *Productive filtration: Living system infrastructure in Calcutta.’ Landscape Urbanism.* Available from:

http://landscapeurbanism.com/article/productive-filtration-living-system-infrastructure-in-calcutta/ [date of access: Sept. 15, 2013].

Chattopadhyay, H. (1990). *From marsh to township east of Kolkata: A tale of fresh water lake and salt lake township*. Kolkata: K.P. Bagchi & Company.

Cook, P. & Kirkpatrick C. (1991). *Privatisation in less developed countries*. Brighton: Wheatsheaf.

EKWMA and Wetlands International. 2010. *East Kolkata Wetlands Newsletter*. New Delhi: The Print Shop. Available from: http://www.wetlands.org. [date of access: July 8, 2014].

Ghosh, D. (2005). Ecology and traditional wetland practice: Lessons from wastewater utilisation in the East Calcutta Wetlands. Kolkata: Worldview.

Ghosh, D. (1991). Ecosystem approach to low-cost sanitation in India, where the people know better. *Proceedings of the International Conference on Ecological Engineering for Wastewater Treatment.* Sweden.

Ghosh D. (1997). Environmental Agenda for Calcutta: Conserving the Water Regime for an Ecologically Subsidized City. *Banabithi*. Department of Environment and Forests. Government of West Bengal.

Johnstone, N. & Wood L. (2001). *Private firms and public water: Realising social and environmental objectives in development countries.* UK and Northampton: Cheltenham.

Kundu, N., Pal, M. & Saha, S. (2008). East Kolkata Wetlands: A resource recovery system through productive activities [Internet]; *Proceedings of Taal 2007: the 12th World Lake Conference.* 868–881. [date of access: July 8, 2014].

Marshall, F., Waldman, L., MacGregor, H., Mehta, L. and Randhawa, P. (2009). *On the Edge of Sustainability: Perspectives on Peri-urban Dynamics.* STEPS Working Paper 35. Brighton: STEPS Centre.

Mukherjee, J. (2015). Beyond the urban: Rethinking urban ecology using Kolkata as a case study. *International Journal of Urban Sustainable Development.* 7 (1), 1-16. doi: 10.1080/19463138.2015.1011160

Mukherjee, J. (2015a). Sustainable flows between Kolkata and her peri-urban interface. In A. Allen, A. Lampis & M. Swilling (Eds.), *Untamed Urbanisms.* London: Routledge.

Mukherjee, J. (2009–10). The victory of site over situation: Exploring ecological dynamics behind Calcutta's selection as the seat of colonial capital. *Quarterly Review of Historical Studies.* 49, 40–55.

Mukherjee, J. & Ghosh, A. (2015). Water Justice City Profile: Kolkata, India. *Translocal Learning for Water Justice: Peri-Urban Pathways in India, Tanzania and Bolivia*. London: UCL Bartlett Development Planning Unit.

Ostrom, E. (1996). Crossing the Great Divide: Coproduction, Synergy, and Development, *World Development.* 24(6), 1073-1087. doi: 10.1016/0305-750X(96)00023-X

7. Patron-Clientelism and Community Participation: Lessons from an Urban Poverty Alleviation Project in Bangladesh

Parvaz Azharul Huq

Abstract

This paper tries to explore the logic of patronage and its manifestation in a community-driven development project in two urban poor settlements in Bangladesh. It is seen from the case study that long-term patron-client relationship is more dominant than short-term brokerage type relationship due to the existing typical socio-political culture in Bangladesh. The level of the dominance of patron-client relationship mainly depends on community specific socio-political context. This paper opines that the presence of multi-political parties' influence in a community leads to the lower dominance of patron-client relationship, which in turn contributes to more meaningful participation.

Introduction

Various recent writings reveal the existence and continuation of patron-client relationships both in the northern and southern societies, and both in urban and rural settings (Auyero, Lapegna, & Poma, 2009; Chandra, 2007; Cox, 2009; Kitscheld & Wilkinson, 2007). Many, for example, Chandra (2007), and Kitscheld and Wilkinson (2007) perceive many of the relatively established democracies in the south as 'patronage democracies', where politics is critical for the survival of the poor since politics is a more effective channel than administrative ones for getting scarce resources and services. De Wit and Berner (2009) argue that the urban poor in developing countries are predominantly dependent on patronage-like relations – a situation that has severe implications for organising the poor and making them capable for collective action.

However, academics and development practitioners seldom consider how patron–client relationships may influence not only within the intrigue of formal political systems but also in the reception of and participation in development programs. Community-development programmes tend to be seen as altruistic, while distribution of resources by politicians is seen as self-serving and venal. Cox (2009) argues that clientelism shapes not only expectations of particularistic

returns but people's very ability to engage with 'participatory' processes. In most of the cases the issue of enhancing the poor people's voice in the governance process through building horizontal relationship doesn't work and it works less well the poorer and more dependent people are. De Wit and Berner (2009) point out some issues to scrutiny while assessing the role of 'community based organizations' (CBOs) in representing a community in a participatory process. Firstly, who are actually the members and do they include all ethnic, gender, political and religious groups in a community? Secondly, the CBO leadership should also be examined to see if it is more self-interested than community welfare oriented.

The paper focuses on a United Nations Development Programme (UNDP) sponsored development project in Bangladesh and endeavours to explore the logic of patronage and its manifestation in a community-driven development project in urban poor settlements in Bangladesh.

Patron-Clientelism and Community Participation

In social sciences, patron-client relationships are one of many types of interpersonal relationship. Scholarship on patron-client relationship has been expanded for more than five decades and has witnessed a recent revival with political studies' increasing focus on 'informal institutions' (Auyero, *et al.*, 2009:2). Although patron-clentelism lost its value with the rise of social capital, Leonard, Brass *et al*. (2010:476) remind us that "The fashionable analytic concept 'social capital' can obscure some of these continuities [changing nature of patronage], so its advantages for other purposes should not displace an attention to patronage as well". They again point out that "…it is not that 'social capital' and research on it are not useful but that political patronage may have a form and endurance in rural areas that are independent of social capital's presence" (Leonard, et al., 2010:476).

Sorauf (1960) defined patronage as "an incentive system—a political currency with which to 'purchase' political activity and political responses" (cited in Bearfield, 2009:65). Patronage is "the informal, personal and face-to-face relationships between actors of unequal status and power that persists over time and involve the exchange of valued resources" (De Wit & Berner, 2009:931). These types of relationships between patron and clients are featured by mutual intimacy, moral and emotional obligation, trust and empathy, the sharing of common 'pure' basic values, and sometimes hierarchical differences. According to Eisenstadt and Roniger (1984) the characteristics of such relationship are (refered by Auyero, *et al*., 2009:4; Dwianto, 1999:163):

- Particularistic: In this relationship actors are involved in terms of their respective personal properties and not in terms of general universal categories.
- Personal: Such relationship is basically based on interpersonal obligation manifested by personal loyalty, reciprocity, and attachment between patrons and clients.
- Voluntary: A person can enter into, or abandon a patron-client relation voluntary.
- Institutionalized: Since the relationship is basically established on an informal understanding between two parties, it is not fully legal or contractual. However, this type of relationship is institutionalized in ritual terms.

Being highly selective, particularistic, hierarchical, bonds of dependence and control, and diffuse, these type of relations exchange two different types of resources and services (Auyero, et al., 2009:4): 'Instrumental' (e.g., economic and political), and 'Sociational' or 'expressive' (e.g., promises of loyalty and solidarity). Therefore, patronage network, based on patron-clientelistic relationships, may be conflicting with some community-based development programmes, because clientilism is generally opposed to the ethos of participatory process (Cox, 2009:964).

The scope for patronage can be explained as a function of a lack of resources or services, access problems to agencies and institutions, and a lack of enforced impersonal rules for the allocation of resources. In urban poor slums in the third world countries, patronage is a dominant factor of distributing public as well as private goods and services. Therefore, it is the main strategy for obtaining scarce resource and services for the poor. The poor usually prefer to establishing or maintaining ongoing contact with local intermediaries and politicians then organising rallies to voice their demands or initiating collective endeavours to meet their needs themselves (De Wit & Berner, 2009). Contacting a chief, leaders or trusted persons for making things done is a tradition—a cultural inducement. According to Auyero, Lapegna *et al.* (2009:5), this is a routine work and therefore, is not limited to material problem solving. Since the poor live in 'destructive uncertainty' they need to rely on vertical patronage relationship. Cutting off patronage relationship is dangerous for future survival of the poor (de Wit & Berner, 2009).

From the writings of various writers it becomes clear that patronage relationship still exists both in rich and poor countries but taking different shape than in the past (Auyero, *et al.*, 2009; De Wit & Berner, 2009; Leonard, *et al.*, 2010; O'Reilly, 2010). One of the changing facets of today's patronage is the instability in relationship between the

patron and client(s). This is mainly because of the competition among today's potential patrons who mainly provide supplementary services in contrast to the survival services provided by the old day's patrons to their clients. Consequently, patronage relationship in poorer countries is gradually taking the form of brokerage. Gradually the relationship between patron and client is becoming fluid and flexible, giving way to an army of brokers and intermediaries who cater to the needs of anyone who contracts them for a fee. Such mediating can be done on an incidental basis, but more often regular patterns develop, depending on locality, price, loyalty and perceived efficacy, which is often related to political affiliation. Thus, permanency in brokerage may develop (De Wit and Berner 2009:932). Considering this new shapes a arrays of new scholarship, for example, Auyero, Lapegna *et al*. (2009) points out, in contrast to the traditional view of patron-client relationship which is contradictory to contentious collective action, clientelist and contentious politics might connect with each other, sometimes overtly, sometimes in more hidden way. And put forward the importance of paying attention to the impact of collective action on clientelist arrangements.

Local Partnership for Poverty Alleviation Project (LPUPAP): Background Information

Local Partnership for Poverty Alleviation (LPUPAP) was one of the largest UNDP sponsored poverty alleviation projects in Bangladesh under the Ministry of Local Government, Rural Development & Cooperatives (MLGRD&C). Municipal/city corporations, together with Local Government Engineering Department (LGED) were the sole implementing agencies of the project. The project was implemented in 11 towns for eight years from 2001 to 2008, and endeavoured to improve the socio-economic and political status of the urban poor through empowering poor communities and building the capacity of local government bodies. Instead of the traditional supply-driven approach, the project claimed to adopt a community-based, bottom-up and demand-driven approach to achieve its development objectives: community groups were formed to identify and prioritize needs, communicate effectively with local government bodies, and participate in designing, implementing and evaluating community level development activities (GHK-International, 2006).

At the community level, there were two types of community groups: the primary group (PG) and the community development committee (CDC). A PG was composed of persons in the community that desired to address a development issue of common interest. The maximum number of PGs in a community was 20, each with 15 to 20 members. If a PG started a savings and credit operation, it was known as savings and credit group (SCG). Every PG had a group leader (GL) and

secretary elected by the group members for two years. Group funds were operated jointly by the GL and secretary. PG members were supposed to meet once a week to discuss various issues, and workout plans to address those issues. On the other hand, a CDC was comprised of the GLs and secretaries of the PGs in a community. CDC chairperson, vice-chairperson, secretary and the treasure were elected by the members of the CDC as office bearers (OB) (but in most of the cases they were selected) for two years (in practice, after being elected/selected once as office bearers, most of them continued their positions till the end of the project). Every CDC had a constitution of its' own and was supposed to receive accreditation from the local authority (municipality/city corporation). CDCs were the focal point for implementation for all development activities and addressing common development issues faced by the entire community. Therefore, CDCs were entrusted with a list of functions, for instance, physical implementation (settlement improvement), water and sanitation, primary health care, gender awareness, environment and solid waste management, literacy campaigns and establishing schools, social and cultural activities, law and order maintenance etc. The project provided two types of funds directly to the CDCs: the community development fund (CDF) for physical infrastructure development and the poverty alleviation fund (PAF) for income generating activities, capacity building and skill development.

Research Methodology and Sources of Data

This paper draws on both primary and secondary data. Primary data was collected through field investigation in 2006 lasting about one month in two LPUPAP communities in Rajshahi City Corporation (RCC) area, situated in the north-west part of Bangladesh. For collecting primary data, interview and participant observation methods were used. Interviews were conducted with 60 community people through a questionnaire with both quantitative and qualitative type questions. At the beginning of the field work, two LPUPAP communities, Baze Kazla (west) and Khulipara, were selected purposefully. Few criteria influenced the selection of these two communities: first, in both communities the project had been working for about five years; second, all the project components were introduced in both communities; third, project officials helped the researchers to identify these communities, where we expected interesting variations in performance. A total of 30 respondents from each community were selected randomly from the LPUPAP group member lists and included 10 group leaders (GLs), 10 general group members (GGMs), and 10 non-participant community members. In addition, semi-structured interviews were also been conducted with the two concerned ward councillors (WCs), two concerned community

development workers (CDWs), and the project coordinator in Rajshahi. Secondary data was collected from various published books, journal articles, unpublished academic thesis papers, various LPUPAP documents and relevant web materials.

A Brief Description of the Two Communities

Baze Kazla (west) was composed of two types of inhabitants holding two different identities. The eastern part of this community was populated by the migrants coming from different parts of the country—normally were known as *Gristho* or *Bengali*. The other part (western part) of this community was populated by the people who were originally migrated from Murshidabad, a district of India, were known as *Mohaldar*. The term *Mohaldar* means fishermen. These people were distinct from the *Bengalis* in terms of cultural practices. During an informal discussion with the researchers regarding various community related issues, one of the inhabitants from *Mohaldar* portion divided up the community by giving stress on 'we' and 'they'. Although identity difference between *Bengalis* and *Mohaldar* was difficult to trace at the surface level, it was powerful and dominant in determining local power structure at the community level. Unlike Ramchandrapur Baze Kazla, Khulipara Mohaldarpara (from this point in this paper this has been termed as Khulipara) was mainly populated by *Mohaldar* people, had been living in that locality since long time. Therefore, the community was relatively homogeneous in terms of ethnical identity.

The total number of household in Baze Kazla (West) was about 500 and the total population was 1968 (543 were children). In Khulipara there were about 370 households with 1968 members (469 were children) and was less densely populated than Baze Kazla (West). The overall socio-economic condition of the inhabitants in both communities was almost the same, and most of them belonged to the poorest of the poor. However, the overall socio-economic condition in Khulipara was found better in comparison to Baze Kazla (West) due to diversified job opportunities since the locality was very close to the city centre (about one kilometer). The entire community of Baze Kazla was under the constant threat of river bank erosion as it was outside the Rajshahi city protection dam. During the field research, inhabitants informed that just fifteen years ago the river bank was almost one and half kilometer away from now where it is. Besides river bank erosion, the community also had to face the plight of flood at regular intervals. On the contrary, Khulipara had relatively better infrastructural facilities. The community was under the City Corporation's water supply coverage. However, the community had severe water logging problem mainly during the rainy season.

From the collected data it was found that 74% of the total residents in Baze Kazla (West) lived below the subsistence level as their monthly household income was less than TK. 3000, with the average household size of 4.73. Although economic condition was relatively better in Khulipara, majority of the households' income (53%) were below than BDT 3000 per month with the average household size of 4.8. In both communities generally men were the main wage earners and women were mainly involved in reproductive activities with few exceptions. Most people were engaged in informal sector activities, like rickshaw pulling, vegetable vending, petty trading, retail fish trading etc. Many of such jobs were seasonal and irregular. However, in Khulipara, majority were somehow related with fish mongering since it was their traditional occupation, and their income was relatively stable as compared to Baze Kazla (west) and it was found that 60% of the total households in Baze Kazla (west) did not have regular income .

The overall literacy rate were 77% and 83% in Baze Kazla (West) and Khulipara respectively. However, about 27% among them can only sign their names in Baze Kazla (West) and the figure was 17% for Khulipara. The lower socio-economic status of the both communities were also visible by seeing the household characteristics. In Baze Kazla (West) about 47% houses were *Kancha*[1] and 47% were *Semi-Pucca*. In contrast, only 7% houses were *Pucca*. Furthermore, about 60% of the total inhabitants of this community lived in rental houses. On the contrary, the relative higher economic condition was also visible by seeing the house condition in Khulipara. About 17% houses were *Pucca*, and 53% were *semi-Pucca*. Majority of the residents (70%) were permanent and lived in their own houses.

Patron-clientelism and Community Participation in the Study Areas

Historically, Bangladeshi society is hierarchical and a considerable power distance between higher and lower classes exists. Although the majority of the population is Muslim, the culture is heavily influenced by the Hindu caste system. In addition, the culture has also been shaped by the colonial heritage, which was principally based on master-slave rapport (Rahman, 2000). Therefore, as Rahmna (2000) argues, one of the manifestations of such hierarchism is the presence of patron-client relationship between the advantaged (patrons) who have control over resources, and the disadvantaged (clients) who always seek their favour to get access to the resources. This type of power relation is also dominant in urban poor communities through the relationship between community leaders (CLs) and the poor. In both communities, under the study, there was the existence of such CLs who

[1] It includes *Jhupri* and *Tin-shed* type houses.

played a crucial role aspatrons for the poor in getting various services from government agencies (i.e. police, power supply department, City Corporation etc.), settling community level disputes, getting access to local elected representatives and getting government relief during floods. The influence of the CLs on the community people's life can be better illustrated by the following Table 1 (field visit, 2006).

Table I: Relationship between Community Members and CLs

Questions (N = 30)	**Baze Kazla (west)**		**Khulipara (n=30)**	
	Yes	**No**	**Yes**	**No**
Has gone to the leaders for solving personal problem?	73%	27%	50%	50%

Question: *Have you ever met anyone of the leaders in your community to solve any of your problems? Please give your answer by saying 'Yes' or No.*

The socio-economic and political profile of these CLs varied enormously. Some were influential due to their family reputation (at least in one case in Baze Kazla), although the majority were mainly influential due to their strong ties with political parties. Unlike Indian slums (De Wit, 2001; Desai, 1995), their leadership was seldom rooted in CBOs. In fact, in these two communities there were no such CBOs of their own representing the entire community. However, there was *'Shomaj'*, an informal body of *Mohaldar*[2] people, in each of these two communities which is mainly responsible for settling internal disputes and arranging for various religious and social festivals. Besides this, there were some women groups formed under various NGOs intervention to run their credit programmes. But, none of such groups were active in other communal affairs.

It was observed that the poor community people were mostly tied with CLs through long-term reciprocal relationship. Every leader had a group of people who were loyal to him and for getting services they used to go to him. This long-term relationship was mainly based on kinship, friendship and political ideology. Besides kinship, the political ideology was also very important because of the prevailing competing political culture in Bangladesh. Generally the whole nation has been mostly divided into two major political parties—Bangladesh Nationalist Party (BNP) and Bangladesh Awami League (AL)[3]—with

[2] The term *Mohaldar* means fishermen who are originally migrated from Murshidabad, a District of India. These people are distinct from the *Bengalis* in terms of cultural practices. In both communities *Mohnaldar* people are marginalized in terms of socio-economic status.

[3] When the field investigation took place in 2006, BNP was the ruling party, and AL was the main opposition party (2001 – 2006).

an ideological and emotional attachment. In this context, it was unlikely that supporters of one party will seek help from a CL who was a supporter of another party. Alternatively, CLs were also reluctant to provide services to those who have different political ideology and attachment, since they usuallyprovide services without getting direct personal monitory benefit. Instead, they use the loyalty in different ways.

The CLs could manage taking benefits of such relationship in various ways. Generally, CLs were the linking agent between ward[4] level politicians (mainly WCs and their lackeys) and the community people. Besides, some had direct link with the city level politicians (for example, with the mayor). These CLs were important to the ward and city level politicians as they (CLs) were in a great help to secure community support in favour of these politicians during local and national elections. Moreover, CLswere the key persons in mobilizing community people for mass political meetings, political precessions, or supplying picketers during *Hartals* (strikes). In exchange of receiving such services from the CLs (clients), the local politicians (patrons) usually supported their power as well as economic basesin many ways, for example: giving money, helping in getting various government contracts, andproviding and facilitating their access to and dominance over various political and social associations. There had been a tendency in both the study communities that leadershipand membership of the PGs and CDCs were mostly held by the CLs and their family members, or by such persons who had a good rapport with the CLs. It become understandable by observing answers given by the respondents in response to the question, "*Do you have any close relation with any of them (community leaders)?*" Whereas 40% of the total respondents (n= 60) answered positively, the figure was about 75% in the case of the office bearers (6 out of 8 office bearers).

Patron-client relationship can also be better understood by the way LPUPAP groups were formed. Most of the group members informed that they heard about the project for the first time from the LPUPAP group leaders/members, which indicates that instead of relying on adequate information sharing among the community people, the project officials mainly depended on the key persons to form groups. One of the OBs described her experience in this way:

[4] Ward is the lowest electoral and administrative unit according to the present urban local government structure in Bangladesh. Accordingly, Rajshai City Corporation is divided into 30 Wards.

> "One day the Ward Commissioner called me upon his office and introduced me to the project worker (CDW). Then she informed me about the project and encouraged me to form a group. He also assured me that in return I will be offered the position of group leader" (field visit, 2006).

It is quite evident that instead of forming the groups first, the project workers mainly identified the key persons in the community with the help of CLs as prescribed by the ward level politicians (mainly the WCs). These key persons then took the initiatives to form PGs and eventually they were offered the position of group leaders; and finally, these PG leaders formed the CDCs.

As a result, it is clear that the selection of group members as well as OBs were heavily influenced by the logic of patron-clientelism, where the local politicians and CLs acted as patrons and the group members as clients. Subsequently, the CDC office bearers also appeared as patrons to the general LPUPAP group members. It was also found that some of the office bearers were using their positions for personal political gain, especially in Baze Kazla (west) where BNP had absolute dominance at the time of field investigation. For example, one of the office bearers in Baze Kazla (west)—who was also the president of the women wing of BNP of the concerned ward and had a good rapport with the concerned pro-BNP WC (had been elected for three terms consecutively)—informed me that she was going to be a candidate in the next local election. She also mentioned that her position in the CDC had given her an opportunity to build good rapport with community people and city level politicians as well. The using of her LPUPAP group leadership position for political purpose became obvious when the researchers went out with her to roam within the community, and when some people demanded a road in their side, she answered that if she wins the local election only then she will allocate budget for that road otherwise not. In this way, project resource distribution was more politicized in Baze Kazla (west). It came out that the more socio-economic status and strong political affiliation of an office bearer had, the more she/he was able to use the group leadership position for personal gain. Thus, some of the office bearers' leadership position in LPUPAP groups helped to reinforce the pre-existing patron-client relationship. Moreover, the LPUPAP groups were also been used for political purposes in another way. When asked *"are you or anyone of your family member a member of any political party, or do participate in any political activities or, did campaigning for any candidate in national or local election?"* a good number of

respondents in Baze Kazla (west) expressed that it is obligatory to attend major political mass meetings when asked by local politicians in exchange of their membership in the groups. However, the situation was somewhat different in Khulipara—although not to a greater extent.

Unlike Baze kazla (west), in Khulipara there was strong influence of AL besides BNP. The office bearers took their office during the period of the previous WC, who had attachment with BNP. Therefore, the present WC (at the time of the field investigation in August 2006) who was a supporter of AL could not exert a great deal of influence on LPUPAP groups. Thus, the co-existence of multi-party domination provided greater room for fair distribution of resources (less politicised and need based) in Khulipara. As Desai (1995:228) observes:

> "if another party is alongside the party in power is presented in the area in some strength, the situation does not change fundamentally, but the capacity of the slum dwellers to manipulate and manoeuvre between the two is somewhat increased".

On the contrary, in Baze Kazla (west) the participatory process had merely been used as a control mechanism. This situation contradicts with the opinion of Mukhopadhyay (1993: 341), who argues for the homogeneous local political power situation for effective community participation and collective action which induces more development.

Conclusion

Patron-clientelism plays a crucial role in shaping the extent and the nature of participation and collective action in community development projects. It is seen from the case study that the long-term patron-client relationship is more dominant than short-term brokerage type relationship due to the existing typical socio-political culture in Bangladesh. This contradicts the findings of de Wit (2001) in Indian urban slums that patronage/brokerage type relationship is gradually replacing patron-client relationship. The level of the dominance of patron-client relationship mainly depends on community specific socio-political context. This paper opines that the presence of multi-political parties' influence in a community leads to the lower dominance of patron-client relationship, which in turn contributes to more meaningful participation. This also contradicts with the view of Mukhopadhyay (1993) who is in an opinion that the presence of homogeneous political power leads to more effective community participation.

References

Auyero, J., Lapegna, P., & Poma, F. P. (2009). Patronage Politics and Contentious Collective Action: A Recursive Relationship. *Latin American Politics and Society, 51*(1), 1-31.

Bearfield, D. A. (2009). What is Patronage? A Critical Reexamination. *Public Administraion Review*(January/February), 64-76.

Chandra, K. (2007). Counting Heads: A Theory of Voter and Elite Behaviour in Patronage Democracies. In H. Kitschelt & S. I. Wilkinson (Eds.), *Patrons, Clients and Policies: Patterns of Democratic Accountability and Political Competition* (pp. 94-110). Cambridge: Cambridge University Press.

Cox, J. (2009). Active Citizenship or Passive Clentelism? Accountability and Development in Solomon Islands. *Development in Practice, 19*(8), 964-980.

De Wit, J. (2001). *Partnership, Participation and Patronage Relations of Urban Poverty Alleviation in Bangalore Slums*: Institute of Social Studies.

De Wit, J., & Berner, E. (2009). Progressive Patronage? Municipalities, NGOs, CBOs and the Limits to Slum Dwellers' Empowerment. *Development and Change, 40*(5), 927-947.

Desai, V. (1995). *Community Participation and Slum Housing: A Study of Bombay*. London and New Delhi: Thousand Oaks.

Dwianto, R. D. (1999). Patron-Client Relations Reconsidered: Comparing Civil Defense Group in DAnto Earthquake and Jakarta Riots of May 1998. *International Journal of Japanese Sociology*(8), 161-181.

GHK-International. (2006). *Report of the Evaluation Mission*: GHK International, UK.

Kitscheld, H., & Wilkinson, S. I. (Eds.). (2007). *Patrons, Clients and Policies: Patterns of Democratic Accountability and Political Competition* New Yord: Cambridge University Press.

Leonard, D. K., Brass, J. N., Nelson, M., Ear, S., Fahey, D., Fairfield, T., et al. (2010). Does Patronage Still Drive Politics for the Rural Poor in the Developing World? A Comparative Perspective from the Livestock Sector. *Development and Change, 41*(3), 475-494.

Mukhopadhyay, A. (1993). Community Participation in Urban Development. In B. Mohanty (Ed.), *Urbanisation in Developing Countries- Basic Services and Community Participation* (pp. 331-344). New Delhi: Institute of Social Science.

O'Reilly, K. (2010). The Promise of Patronage: Adapting and Adopting Neoliberal Development. *Antipode, 42*(1), 179-200.

Rahman, M. T. (2000). *The Role of Parliamentary Committees in Ensuring Bureaucratic Accountability in Bangladesh.* University of Bergen.

Part Two: E-governance: Some Issues from a Developing Country Perspective

t

8. Adaptation Strategy of E-Governance in Bangladesh Public Administration: Prospects and Challenges of E-Governance system at the Field Administration

Mohammad Samiul Islam
Zayeda Sharmin

Abstract

The concept of e-Governance is a new dimension in the field of governance. In the third world country like Bangladesh, e-Governance is not yet applied in all sphere of governing system due to e-Government readiness as well as some hindrances. The study has been conducted by following mixed approaches of research and data has been collected by questionnaire and interviews schedules. However, e-Governance is needed for establishing transparency, accountability, efficiency and effectiveness in the Public Administration of Bangladesh which has expected from civil servants. This paper deals with the application of e-Governance at the Deputy Commissioner's offices in Sylhet and Kishoreganj as well. It mainly focuses on the adaptation strategies of e-Governance in order to reduce the dysfunction of Public Administration and implementing e-Governance at the field level administration. These are creating websites, raising awareness, ICT training, sharing computer among colleagues and so on. It has also emphasized on pointing up the prospects and adaptation challenges of e-Governance at the Deputy Commissioner's offices in Sylhet and Kishoreganj. It includes non-acceptability of IT system, lack of incentive structure for government officials, lack of proper skill on ICT, lack of Bangla Standardization etc.

Key*words*: *e-Governance, e-Government, Adaptation Strategy, Deputy Commissioner's (DC) Office, Field Administration*

Introduction

The civil service of a country has been accomplishing enormous works in order to its stakeholders from inception of its launching to still. Whether the country is developed or underdeveloped, they want to improve their quality of services of public administration. For that reasons, many governments have brought administrative reforms. Among them, e-Governance is one of the remarkable public service delivery system by which administration seems to be transparent, accountable, execution of rule of law and curbing corruption etc. These concepts are directly related with the term "Good Governance" for which donor agencies in developing countries, World Bank, IMF,

OECD have always been focusing to ensure it due to execute betterment of further development of underdeveloped countries in the current world. At present, Bangladesh has been treating as an emerging tiger in South Asia region. Therefore, if she wants to go forward then her needs to bring efficiency and effectiveness of Public Administration as well as curbing corruption from there. In this circumstance, the current government led by Awami League (AL) has taken "Vision 2021"[1] to present Bangladesh as a Digital Country. From that purposes, e-Government has been introduced in Bangladesh since 2002. Before starting the phase of e-Governance system in the public offices there was confusion about this governing approach. E-Government has already become a global phenomenon (Venjick and Rabaiah, 2013). Most of the governments have taken initiatives to offer public services through Information and Communication Technology (ICT). Similarly, they took various strategies to face e-Government development problems. E-Government is narrower than e-governance from their range of scope of providing services. Therefore, the term e-Government has shifted from e-Government to e-Governance. The study has been trying to explore how e-Governance system is being adjustment with existing facilities and personnel of civil services in Bangladesh including central as well as field administration. The Study location has covered two offices of the Deputy Commissioner (DC) of Sylhet and Kishoreganj.

Objectives of the Study

The broad objective of this study is to know the adaptation strategy of E-Governance in Bangladesh Public Administration especially its prospects and obstacles at the field administration.

The specific objectives are

1. To distinguish the adaptation strategy of e-Governance in Bangladesh Public Administration.
2. To identify the impact of E-governance system to deliver quality of public service to the people.
3. To know the obstacles and prospects of Bangladesh Public Administration regarding e-Governance system.

Methodology

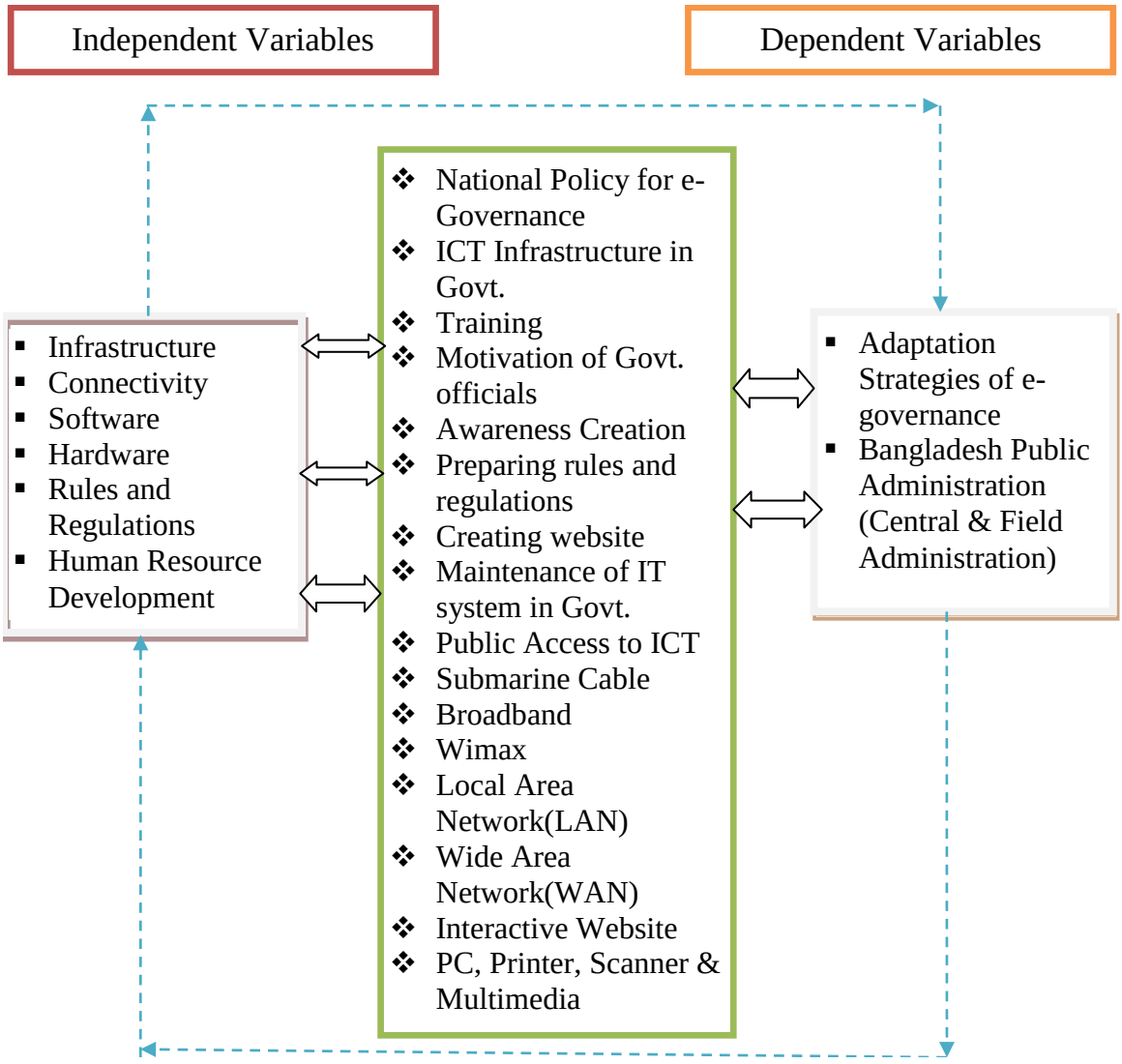
This study has been followed mixed approaches of research due to more specific and in depth knowledge on adaptation strategy of e-Governance in Bangladesh Public Administration. It has been

[1] "Vision2021" is being political manifesto of the Bangladesh Awami League party before winning the National Elections of 2008. It stands as a political vision of Bangladesh for the year 2021, the golden jubilee of the Nation. the objectives of Vision 2021 is to refer a long term planning by which Bangladesh will reach their desired destination including social, economic, political and administrative as well as whole sphere of citizen's life.

conducted by interview schedule and questionnaire survey methods for primary data, located on office of the Deputy Commissioner, Sylhet and Kishoreganj. The study has been prepared by Primary and Secondary data. Both data has been used in this study. Primary data has collected through interview schedule and questionnaire survey methods. Similarly, secondary data has been collected from different relevant articles, books, journals, research reports, and seminar papers etc. Moreover, different websites and internet sources are used in the study as secondary source.

The Conceptual Framework

This study has been done on few basic concepts and terms which have been discussed to develop and analyze the research assumptions and objectives. The conceptual framework has been demonstrating the relationship between the specific concepts which have been studied. This framework has been constructed by the reference of theoretical framework and literature review.



E-Governance and Public Administration in Bangladesh: An Overview

New Public Management (NPM), Manageriaslism, Market-based Public Administration, or Reinventing Government are a few incarnations of a new model of public sector management which emerged in the beginning of the 1990s in response to the challenges of globalization, international competitiveness and technological change (Sapru, 2003). In this connection, Public Administration has been transforming itself from inception of its growth. There are different trends of it as Traditional Public Administration, New Public Administration (NPA), Public Management, and New Public Management (NPM). The main purpose of those administrations is to provide public services to the citizens as per constitution of the state. The concept of governance had becoming controversy due to political and administrative corruption in Bangladesh since 1990. In this context, civil society has been raising voice against corruption. As a result, Political Party has given commitment in different parliament election campaigning to ensure good governance. They have taken various administrative reform initiatives for good governance but it does not confirm completely. Meanwhile, the development of Information and Communication Technology (ICT) has extended in global arena. Simultaneously, it has been using in bureaucracy whether public or private that is known as e-Governance.

The Office of the Deputy Commissioner, Sylhet and Kishoreganj

Bangladesh comprises of 64 districts; Sylhet and Kishoreganj two of them. The representative of central government at the district level is the Deputy Commissioner (DC) office which has considered as the area of study of this research. Office of the Deputy Commissioner (DC Office) is two of the most important offices of the country; Sylhet and Kishoregonj being politically significant, both DC Offices are of utmost important as far as service delivery and presence of government is concerned. A large number of people of all sections visit these offices for getting various kinds of services on a regular basis. The Deputy Commissioner, Sylhet has four Additional Deputy Commissioners (ADCs) namely ADC (General), ADC (Revenue), ADC (Education) and Additional District Magistrate (ADM). Similarly, The Deputy Commissioner, Kishoreganj has also four Additional Deputy Commissioners (ADCs) namely ADC (General), ADC (Revenue), ADC (Education) and Additional District Magistrate (ADM). In addition, there is another post is Deputy Director (Local

Government) as equivalent to ADC in both DC offices (Kishoreganj and Sylhet). The DC plays two very important roles in addition to his role as deputy to the Commissioner. These two roles are District Magistrate (DM) and Collector. The role of DM is to oversee the executive magisterial functions within his jurisdiction whereas as 'collector' he supervises the revenue collection system within the district. Therefore, major functions of DC Office, Sylhet and Kishoregonj include Land Management and land acquisition, Executive Magistracy, Supervision of Development Activities, Public Exams, National and Other Elections, treasury functions, Issuance of different types of licenses, Maintenance of Law and Order situation, etc.

Understanding of e-Government

E-Government is about automation of existing every-day government activities. Some examples include: (a) day-to-day communication such as notification of a meeting time; (b) accessing documents such as meeting minutes, policy documents; (c) accessing needed data such as export growth of a certain commodity; (d) tracking progress of government projects; (e) disseminating policies and strategies such as laws passed at the Parliament (Taifur, 2003).

The Concept of e-Governance

Electronic Governance refers to the application of technology by government to transform itself and its interactions with customers, in order to create impact on the society (Estevez & Janowski). It aims at step by step implementation of an ICT-based technology in all spheres of government services to ensure dynamism of management, transparency of business and access to information to all. E-governance focuses on electronic management of activity in order to quicken the decision making process and retrieved precedents of the secretarial business to ensure dynamism in management system. From the management and technological perceptions, the e-Governance can be defined as Electronic state management system based on information and communication technologies (ICT), including the Internet Technology (Kabir, 2007). E-Governance is the use of a range of modern information and communication technologies such as Internet, Local Area Networks, mobiles etc. by government to improve the effectiveness, efficiency, service delivery and to promote democracy (Rahman and Ahmed, 2011). It can be defined as-

- Expansion of internet and electronic commerce, is redefining relationships among various stakeholders in the process of governance.
- A new model of governance would be based upon the transactions in virtual space, digital economy and dealing with knowledge oriented societies.
- Electronic Governance is an emerging trend to re-invent the way the governance works.

Broadly, the government, citizen and business concerns (which include NGOs, corporate and also different professional bodies) are the three major actors in the e-government. Depending on their interactions components of e-Governance can be featured as follows:

Government to Citizen (G2C):

It deals with interaction between individual citizens with the government. Examples of G2C are payment of utility bills or applying for passports through relevant website of the e-Governance system. Good governance always stresses on participatory and democracy concepts. Citizen should not be isolated from the government. Using appropriate website of the system citizen can also be interactive in different development processes of the government.

Government to Business (G2B):

It involves interaction of the business establishments with the government. These business establishments may be corporate, NGOs or other professional bodies. The example of G2B is submission of tax assessment by any business establishment to the department of taxation of the government through Internet.

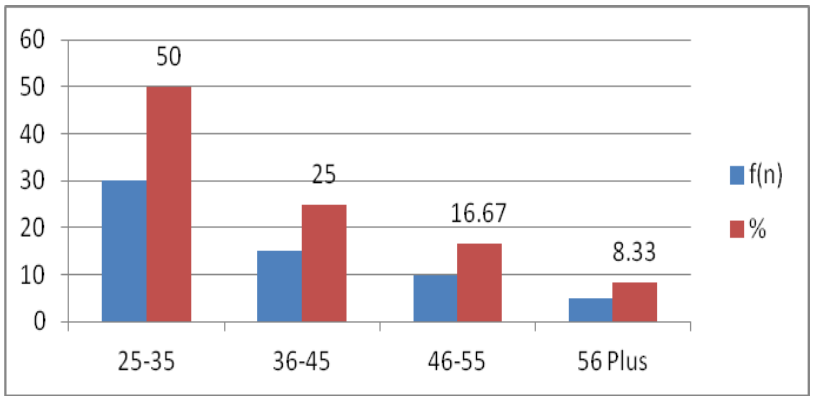
Government to Government (G2G):

It involves interaction among government officials, whether within a government office or within different organs of the government. The example of G2G may be a request of allocation of budget by any department of the government.

These are generally referred to as being e-Governance. Therefore, e-Governance has perceived those three components as basic elements of e-Governance. It is a comprehensive term in compare to e-Government. E-government covers the interaction of government to government separately among three basic ingredients of e-governance.

Adaptation Strategy of E-Governance in Bangladesh Public Administration: Deputy Commissioner Offices in Sylhet and Kishoreganj Perspectives

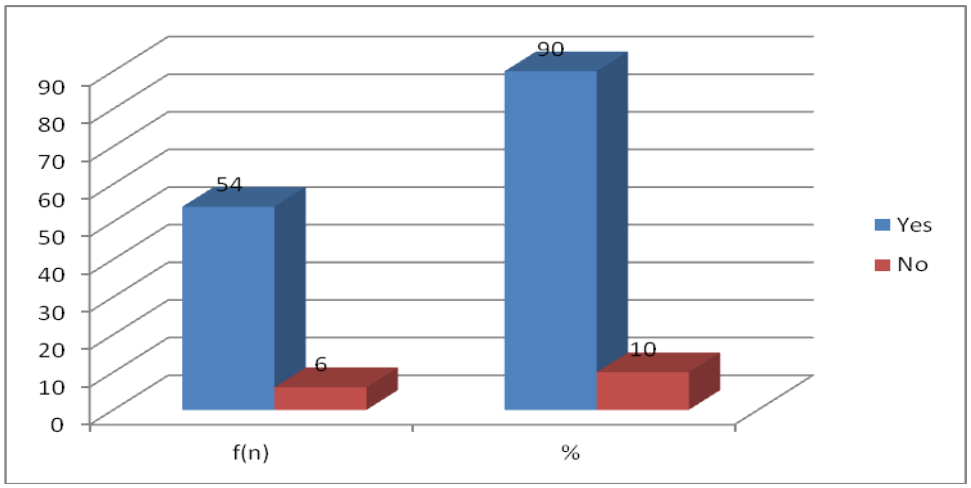
1. The distribution of age group of Respondents



Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The bar diagram shows that there are four main classification of respondents on the basis of their age. 50% respondents are being 25-35 age groups while 8.33% respondents are 56+ age group. Similarly, 25% of respondents are 36-45 age categories, and 16.67% of respondents are 46-55 age cluster. Thus, most of the respondents were younger as well as knowledge seeker.

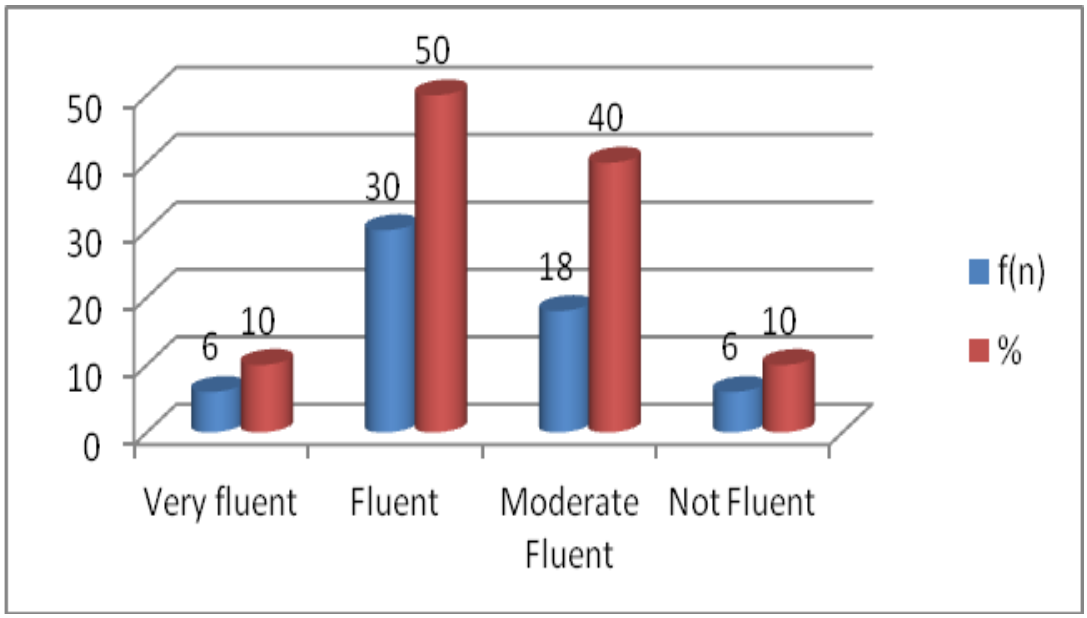
2. Assess of availability of e-Governance system in Public Administration



Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The bar diagram indicates the existence of e-Governance in field administration. The study has found that 90% respondents replied that field administration has been carrying out e-Governance system as a trial basis. In contrast, 10% of respondents stated that there is no e-Governance system in field administration in the consideration of overall conception of e-Governance approach.

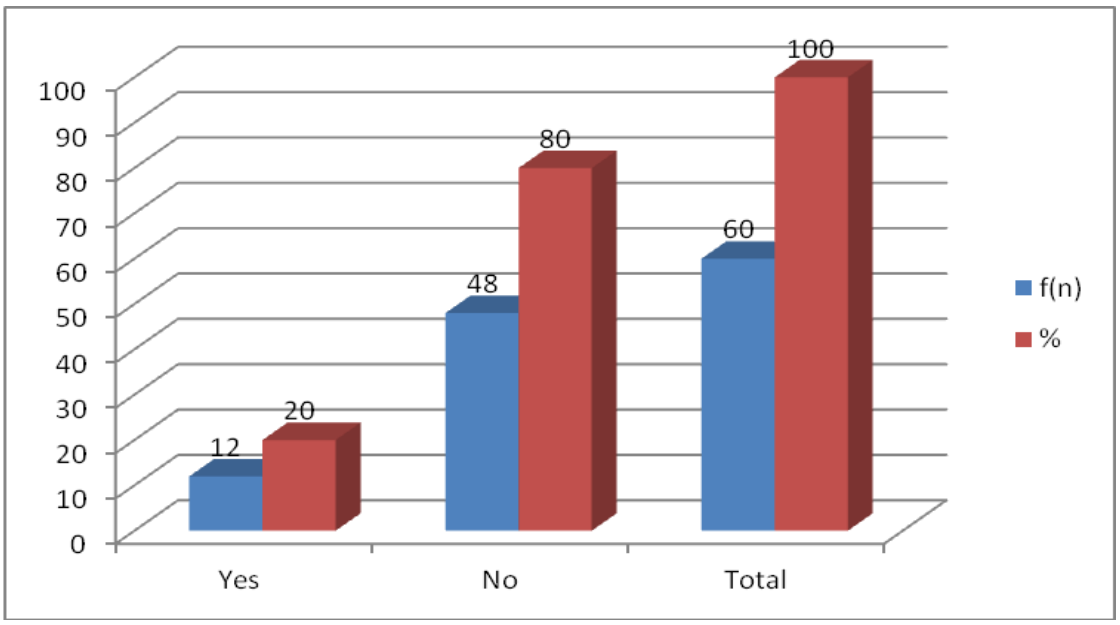
a. User fluency of Computer in the both DC's offices



Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The cylinder diagram shows that the fluency of computer user in DC's offices in the studied location. 50% respondents said that they are fluent while 40% are moderate, 10% are very fluent and another 10% do not have any competence.

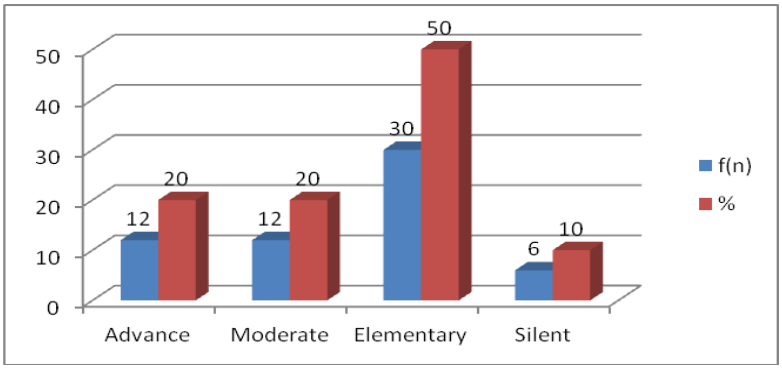
b. Formal ICT Training



Source: Field data collected from DC Offices in Sylhet and Kishoreganj, 2013

The bar diagram describes that 80% respondents did not get formal ICT training while only 20% respondents have received formal ICT training which had arranged by Bangladesh Computer Council under the Office of the Prime Minister in order to enhancement of their ICT skill.

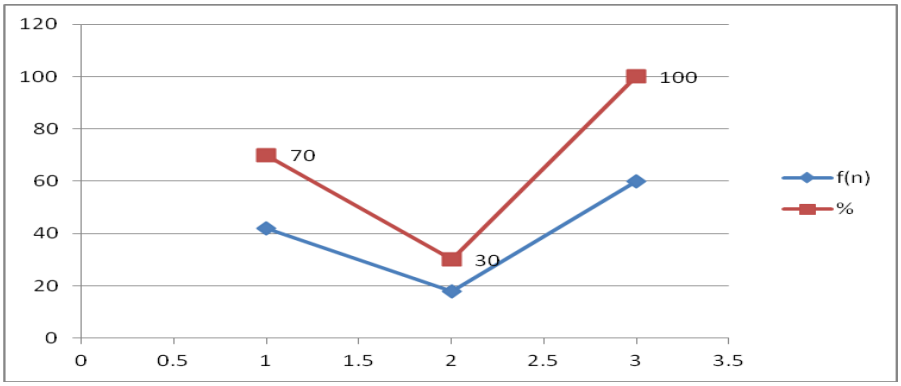
c. Received level of Training



Source: Field data collected from DC Offices in Sylhet and Kishoreganj, 2013

The bar diagram depicts that the classification of ICT related training, constituting advance (20%), Moderate (20%), and Elementary (50%). 10% of respondents were not responded.

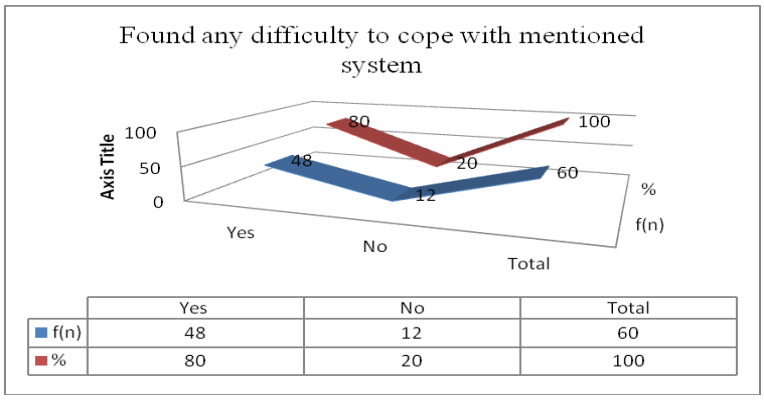
c. Measuring the sufficiency training Programme regarding on ICT



Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph states that 70% respondents believed that the existing training program of ICT is sufficient. In contrary, 30 % of respondents replied that ICT training program is not enough which has been providing by ministry of Public Administration.

d. Found any difficulty to cope with mentioned system

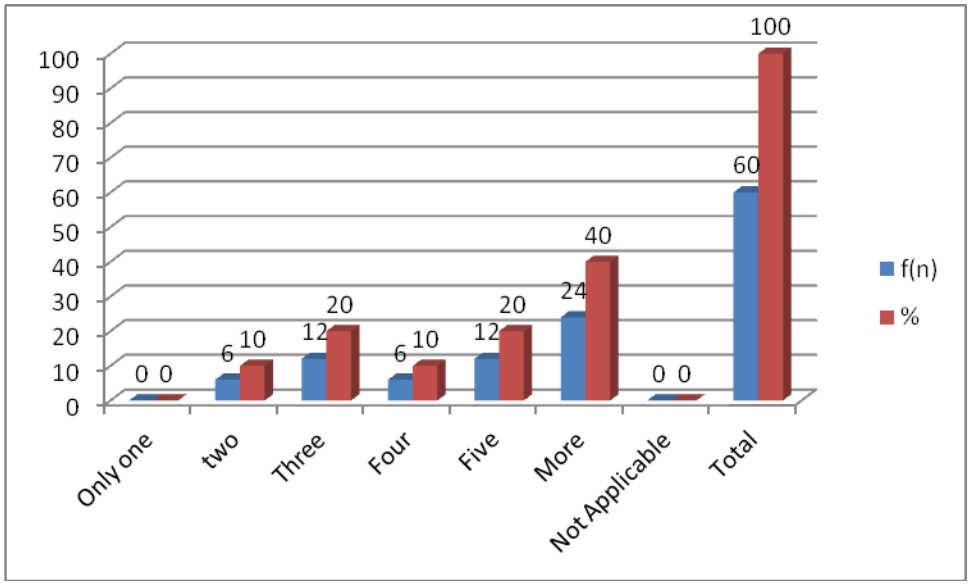


	Yes	No	Total
f(n)	48	12	60
%	80	20	100

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph shows that the different value of collected data, constituting 80% respondents found the hurdle to cope with the e-Governance system while 20% replied that there is no difficulty to adjust with the e-Governance system in field administration including Sylhet and Kishoreganj.

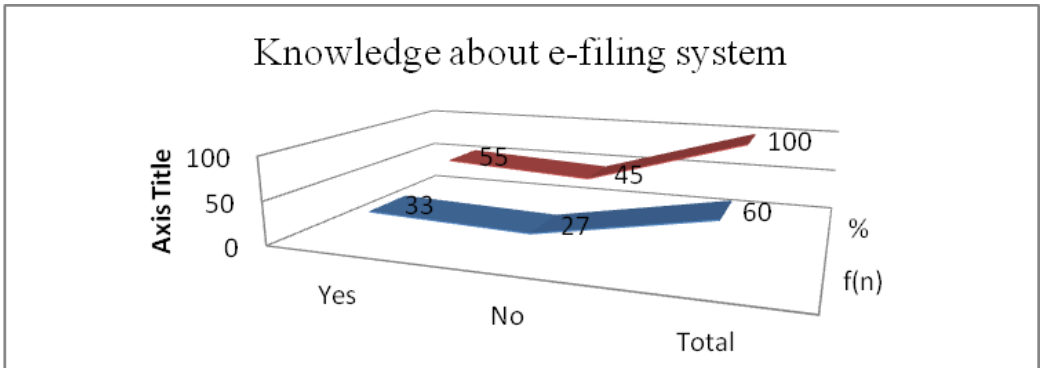
e. Number of employees to share a computer at offices in a working day



Source: Field data collected from DC Offices in Sylhet and Kishoreganj, 2013

The bar chart demonstrates that number of employees is shared office computer in a working day. The figure stated that 40% respondents replied more than five individuals share their computer, which is the highest percentage of computer sharing in the study area. On the other hand, two (10%), three (20%), four (10%), and five (20%) employees are shared a computer together.

f. Knowledge about e-filing system

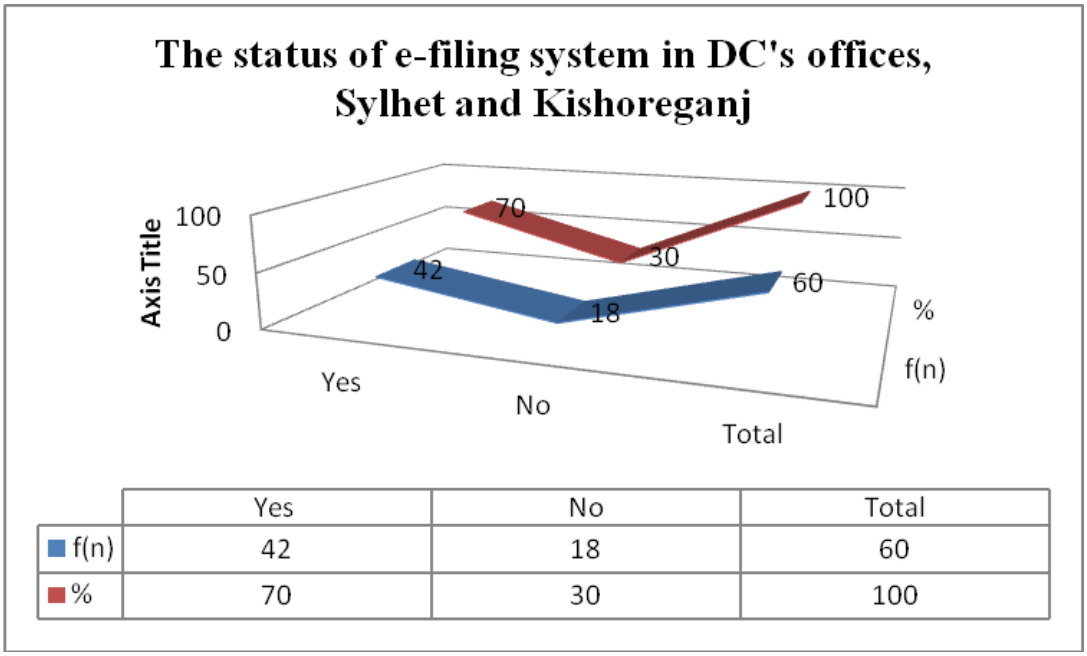


	Yes	No	Total
f(n)	33	27	60
%	55	45	100

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph shows that 55% respondents replied that having knowledge regarding e-filing system while 45% respondents do not have knowledge about e-filing.

g. **The status of e-filing system in DC's offices, Sylhet and Kishoreganj**

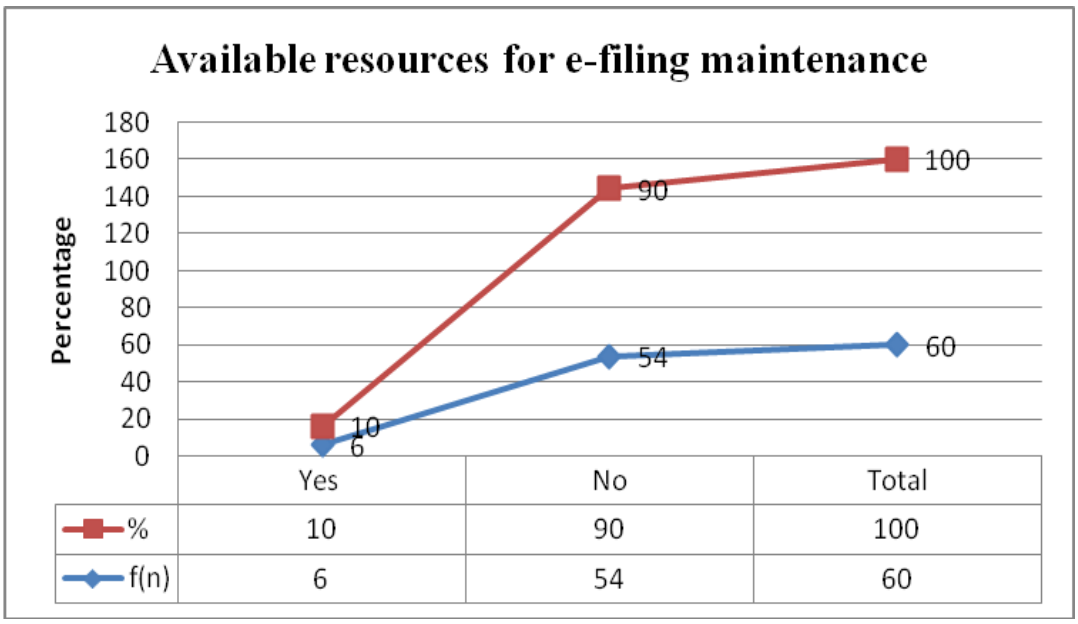


	Yes	No	Total
f(n)	42	18	60
%	70	30	100

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph illustrates that status of fluency regarding e-filing system in the civil service at the field level. 70% of the respondents replied that who are fluent about this system. In contrary, 30% thought that who could not have knowledge about e-filing system.

h. **Available resources for e-filing maintenance**

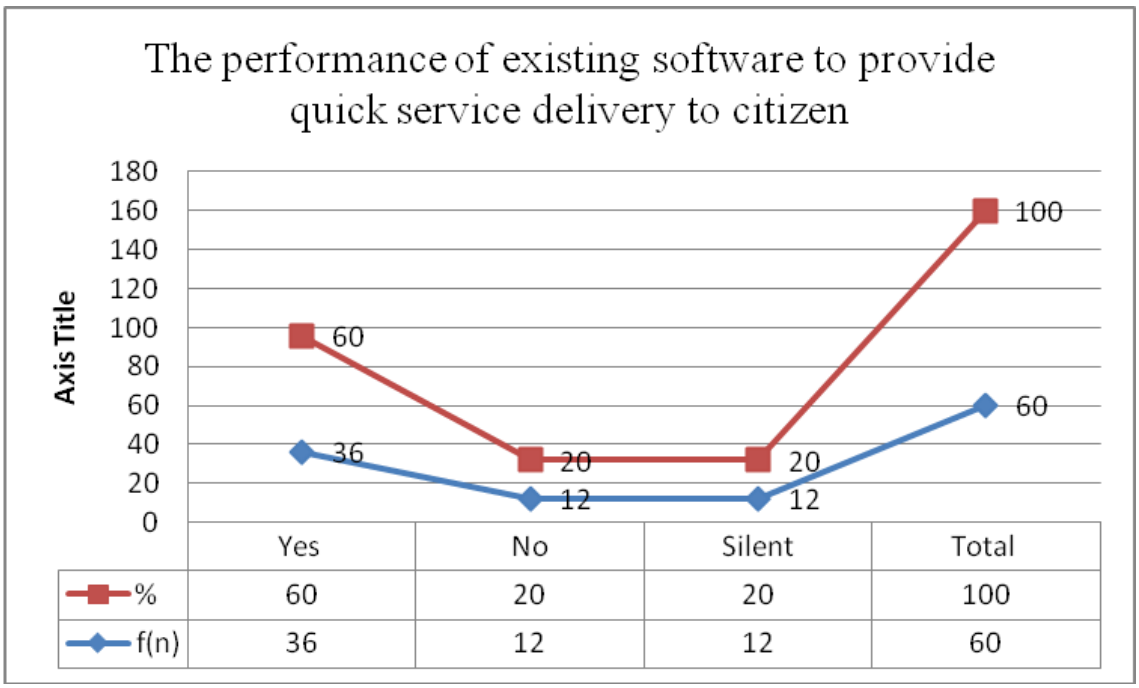


	Yes	No	Total
%	10	90	100
f(n)	6	54	60

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph states that 90% of respondents thought resources have not available for e-filing maintenance. On the other hand, 10% respondents stated that resources have available for e-filing maintenance in DC Offices.

i. The performance of existing software to provide quick service delivery to citizen

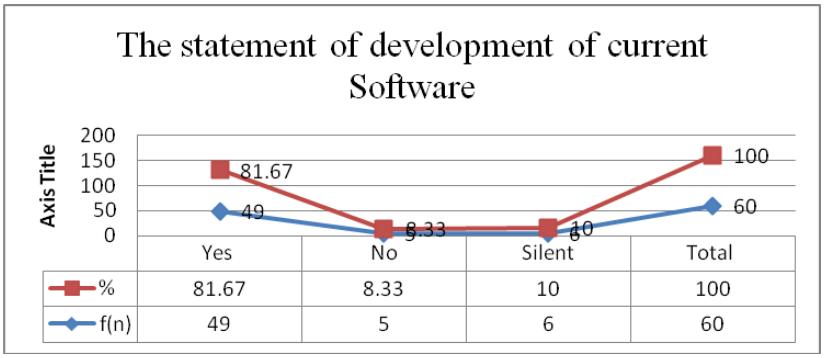


	Yes	No	Silent	Total
%	60	20	20	100
f(n)	36	12	12	60

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The chart describes that the performance of existing software to provide quick service delivery to their citizens. 60% respondents thought that current software is alright to delivery services for the citizens. In contrary, rest of 40% have given revised statement, constituting 20% said no and 20% was salient respectively.

j. **The statement of development of current Software**



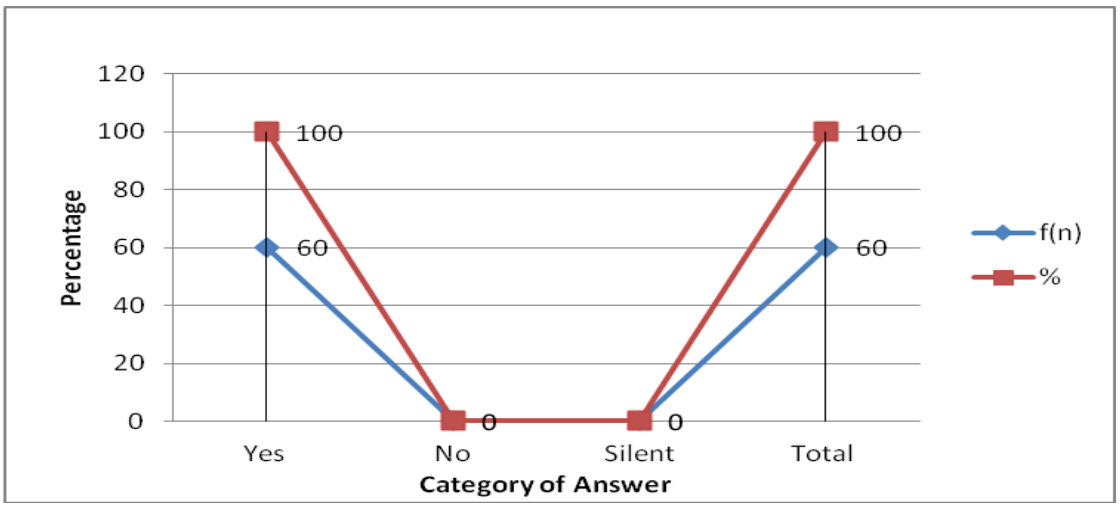
	Yes	No	Silent	Total
%	81.67	8.33	10	100
f(n)	49	5	6	60

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph shows that what are the views of civil servants about ongoing software, the study describes 81.67% of respondents thought that the more update software has required at the field administration

for the consideration of local people requirements. Among them 10% had silent and 8.33% believed that no development of software is required for further improvement of public service delivery.

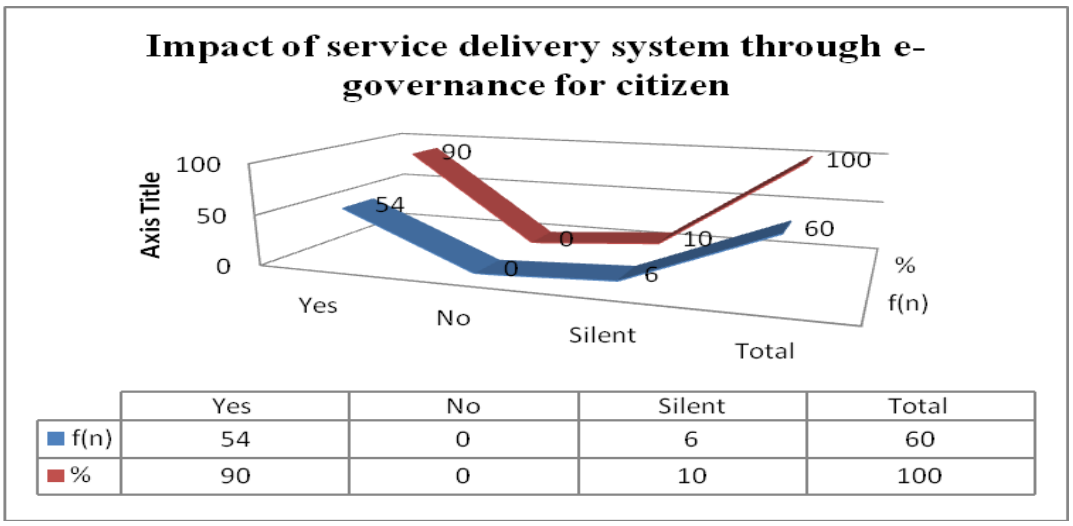
k. Prospects of e-Governance in Bangladesh Public Administration



Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The figure describes that the perception of respondents about the prospects of e-Governance in Bangladesh Public Administration. 100% of respondents thought that there have good prospects of e-Governance in civil service of Bangladesh particularly civil administration at the field level.

l. **Impact of service delivery system through e-Governance for citizen**

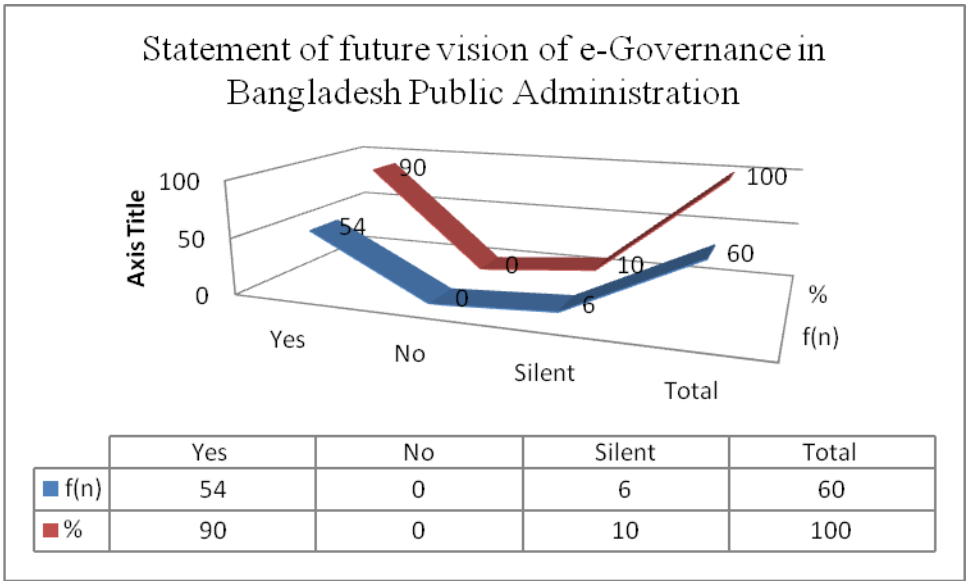


	Yes	No	Silent	Total
f(n)	54	0	6	60
%	90	0	10	100

Source: *Field data collected from DC Offices in Sylhet and Kishoreganj, 2013*

The line graph shows that 90% of respondents believed that their service delivery system has been improving insertion of e-Governance system in civil services. In Contrary, 10% respondents had not given any response and no one has found that it does not have any impact on service delivery to their stakeholders.

m. Statement of future vision of e-Governance in Bangladesh Public Administration



	Yes	No	Silent	Total
f(n)	54	0	6	60
%	90	0	10	100

Source: Field data collected from DC Offices in Sylhet and Kishoreganj, 2013

The line graph denotes that lion per cent of the respondents (90%) stated that the e-Governance system has future vision in the civil service of Bangladesh. On the contrary, No one has found that who has believed the future of e-Governance has but a few number of respondents had silent regarding future of vision of e-Governance in Public Administration in Bangladesh.

Strategies for Bangladesh Public Administration (Central and Field Administration)

Strategies for Central Administration

Preparing plan and strategy

The Awami League (AL) led Government of the People's Republic of Bangladesh has decided to establish digital Bangladesh and announced it in the 9th National Parliament Election Manifestoes. According to their commitments, a number of ministries have been working in order to achieve this objective. Access to Information (A2I) Programme has been working for development of Information and Communication Technology (ICT) infrastructure at the central and field administration under the office of Prime Minister. Therefore, Ministry of Science and ICT, Ministry of Post and Telecommunication, Ministry of Law, Justice and Parliamentary Affairs, Ministry of Planning and Bangladesh Telecommunication Regulatory Commission have been worked together for preparing planning and strategies to be automated administration. SICT has been formed under Planning Division; MoSICT has included e-Governance in National ICT Policy 2009.

Identify project/program

The Government has formed a taskforce so that public administration could be transform from manual to automation system at the central as well as field level. This taskforce have taken different projects and programmes constituting as Access to Information (A2I), Facilitate various ICT based program, , Facilitate computerization at government institutions and schools, IT Training to government officials and citizens, Incubator for software companies, Advisory support to government institutions regarding IT, Standardization of IT issues, such as UNICODE-compliant font and keyboard , Building and maintaining of telecommunication infrastructure, Submarine cable, Fiber optics line, Curriculum for IT education, Computerization of schools, and Initially took up SICT project for developing e-Government etc.

Preparing rules and regulations

The Government has thought about security of Information and Communication Technology as well as public official's database. They have prepared ICT Policy, ICT-related laws/Digital laws, Regulation of telecommunications providers, licensing authority, for Vsat, ISP and copy right law to keep safe confidential database of public offices.

Creating website

Website or webpage is an important way to keep connectivity between government and citizens. Central administration of Bangladesh has made it initially office for Prime Minister as well as Cabinet. The next step was to create web address all ministries and departments. Union Information Service Center (UISC) and District E-Service Center have been performing under the programme of Access to Information (A2I). Currently, Bangladesh National Web Portal System has under construction to connect every administrative unit from central to field level.

Human Resource Development

Human Resources Development is one of the vital or significant factors to execute digital Bangladesh. In addition, when the existing personnel joined at the civil services ICT knowledge had not requirement but now such knowledge is being to know mandatory to cope with the automation or digital administration. Digitalization of administration can perform well with the assistance of efficiency and skilled of personnel. So, this dream would not be successful if public personnel do not accept it. For that reason, Human Resource Development is the most significant pillar of digital administration.

Raising awareness

The central administration has always formulated public policies with the reflection of government wishes. The continuation of this process, the ruling government has started initial journey to go formation of digital Bangladesh which ruling system is known as e-Government and approaches of service delivery is called e-Governance. The different ministries have sincerely been campaigning to aware citizen about e-services at the office of Deputy Commissioner as well as Union Parishad level through advertisement of newspapers, electronic media, and stand on bill board in front of DC office (i.e. Citizen Charter) and Union Parishad. Moreover, high officials of central and field administration have attended in a meeting and seminar and stated there regarding digital Bangladesh, E-services, and E-Governance system to raise awareness of mass people.

Strategy for Field Administration

E-governance means application of Information and Communication Technology (ICT) to governance (Misra, 2009:17). E-governance system is basically governance that is related with the Information and Communication Technology (ICT). Government tries to trail new technologies and provide service electronically. For establishing e-governance system in the Sylhet DC Office, adaptation strategies are as follows

ICT Training

For establishing e-Governance system in Sylhet and Kishoreganj DC Offices, various levels of ICT training such as elementary, advanced and so on. These are provided by the government. Various seminar, workshop, brain storming discussion are held for increasing the knowledge about ICT. Government also provides apprentice, TA, DA for the trainee.

Quick Win Projects

The government has started 60 "quick win"[2] projects to execute digital Bangladesh. Since then there are almost 700 projects have been going on under the National A2I programme (www.undpegov.org). It has incorporated some initiatives such as Union Information Service Center (UISC), and District E-Service Center (DESC) etc. by under A2I programme. Eventually, these programs have inaugurated at

[2] It means many of e-services initiatives involving A2I. It covers Union Information Service Center (UISC), e-Purjee, Multi Media Classroom, and District e-service center (DESC).

Union and District level since 2011. In this study location has covered "quick win" project through which civil servants of Field Administration have coped with e-Governance system. A2I programme has been conducting by Prime Minister Office with the financial collaboration of UNDP.

Motivational Tools

The Government is providing various motivational tools to make them interested on e-Governance system such as Apprentice, TA, and DA so on.

Sharing Computer

Though there is no availability of ICT or e-Governance related resources, staffs share their computer and other related accessories but officers are provided with sufficient resources.

Bangla Standardization

Government is trying to standardization for use of Bangla in the electronic format. Bangla documents now uploading on the Web as files only. . The increasing volume of e-Government web pages is no indication that they are meeting the felt needs of the citizen .

Software Development

The existing software is sometimes complicated to the officers and staffs. Government is trying to make it easier to the officers and staffs so that they can adapt e-Governance system spontaneously.

Information and Communication Technology (ICT) Cell

The office of the Deputy commissioners in the studied areas have been launched the Information and Communication Technology (ICT) cell for assisting some responsibilities regarding e-services and automation of DC offices. The specific duties of ICT cell are one stop Counter Service (OSCS), Maintenance of District Server, LAN and Trouble Shooting, Computer Maintenance and Trouble Shooting as well as organized IT training. The cell has composed of an Assistant Programmer (AP), two office assistants, one internee who assigned by Bangladesh Computer Council (BCC), and an Assistant Commissioner (AC).

Series of Training

The study has investigated and found that National Task force of ICT, headed by Prime Minister, has taken a number of training programme

for civil servant at the Field Administration who has assigned Assistant Commissioner (AC) for that.

Basic ICT Training for Class One Officer

Basic ICT training programme has been offering to the class I civil servants who has been serving at the Field Administration namely office of the Deputy Commissioner, Sylhet and Kishoreganj.

Training of Trainers (TOT)

National Task Force of ICT arranged training for trainers (TOT) for Field Administration including both of DC office, Sylhet and Kishoreganj. The representatives of both district administrations have received such training programme in order to provide same training programme among assistant administration employees in both Districts.

Trial basis application of e-services at District Offices

Manual as well as electronic services have been working concurrently; it covers three types of applications such as citizen application, official application, and application for withdrawing copy of Castle Survey (CS) record as well as Revised Survey (RS) Record.

Computer sharing

As equipment of ICT has not enough in the Field Administration then employees of it have to share their computer, printer, scanner, and internet connection with its pen pusher or assistant officer in administration. In this way, all jobs have been done by civil servant in the studied area.

Motivation

Motivation is another adaptation strategy of local employees in the office of the Deputy Commissioner, Sylhet and Kishoreganj. Because, as they have already been spent their whole service life to delivery public services to citizen without computer application knowledge. In this case, trainer/ assistant programmer has to manage them through various inspiring, encouraging and motivational statement.

Changing Bureau crate's Mindset

This is benchmark of adaptation strategy of e-Governance in district administration. No policy or approach will not execute properly in time if bureaucrat's mindset does not ready for that. When the current government has taken access to information programme under Prime Minister Office since then bureaucrats, who have been serving at

central and field level, have been receiving various training programme to implement e-Governance approach at Bangladesh Public Administration. Meanwhile, the government has been installed e-services in the office of the Deputy Commissioner as well as Union Parishad level. These initiatives have been successes by changing of bureaucrat's mindset of the studied area.

Trial and Error Strategy

This is one of the significant adaptation strategies among founded strategy in studied location. Public Administration of Bangladesh has been received the e-Governance system as a trail option. If it has functioned or coped easily among the employees of field administration since then administration shall be paperless. Therefore, civil servants of field administration have been moving forward through following trial and error approach and manual file management process has been going forward in the same time.

Prospects of e-Governance in Field Administration

National Web Portal of Bangladesh is the benchmark of digitalization of Public services in Bangladesh. Whenever you will be visit this web portal since then you will find there almost all information of an independent country like Bangladesh. All union parishads, Upzilas, Districts, Divisions as well as central administration have been linked under the National E-service (NES) programme. This programme has upgraded version instead of One Stop Counter Service (OSCS) programme. Although, NES is under construction and it will be inaugurated very soon. Citizen Services are provided by National Web Portal of Bangladesh

Agriculture, Disaster Management, Education, Driving License, Environment and Forest of Bangladesh, Hajj Services, Health Services, Law and Order, Passport, Income Tax, Recruitment, Visa, Utility Services, Policies, Computerization, Information Technology Infrastructure , Promoting IT Literacy, Education and Training, Committee revision of recruitment, Policies of civil servants in Bangladesh and Cultural Trends. Moreover, if e-Governance could be popular among civil servants as well as citizens in the study location then local administration would be more accountable, transparent, less corrupted field administration and people oriented. These are significant prospects of field administration by which good governance and rule of law have been ensured in Bangladesh Public Administration. E-Government is considered as one of the most powerful tool to spread digital dividend across different social

segments of any developing country. Bangladesh early on recognized the potential of ICTs for development. Ahead of many other countries, it focused on fostering an ICT export industry as well as an employment-generating ICT sector to boost economic growth.

People Connectivity

Bangladesh's ICT infrastructure must catch up with Digital Bangladesh's ambitious goals. The programmer needs to be pro-active in lobbying for improved connectivity for citizens, particularly in rural areas, and develop strong connectivity partnerships with operators.

Curbing corruption

Corruption is an impediment for development and good governance. In this modern information age Information and Communication Technology (ICT) has become almost compulsory in daily life. Moreover, e-Governance is a by-product of ICT by which corruption could be control through a specific system.

Reduce Redtapism

The e-filling system reduces redtapism which is very essential to provide service properly and transparently. The activities can be easily monitored from the central level so the activities of the DC office is compelled to run swiftly.

Reduce Time and Money

It reduces time and money. Anyone can collect and submit their application form from anywhere by a small amount of money. There is no long line of servic seekers in the DC offices. They can easily access information anytime without any harrassment in the study area.

Smooth Relation between Government and Citizen

E-Governance could made a good relationship between government and citizen as it enables citizen to know about their rights as well as the whole working process in Public offices .

Paperless Office

In case of manual filing system it creates complexity, it is time consuming to collecting data in file system when data is necessary. But in case of e-filling system, the manual filling system will be omitted and every data and information will be able to check at a glance. One day the office will be paperless completely and properly. Besides there are some other aspects as follows:

a. e-Governance helps to enhancing the transparency of and promoting the contribution of the public to decision-making processes;
b. Ensuring that the public has effective access to information;
c. Undertaking public information activities that contribute to non-tolerance of corruption, as well as public education programs, including school and university curricula;
d. Respecting, promoting and protecting the freedom to seek, receive, publish and disseminate information concerning corruption. E-governance is one of the best of way to ensure participation.

Challenges of e-Governance adaptation at the Field Administration in Bangladesh

This study found major challenges of the DC Offices Sylhet and Kishoreganj which are standing in the way of establishing e-Governance system as well as in the country. Besides, there are some problems behind adapting e-Governance system in Bangladesh Public Administration.

Non-acceptability of IT systems

It is often seen that even after an IT system is implemented in a government office, it becomes hard for government officials to convince them to use it. Besides the general lack of awareness about ICTs and the fears discussed earlier, some other factors also play a part in their non-acceptability of IT systems. They fear important data getting lost or they are doubtful about the security features of computers.

Lack of incentive structure for government officials

In the private sector, it is seen that people skilled in the use of IT are generally valued more than a counterpart who is not as IT proficient. In the government, however, there is no such system of discriminatory valuation of personnel. As a consequence, there is not enough of an incentive for government officials. The use of IT is mostly self-motivated and a matter of individual free choice. This is one kind of the problem.

Lack of reliable maintenance

Another significant problem is that generally there are no in-house maintenance personnel. It is of vital necessity that computers gets fixed as soon as they malfunction or users very easily lose confidence over IT systems. Most offices have contracts with local hardware companies for maintenance, but their services are often not immediate.

Lack of sustainability of IT Systems

Almost all e-Government projects are funded through external sources, primarily foreign funds. This brings about a very vulnerable situation with regards to the sustainability of these projects. As soon as the external fund dries up, it is often seen that there is no fund to buy printer, paper, computer, scanner and other related resources.

Frequent, unpredictable transfer of government officials

Another major problem to popularizing e-Government in an office is that government officials get frequently and unpredictably transferred. It is seen that IT systems are often dependent on one or two IT champions. As soon as they are transferred, no one remains to take their position.

Lack of ownership of IT systems

A direct result of the system of government transfers is that there is great unwillingness to take ownership of IT-related projects. If hardware and IT systems remain unused, there is no one to take responsibility and encourage others. There is currently no government structure in place to create this ownership of e-Governance at the level of individual offices. This is one kind of serious findings.

Lack of Bangla standardization

Currently, there is no standardization for use of Bangla in the electronic format. Different people use different fonts, often resulting in documents not opening in someone else's computer. Another major issue is that none of these fonts maintain the international standard UNICODE - as a result of which Bangla content cannot be put up on the Internet using these fonts. Bangla documents now have to be uploaded on the Web as files only.

Lack of necessary regulatory/legal framework

The regulatory or legal framework in Bangladesh has not yet been modernized to accommodate the growing needs of the electronic world. Still, in government offices, an e-mail has no official value and cannot be legally considered an acceptable mode of communication. There are no laws to protect against cyber-crime, neither are there any laws for electronic authentication. There is also lack of enforcement of law, rules.

Recommendation

After analizing the findings of the study, some outlines could be suggested to remove the existing obstacles in the civil services to ensure an effective e-Governance system; which are as follows:

a. Government should allocate enough budget on e-Governance for maintaining properly and to remove the shortage of funding.
b. People connectivity should be properly monitored.
c. To create a balance between experience and innovation.

d. Awareness should be increased among citizen about e-Governance through different seminar, , dialouge, campainging, electronic and print media so on.
e. Officers should maintain regularity with e-filing system.
f. Manual filing system should be removed.
g. The software through which e-Governance system runs, it should be more developed. The level of expertise or professionalism needed to handle large-scale integrated e-Government projects. Although the scenario is rapidly changing in terms of needed technical expertise
h. Advanced ICT training should be provided with motivational tools which will create expertise.
i. Wifi device of the office should be improved and the duration of wifi connction should be increased.
j. Porper informatiion should be updated in time in the website of the DC office.
k. All sections of DC office should be under the e-Governance system.
l. Monitoring system for e-Governance should be strengthen.
m. The training must not be for the sake of show off , it should be as purposive as possible. The contents of the training need to be selective very cautiously.
n. The government should go for more obligatory rules and regulation for the government officials to enhance e-Governance facilities in service delivery.

Above all a serious effort of the government is necessary to make the e-Governance endeavour a true success. Proper co-ordination among various agencies is required for the implementation of e-Governance.

Conclusion

The rapid development in the case of e-Governance is not possible. There are various barriers which should be properly removed. In the top bureaucratic level effective and dynamic decision making regarding e-Governance should be taken. There is still no central coordinating authority for e-Government, and tensions between the various parties involved in e-Government implementation often results in suboptimal performance due to lack of collaboration and integration of plans. Whatever initiatives are being taken at the central or national level must be replicated to the field administration level in order to ensure that common people can enjoy the benefits of e-Governance. To do that successfully, DC offices at all the districts must be capable of delivering e-Governance services to the citizens at the interior levels.

References

Abbasi, S. (2005) Capacity Building and Institutional Framework for e-Governance, *Centre for Science, Development and Media Studies*, Vol 1, Issue 5, New Delhi, India.

Abdelbaset, R. and Eddy, V. (2009) A Strategic Framework of e-Government: Generic and Best Practice" *Electronic Journal of e-Government* [Online] Volume 7 Issue 3, (pp241-258), available from: www.ejeg.com [Accessed: 24th June 2013].

Al Gore (2000) Initiating Information Super Highway, The US National Information Infrastructure Initiative (NII) 1993, NIST 1996, and Reinventing Government (NPR 2000)

Allen B.A., et al. (2001) E-Governance and government on-line in Canada: Partnerships, people and prospects, Government Information Quarterly [Online], Issue 18, p.p. 93-104, available from:

http://www.sciencedirect.com [Accessed: 20th January ,2013].

Anisuzzaman, S.M. (2006) Governance & Development: Bangladesh & regional experiences, Department of development Studies. Dhaka University, Bangladesh.

Asgarkhani, M. (2005) The Effectiveness of e-Service in Local Government: A Case Study *The Electronic Journal of e-Government* [Online] Volume 3 Issue 4, pp 157-166, Available from: www.ejeg.com [Accessed: 26th January, 2013].

Batta ,M. et al. (2012) E-Governance in E-Administration; *International Journal of Computing & Business Research.*

Bedi K. et al. (2001) Government@net- new governance opportunities for India, Sage Publications India Pvt Ltd, New Delhi, India.

Elsa, E. and Tomasz, J. (2013) Electronic Governance for Sustainable Development — Conceptual framework and state of research, *Government Information* [Online] Quarterly 30, pp94-109, Available from:

www.elsevier.com/locate/govinf [Accessed: 26th July, 2013].

Farooq, S.(2004). Study of E-government in Bangladesh*;* Available from: http://www.beibd.org/beireport/bei%20report/Study%20of%20eGovernment%20in%20 Bangladesh.PDF [Accessed: 12 February, 2012].

Grönlund, Å., & Horan, T. A. (2005). Introducing e-Gov: History, definitions, and issues. Communications of the Association for Information Systems, 15(1), 713–729.

Heeks, R. (2005). Foundations of ICTs in Development*: The Onion-Ring Model.* [Online] Available from:

http://www.sed.manchester.ac.uk/idpm/research/publications/wp/di/short/DI GBriefing4Onion.pdf [Accessed: 2 March, 2013].

Kabir, M. A. (2007). E-Governance Discourse: Reality in Bangladesh, Available from: http://mukto-mona.net/Articles/anwarul_kabir/e-governance.htm [Accessed: 26 July, 2013].

Kabir,M.A.(2007)E-Governance Discourse: Bangladesh Reality, The Dhaka Courier,Dhaka, 5th January 2012.

M.Z.Islam&R.Khair, (2012) Preparation of E-Government in Bangladesh: An Exploratory Analysis JU Journal of Information Technology (JIT), Vol. 1, June 2012.

Mohamed, E. & Tahon, E. (2012) Electronic Government (e-government) Concept and definitions. Cairo University. Available from:

http://xa.yimg.com/kq/groups/32225094 /262592313/name/e-government. pdf [Accessed date: 10th February, 2012].

Rahman, M. and Ahmed, F. (2011) Governance and E-Governance, Department of Public Administration, University of Dhaka, Unpublished Article.

Riley, T.B. (2004). "E-Governance vs. E-Government. Information for Development"

Taifur, (2003) Problems of E-Governance in Bangladesh and Possible steps towards Solutions Available from:

http://publicadministrationbd.blogspot.com/2010/02/problems-of-e-governance-in-bangladesh_11.html [Accessed: 26th July, 2013].

Siddiquee ,N. A. and Faroqi, M. G. (2013) E-Government in Bangladesh: Prospects and Challenges Available from:

www.igi-global.com/chapter/government-bangladesh-prospectschallenges/ 69019 [Accessed:25th August, 2013].

The European Bangemann Report 1994, EU Initiative "e Europe: An information Society for All by European Commission 1999.

ULR:http://searchdatacenter.techtarget.com/definition/infrastructure accessed on November 14, 2013

9. E-government Efforts against Corruption in Bangladesh: What We Have Done and What We Have to Do

Jin Wan Seo
Md Golam Mehedi Hasan

Abstract

This paper provides an overview of e-government efforts against corruption in Bangladesh based on the relationship between e-government and anti-corruption efforts in general. Specifically, it discusses what Bangladesh's government has done to reduce corruption using ICT. It highlights two factors. First, there is a strong relationship between ICT use and low corruption. Second, many successful e-government services dramatically reduce corruption. The purpose of this paper is to examine the need for e-government services for the purpose of reducing corruption in Bangladesh (what we have done) and to suggest what we have to do. In particular, the paper analyzes e-government efforts against corruption in Bangladesh. An empirical analysis is developed and tested in order to examine the relationships between e-government and anti-corruption efforts in Asian countries. Time series data are collected from the United Nations (UN) e-government survey and Transparency International's (TI) annual report. The empirical analysis verifies that corruption decreases when the use of ICT in government increases. It then explores what Bangladeshi governments have done against corruption through e-government efforts. It is evident that there are many limitations to these efforts and challenges in maximizing the benefits of e-government and opportunities for reducing corruption in Bangladesh. Concluding remarks emphasize what the Bangladeshi government has to do in order to overcome technological weakness, lack of infrastructure, limited human capital, and low budget from the government.

Keywords: E-government Services, Anti-corruption, ACC

Introduction

E-government can be defined as the application of information and communication technologies (ICTs) to enhance the performance of government functions and services. More specifically, e-government is

the use of digital technologies to transform government operations in order to improve effectiveness, efficiency and service delivery (Mark, 2015). E-government refers to government's use of ICTs to work more effectively, share information and deliver better services to the public. It is essentially more about the process of government reform and resulting benefits than about the application of specific technological solutions or services. A well-planned e-government strategy can make leaps into building a more efficient, accountable and transparent government. E-government applications can rebuild citizen trust in government, promote economic growth by improving interface with business, and empower citizens to participate in advancing good governance. On the other hand, corruption is the misuse of public power, office or authority for private benefit through bribery, extortion, influence peddling, nepotism, fraud, speed money or embezzlement. It is principally a governance issue a failure of institutions and a lack of capacity to manage society by means of a framework of social, judicial, political and economic checks and balances (UNDP, 2006).

However, corruption is the greatest obstacle for economic and social development in the developing world (World Bank, 2011). It is a burning issue for Bangladesh and various reports already have identified that Bangladesh is one of the most corrupt countries in the world. Corruption is widespread and permeates all levels of society; the rule of law is weak and the most institutions lack transparency and integrity structures in Bangladesh. This is reflected in the country's poor performance in most areas especially political parties, public administration, the judiciary and the police are perceived as the most corrupt institutions of the country (Transparency International, 2012). Actually, e-government is use of information and communication technologies with the aim of improving information and service delivery, encouraging citizen participation in the decision making process and making government more accountable, transparent and effective in the public sector. As an important tool e-government enhances transparency these days and there are many remarkable or successful examples to reduce corruption through e-government in the world (Iqbal, 2008). So, to meet global challenges and to reduce corruption Bangladesh has no way to escape the process of establishing e-government.

The purpose of this paper is to provide an overview of e-government efforts against corruption in Bangladesh based on the relationship between e-government and anti-corruption efforts in general. Specifically, it discusses what Bangladesh's government has

done to reduce corruption using ICT. An empirical analysis is developed and tested in order to examine the relationships between e-government and anti-corruption efforts in Asian countries. The time series data are collected from the United Nations (UN) e-government survey and Transparency International's (TI's) annual report. The empirical analysis verifies that corruption decreases when the use of ICT in government increases. The government of Bangladesh is drawing the utmost attention for corruption and emphasizing various reforms to reduce corruption. Why Bangladesh government should think more about e-government is also discussed here. It is evident that there are also limitations to these efforts and challenges in maximizing the benefits of e-government and opportunities for reducing corruption in Bangladesh. The results of this study imply that appropriate implementation of e-government that can reduce corruption from Bangladesh. In addition, how can e-government effect on corruption and to identify the role of e-government to reduce corruption from Bangladesh.

Moreover, concluding remarks emphasize what the Bangladeshi government has to do in order to overcome technological weakness, lack of infrastructure, limited human capital, and low budget from the government. Here we test the relationship between ICT driven e-government and corruption that examines how changes in the use of e-government in various countries are linked to changes in their levels of corruption. So, this study examines the strength of the relation between e-government and corruption which estimates GLS regression model that considers dependent and independent variables from the different time periods.

Theoretical Discussion

Relationship between E-government and Corruption

E-government refers to the use by government agencies of information technologies that have the ability to transform relations with citizens, businesses and other arms of government. These technologies can serve a variety of different ends: better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management (World Bank, 2011). E-government is more about government the process of reform and resulting benefits than about the technology. The resulting benefits can include: increased efficiency in governments' functions; greater trust between government and citizens from increased transparency; empowerment

of citizens through access to information; and contributions to overall economic growth etc. on the other hand, corruption as the misuse of public power, office or authority for private benefit through bribery, extortion, influence peddling, nepotism, fraud, speed money or embezzlement. Corruption is principally a governance issue, a failure of institutions and a lack of capacity to manage society by means of a framework of social, judicial, political and economic checks and balances (UNDP, 2006).

However, a poor corruption perception index (CPI) score is likely a sign of widespread bribery; lack of punishment for corruption and public institutions that don't respond to citizens' needs (Transparency International, 2014). The World Bank (2011) also identifies corruption as one of the single greatest obstacles to economic development and social development. It goes on to state that through bribery, fraud and the misappropriation of economic privileges. It is an important strategy for dismantling corruption can be the providing of easy access to information for all citizens through the use of e-government initiatives. Moreover, e-government can not only provide greater information to the population but also remove the discretion of the public official and allow citizens to conduct transactions themselves which, in turn, could lead to a reduction in corruption. Corruption has been cited as one of the most prevalent and persistent challenges in enhancing economic growth and improving the quality of life of citizens across the globe (Mistry & Jalal, 2012). Haque (2002) mentioned that the use of e-government can reduce costs and delays in processing and delivering services, expand citizen's access to public sector information, increase transparency and public accountability, and weaken authoritarian tendencies.

Actually, information technology (ICT) as one of the enablers are regarded as alternative ways of minimizing corruption in service delivery and enhancing transparency (Bhatnagar, 2003 & Heeks, 1998). In 2006, Andersen and Rand also studied the relation between corruption and e-government and concluded that well-designed ICT policies are likely to be effective in the fight against corruption. The electronic delivery of services like as submitting internet applications and tax returns for computer processing can reduce corruption by reducing interactions with officials, speeding up decisions, and reducing human errors (Hopper *et al*., 2009).

Klitgaard (1991) mentioned also the use of e-government can substantially contribute to reduce corruption due to the positive impact on three indicators: monopoly of elements of government by the political class, the discretionary power of state employees, and

accountability bureaucracy. E-government is used, being considered an efficient and effective mean to improve public transparency and reduce corruption (Lupu & Lazar, 2015). In addition, Shin & Eom (2008) cited that ICT can reduce corruption by promoting good governance, strengthening reform initiatives, reducing the potential for corrupt behavior, strengthening relations between government employees and citizens, allowing tracking activities and monitoring and control behavior of government employees by the citizens. Also the impact of ICT and social capital on corruption and argue that ICT has the potential to reduce unnecessary human intervention in government work processes, which reduces the need to monitor corrupt behavior. They used panels of datasets from various sources and concluded that ICT is an effective tool for reducing corruption and social capital also has positive effects on reducing corruption (Shim & Eom, 2009).

Best E-government Practices against Corruption

i. E-government Services against Corruption for Citizen and Business

There have been a general approaches used to integrate e-government in anti-corruption initiatives. Here we looks at how e-government can help fight corruption; gives a well-known examples from the Republic of Korea where e-government has successfully helped to fight corruption.

In the early 1990s, in the wake of globalization and increased pressures for improving governing institutions, there is a global demand for accountable and transparent governance. E-government became one of the key components of a broader anti-corruption strategy as is demonstrated by the OPEN system established in the Seoul Municipality in the Republic of Korea. In 1998, Seoul's Mayor initiated an anti-corruption program, the Online Procedures Enhancement for Civil Applications (OPEN) initiative, which opened up governmental procedures to the public. This project is widely recognized as an effective example of political and managerial commitment to transparency and for its impact on corruption. The OPEN web portal contains information on application procedures and contact information of departmental persons-in-charge so that citizens can monitor applications and raise questions in the event any irregularities are detected. A major part of the OPEN initiative was focused on the simplification of regulations and procedures, reengineering of work practices, transparency in procedures, effective communication with the citizens, and training, rather than the technology. The technology was used as a tool to achieve its goal (UNDP Report, 2006). The OPEN has contributed to notable decrease in corruption levels and has significantly enhanced the credibility of Municipal Corporation amongst citizens.

Moreover, the Korean e-procurement system provides a convenient one-stop service, enabling users to process all necessary operations for

procurement-registration, bidding, contract and payment. The e-procurement system has generated considerable benefits and offers lessons for other countries interested in public procurement reform. In 1997, the Korean government began reforming its notoriously complicated, nontransparent, corrupt public procurement system, introducing e-procurement to exploit the country's well-developed information and communications infrastructure. E-procurement has generated numerous benefits, including enhanced transparency and public trust by reducing contacts between officials and suppliers and by sharing information between government agencies and the public (World Bank Report, 2004).

ii. Anti-corruption Agencies Effect against Corruption

Corrupt Practices Investigation Bureau (CPIB) is a government agency in Singapore which investigates and prosecutes corruption in the public and private sectors. Although the primary function is to investigate corruption, it is empowered to investigate other criminal cases in which corruption may be involved. Here, e-service is really appreciable and there have reporting or providing information on corruption offences.

Figure- 1: Website of Corrupt Practices Investigation Bureau, Singapore

There have lodge a new corruption complaint, check status of my previous corruption compliant, how CPIB deals with corruption complaints, and other means of lodging corruption compliant. Moreover, there have booking of prevention talk option. In this option public sector and private sector are included. There also have an online service and defense counsel and application and payment for documents and fees (CPIB) order is available in this area.

Figure-2: Website of Anti-Corruption & Civil Rights Commission, Korea

The Anti-Corruption & Civil Rights Commission (ACRC) aims at resolving people's grievances, protecting their rights and fighting corruption. Also ACRC are committed to achieving these goals by placing the greatest priority on the protection of people's rights and interests. This homepage is an open channel to communicate with citizens. Here, institutional improvement area is very remarkable and it is really different than others. Procedures and institutional improvement system are included here. In the procedures area each organization voluntarily selects its institutional improvement tasks and improves its institutions while the ACRC supports their efforts by conducting anti-corruption initiative assessment.

The ACRC analyses corruption acts and the current trends of civil petitions, figures out corruption-prone or complaint-causing areas, and recommends public organizations to improve unreasonable laws and institutions.

Analysis and Findings

E-government can offer a number of benefits, including better quality government services, higher efficiency, less costs, a lower administrative burden on citizens and businesses, shorter processing times, increased citizen participation in the decision-making process, and enhanced transparency.

Statistical Analysis and Implications

In order to compare the Asian countries, e-government development index (EGDI) data were collected from the United Nations e-government survey that assesses the e-government development status of the member countries of United Nations. This survey highlights emerging e-government trends, issues, and innovative practices as well as challenges and opportunities for e-government development. However, mathematically e-government development index (EGDI) is a weighted average of three normalized scores on the three most important dimensions of e-government, namely: the online services, the telecommunications infrastructure; and human capital. EGDI is a composite indicator measuring the willingness and capacity of national administrations to use ICTs to deliver better services to the public and to have telecommunication infrastructure and human capital that can make it possible to work and share information more efficiently. On the other hand, corruption perceptions index (CPI) measures the perceived levels of public sector corruption worldwide. Transparency International (TI) the Berlin-based organization released the report on all over the world. In view of the relationship, the analysis uses e-

government development index (EGDI) as a dependent variable. So, the statistical analysis uses GLS regression to analyze the factor that is most closely associated with corruption. The GLS analysis examines the relationship between e-government (EGDI) and corruption (CPI) that presents the hypothesis of this paper.

The below regression result is a positive relationship between corruption and e-government development whereby a low score on the corruption index (low corruption) and a low score on the e-government development index (high degree of e-government) are related, though there may be other factors. The coefficient estimate for CPI is positive and statistically significant, but relatively weak.

Table- 1: E-government Readiness & Corruption

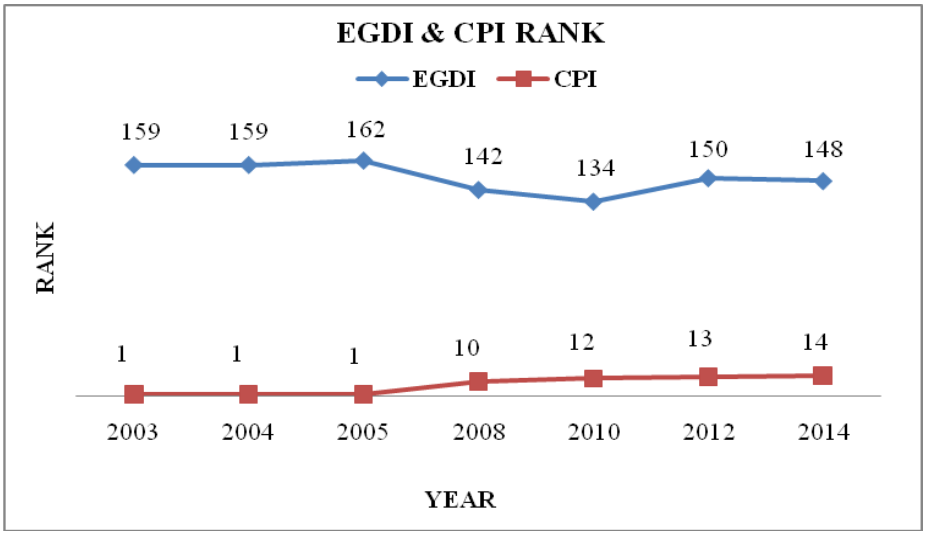
Random-effects GLS regression					**Number of obs**	**= 280**
Group variable: ID					Number of groups	= 40
R-sq:	within	=	0.0299		obs per group: min	= 7
	between	=	0.5560		avg	= 7.0
	overall	=	0.4665		max	= 7
					wald chi 2 (1)	= 41.98
corr (u_i, x)		=	0 (assumed)		prob > chi 2	= 0.0000

E-gov.(EGDI)	Coef.	Std. Err.	z	P> I z I	[95% Conf.	Interval]
Corruption(CPI)	.0439037	.0067763	6.48	0.000	.0306223	.0571851
_cons	.2860015	.0316151	9.05	0.000	.2240372	.3479659
sigma_u	.10593051					
sigma_e	.06963369					
rho	.69826925	(fraction of variance due to u_i)				

However, the positive relationship with the corruption variable that means e-government may provide hope for the people of Asia to change their life, and this also supports reducing corruption in Asia. It can be explain that corruption is a basic problem for Asian countries. Shin & Eom (2008) also cited that ICT can reduce corruption by promoting good governance, strengthening reform initiatives, reducing the potential for corrupt behavior, strengthening relations between government employees and citizens. It also shows a strong correlation that means e-government can play an important role to reduce corruption in Asian countries. E-government is used, being considered an efficient and effective mean to improve public transparency and reduce corruption (Lupu & Lazar, 2015). So, to meet global challenges

Bangladesh has no way to escape the process of establishing e-government. As an important tool it enhances transparency these days and there are many remarkable or successful examples to reduce corruption through e-government in the world (Iqbal, 2008).

Figure- 3: EGDI and CPI Rank, Bangladesh



Source: UN E-government Survey & TI Global Corruption Report

The figure 3 shows the status of e-government and level of corruption in Bangladesh. Here we can see that the EGDI rank was 159 while the CPI rank was 1 in both the year of 2003 and 2004. However, the EGDI rank was 162 and the CPI rank also was 1 in 2005. In 2008, we can see that the EGDI rank was 142 while the CPI rank was 10 and from this year the CPI rank was just moving forward. As we discussed above information technology (ICT) as one of the enablers are regarded as alternative ways of minimizing corruption in service delivery and enhancing transparency (Bhatnagar, 2003 & Heeks, 1998). In 2009, Hopper *et al* mentioned also the electronic delivery of services can reduce corruption by reducing interactions with officials, speeding up decisions, and reducing human errors. After that the EGDI rank was 134, 150 and 148 while the CPI rank was 12, 13 and 14 in 2010, 2012 and 2014. And the CPI rank was just moving forward continually in all of the years.

The use of e-government can substantially contribute to reduce corruption due to the positive impact on three indicators: monopoly of elements of government by the political class, the discretionary power of state employees, and accountability bureaucracy (Klitgaard, 1995).

Efforts of ACC in Bangladesh against Corruption

The Anti Corruption Commission (ACC) is combating corruption through punitive actions; pre-empting corruption through system

review; and preventing corruption through education and advocacy. Within this strategies there have some supporting objectives like as designing the organizational structure; designing operating mechanism, providing human resource support and good internal governance; and providing sound financial and logistical support. The ACC is a statutory independent corruption prevention and corruption detective body of the state, operating under the ACC Act, 2004. According to the Act, the commission is responsible for several important functions such as: conducting enquiry and investigation into the scheduled offences of the ACC Act on any allegations of corruption on own initiative or upon an aggrieved person; approval to lodge cases (FIR) and sanction to submit charge sheets or final report on the basis of enquiry and investigation; creating honesty and integrity to prevent corruption, building mass awareness against corruption and organizing seminars, symposium, workshops etc. on issues within the jurisdiction of commission's functions; and performing any other duties imposed upon commission under the law to combat corruption.

Figure-4: Website of Anti-Corruption Commission, Bangladesh

However, the basic intent of the ACC is uncompromisingly conducting drives to prevent and combat corruption. ACC in Bangladesh is the entity in charge of combating corruption through investigation, issuing of arrest warrant, and lodging cases against corrupt individuals including public officials. Actually, still there are no nation-wide government efforts to fight corruption through e-government practices in Bangladesh. Moreover, by law the ACC is independent and impartial but in practice it is systematically subjected to political influence (Global Integrity Report, 2010).

Limitations and Challenges

E-government is not a single event in a short period of time but a long-term evolutionary process of transforming government to focus on citizens. In general, the more services are available online and the more widespread the use of these services, the greater the impact of e-government. E-government challenges are often dependent on the national capacity for change and innovation, which itself largely determines the success of e-government goals. The countries that have

a more vibrant information society are able to better leverage human talent and ICT services for improve e-government performance (UN, 2014). Commitment of decision makers is a key to the success of all government anti- corruption programs. E-government can lead to transparency with the legal framework supports for free access to information. Secrecy laws are still in effect in many of the developing countries. However, the cost of introducing ICT in government organizations is high and selecting appropriate hardware and software is also a challenge due to the rapid advancement of new technologies. Moreover, securing the ICT system is important to prevent corruption by those who know how to manipulate the ICT system (UNDP, 2006). The UNDP (2006) discussed some general main limitations and challenges which are discussed below:

- **Building Political Commitment:** Commitment of decision makers and adequate financial resources allocation is a key challenge to the success of all government anticorruption programs.
- **Providing Legal Support:** Until a few years ago most countries still had strict national secrecy laws. This secrecy laws are still in effect in many of the developing countries.
- **Selecting Appropriate Technologies:** The cost of introducing ICT in government organization is high. Selecting appropriate hardware and software is also a challenge due to the rapid advancement of new technologies.
- **Ensuring Interoperability:** Overlapping roles and responsibilities among government departments and lack of cross-departmental cooperation in developing common hardware, software, data collection methods, and rules and procedures proves a challenge when designing a national e-government system.
- **Promoting Access and Use:** Increasing availability of information on the internet is not sufficient. Providing universal access, promoting literacy, fostering people's participation in governance are some of the key challenges in any e-government applications.

However, in case of Bangladesh failing experts and human resources are major bottlenecks for the introductions of e-governance. Low levels of ICT infrastructure and limitations of skills and aptitude among the senior officials. Inappropriate resources allocation and acceptability of electronic documents officially, political willingness and people's scarceness to use technology is also a big challenge (Nurunnabi & Ullah (2009). Overlapping roles and responsibilities among

government departments and lack of cross-departmental cooperation in developing common hardware, software, data collection methods, and rules and procedures proves the challenges in e-government system. Providing universal access and fostering people's participation in governance are also the key challenges in any e-government applications. Bangladesh has numerous challenges of like as centralized administrative and financial power, less accountability and transparency, poor management of government, misuse of power, lack of public officials and people participations, restricted access of information, priority of individual interest etc. (Iqbal, 2008). Moreover, still all software systems that developed in Bangladeshi governments' organizations are discrete in nature and they do not support inter-departmental or inter-organizational data sharing techniques (Nurunnabi & Ullah, 2009). By the law, the ACC is independent and impartial but in practice it is systematically subjected to political influence (Global Integrity Report, 2010).

One expert from ACC mentioned there have some limitations and challenges in ACC in Bangladesh which are discussed below:

- ACC in Bangladesh is still plagued by its own problems including a highly centralized system;
- The ACC began its journey with a huge case backlog inherited from the BAC. As a result the ACC was stretched thin with putting away the old cases rather than initiating new investigations;
- Although the commission became more active and made the headlines with high profile cases, it became an object of hatred among the political and business elite who were prosecuted and sentenced under the ACC laws;
- ACC's de jure and de facto dependence on the government in terms of financial allocation and other facilities;
- Within the greater framework of pseudo-democratic institutions and procedures, these institutions should have little scope to function independently.

Concluding Remarks

E-government is a strategic tool and it has a potential role to mitigate corruption. This paper also tests the relationship between e-government and corruption and argues that e-government can reduce corruption. We have discussed the relationship between e-government and corruption and then investigate in the use of ICT are linked to changes in the levels of corruption. To reduce the corruption e-government and

its role may the best way for the nation. Many governments around the world are putting information online, automatic processes and interacting electronically with their citizens (UN, 2014). So, Bangladesh needs to think to reduce corruption by using e-government tools. To enhance good e-governance Bangladesh may follow the e-services like as Singapore and e-procurement system like as Korea to get the better results and to reach the goal.

However, this paper looks at how e-government can help fight corruption; gives a well-known example from Singapore and the Republic of Korea in Asia where e-government has successfully helped to fight corruption; and discusses the challenges in designing and implementing similar programs. Bangladesh may refer to use e-government as a tool to reduce corruption as well as to establish good governance. The website of ACC should be an open channel to communicate with citizens and business. The ACC should commit to achieving the goal by the priority on the protection of people's rights and interests. Institutional improvement system should also include here. ICT specialists need to work closely with public officials to ensure that the design of the ICT system is coordinated with other reform processes.

E-governance is used, being considered an efficient and effective mean to improve public transparency and reduce corruption (Lupu & Lazar, 20015). So, to achieve the e-governance success we must ensure some recommendations. As human resource is a factor to drive the e-government is technology. So training needs to enrich human and ensure to remove the bottleneck in e-governance introduction. Education about e-governance including the utilization and importance can be generated through media publicity, seminars, workshops and also pilot testing as for example. Interactive ICT needs to be spread all over the country to build the platform of e-governance. Human resources need to be trained up from the successful countries in establishing e-governance and have to bring back to countries for effective utilization in implementation phase. It is highly required to change the mentality of political governments if they are really enthusiastic in preventing corruptions. Moreover, ICT specialists need to work closely with public officials to ensure that the design of the ICT system is coordinated with other reform processes. Securing the ICT system is important to prevent corruption by those who know how to manipulate the ICT system.

Meanwhile, Transparency International (TI) published Corruptions Perception Index (CPI) 2015 and Bangladesh has been ranked 139 with

a score of 25 out of 100. Last year it was also placed at 145 with the same score of 25. So, this index suggests Bangladesh is the 13th most corrupt country while last year's the index rank was 14th. Many countries improved their scores in 2015 but there has been no improvement as far as corruption in Bangladesh. Moreover, the Transparency International of Bangladesh (TIB) launched the report and stated that the score is unchanged but the rank went down one notch from the bottom. The Anti-Corruption Commission (ACC) of Bangladesh will have to be more effective to improve from this situation. The government also should take stern action against corruption.

References

Bhatnagar, S. (2003). *Access to Information: E-government*. Global Corruption Report 2003, Hoddes Inowlocki and Wolfe (eds.), Profile Books Ltd. London, 2003: 24-32.

Haque, M.S. (2002). E-governance in India: Its Impacts on Relations among Citizens, Politicians and Public Servants. *International Review of Administrative Sciences,* Vol. 68 (2): 231-250.

Heeks, Richard. (1998). *Information Systems for Public Management: Information Technology and Public Sector Corruption*. Working Paper No. 4, Institute for Development Policy and Management, University of Manchester, UK.

Hopper, T. Tsamenyi, M. Uddin, S. & Wickramasinghe, D. (2009). Management Accounting in Less Developed Countries: What is Known and Needs Knowing. *Accounting, Auditing and Accountability Journal*, Vol. 22 (3): 469-514.

Iqbal, M. Sohel. & Seo, J. Wan. (2008). E-Governance as an Anti Corruption Tool: Korean Cases *Journal of Korean Association for Regional Information Society*, Vol. 11 (2): 51-78.

Klitgaard, R. (1995). *National and International Strategies for Reducing Corruption*. Paper Presented To the OECD Symposium on Corruption and Good Governance, Paris.

Lee, Nag Yeon. & Oh, Kwangsok. (2011). ASIAN Academy of ICT Essentials for Government Leaders Module Series. Module 3: e-Government Applications. UN-APCICT/ESCAP (Second Edition)

Lupu, Dan. & Lazar, C. Georgiana. (2015). Influence of E-government on the Level of Corruption in some EU and non-EU States. *Procedia Economics and Finance*, Vol. 20: 365-371.

Mistry, Jamshed J. & Jalal, Abu. (2012). An Empirical Analysis of the Relationship between E-government and Corruption. *The International Journal of Digital Accounting Research,* Vol. 12: 145-176.

Nurunnabi, A. A. M. & Ullah, Kazi Tareq. (2009). E-Governance as an Anti-Corruption Tool for Government in Bangladesh. *AIUB Journal of Business and Economics*, Vol. 8 (2): 143-164.

Shim, D. C. & Eom. T. H. (2008). E-Government and Anti-corruption: Empirical Analysis of International Data. *International Journal of Public Administration*, Vol. 31 (3): 298-316.

Shim, D. C. & Eom. T. H. (2009). Anti-corruption Effects of Information Communication Technology (ICT) and Social Capital. *International Review of Administrative Sciences*, Vol. 75 (1): 99-116.

Web Links

http://english.seoul.go.kr/gover/initiatives/inti_12cor_02. htm

http://portal.unesco.org

http://unpan1.un.org/intradoc/groups/public/documents/undpadm/unpan043296.pdf

http://web.worldbank.org

http://www.acc.org.bd/

http://www.acrc.go.kr/eng/index.do

https://www.cpib.gov.sg/

http://www.business-anti-corruption.com/country-profiles/south asia/bangladesh/initiatives/public-anti-corruption-initiatives.aspx

http://www.globalintegrity.org/report/Bangladesh/2010/scorecard

http://www.thedailystar.net/bangladesh-14th-most-corrupt-country-53165

http://www.transparency.org/publications/gcr/download_gcr#summay

http://www.undp.org/policy/docs/practicenotes/Anti%20Corruption%20Note%20Draft%20FINAL%20copy%20edited%20100404.pdf

http://www1.worldbank.org/prem/PREMNotes/premnote90.pdf

http://siteresources.worldbank.org/INTEDEVELOPMENT/Resources/FormanEgov(6_05).ppt.

http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/EXTEGOVERNMENT/0,,contentMDK:20507153~menuPK:702592~pagePK:148956~piPK:216618~theSitePK:702586,00.html

http://bdnews24.com/bangladesh/2016/01/27/corruption-as-bad-as-before-in-bangladesh-says-transparency-international

10. Using Facebook in and Outside of Classroom for Language Education in Rural Areas of Bangladesh: Prospects and Challenges

Nujhat Nuari Islam

Abstract

Web 1.0 and Web 2.0 are now in discussion all over the world. Web 3.0 is the recent addition in the World Wide Web. Social Networking Sites (SNSs) are the tools of web 3.0 technology. SNSs are mainly used for communicative purpose. Educators, scholars and researchers are trying to use these sites for educative purpose as well. Many of them have done research on this purpose. This paper focuses on using facebook in and outside of classroom for education in rural areas of Bangladesh. There are computers, mobile phones, tablets, etc. electronic devices that can be used to access facebook with 3G/4G connection of internet. Mobile phone service providers like Grameen phone, Banglalink, Robi, Airtel, Teletalk, Citycell, along with Wimax service provider like Qubee, Banglalion, Ollo etc. are there to serve everyone with the fastest internet connection. Therefore, it is easy to access facebook in and outside of the classroom for educative purpose. Some language learning mobile applications are also part of it. After Computer Assisted Language Learning (CALL) and Mobile Assisted Language Learning (MALL), people are very eager to investigate the ways of using social networking sites in language classrooms. In this age, Facebook, Skype, Twitter, Friendster, youtube, and several blogs are very popular among everyone. This paper is a classroom based research. It delineates how facebook can be used for English Language Teaching (ELT) in language classroom for the students of Hamdard University Bangladesh which is located in Newtown, Sonargaon, Narayanganj. This problem will eventually address the present status quo of internet facility in rural areas of Bangladesh. The researcher used facebook to make a practice of writing and reading English among the students. As the students answer in their mid and final term in writing; therefore, the researcher focused on these two skills.

Keywords: facebook, internet facility, language learning

Introduction

People around the world can easily communicate with one another with just a click these days through a computer, or a tablet, or a mobile phone. Intellectuals, specially, the young scholars are generating these

advancements in history of science, technology and engineering. In a country like Bangladesh, internet connection, computer facilities may be limited in rural areas; however, everyone possesses a mobile phone for their daily activities. Walton is the one and only technocrat in Bangladesh to provide cheap mobile handsets with the applications of a smart phone. Smart phone is actually a vague term. A smart phone, by definition, is a combination of web applications, such as, emailing, photo sharing, Social Networking Sites' widgets, and some other third party applications, etc. According to Chang, Pearman, and Farha (2012), Web 1.0 and Web 2.0 are literally transitioning into Web 3.0. They also stated that people now have 3D technologies. As an example, they mentioned 'Google Earth.'

Reading and writing are very important in terms of English Language Teaching (ELT). This paper intends to find out how facebook can be used to develop reading and writing skills of the students. Since Web 2.0 is introduced recently in this South Asia zone, Bangladeshi researchers are trying to accumulate knowledge, and invent new techniques to teach English Language to the students in a very authentic and innovative way. There are some issues that facebook will not be a good option for language learning. However, this paper discusses on the issue of utilizing facebook as a language learning tool and intends to find out how facebook can contribute in language learning and teaching.

Facebook can be a good medium for new updates. Absent students can find important notices, lecture sheets, and other activities from facebook. Though students' attendance is very important in classrooms, yet, there may be some incidents when student will be unable to attend the classes. In this situation, facebook will be beneficial for the students. Students will be able to find out enough activities and practice files in a page or a group that is managed by a language teacher.

The main purpose of this study is to find out the advantages of the facebook for teaching English language inside and outside the classrooms.

In this paper two Research Questions (RQs) are investigated and discussed:

1. How facebook may beneficial for teaching English language in terms of reading and writing?
2. What are the scopes of using facebook for language teaching in classroom of Hamdard University Bangladesh?

Significance of the Study

According to Dr. Muhammed Shahriar Haque (2012), internet is a revolutionary addition in education system. He also elaborated the term Web 2.0 at Dhaka University International Conference 2012. He said "Web 1.0 is one dimensional, Web 2.0 is multidimensional. Both are significant for higher education, particularly in a country like Bangladesh. One does not have to be very tech-savvy to use Web 1.0 and Web 2.0 applications." Web 2.0 applications consist of relevant websites, podcasts, e-books, e-journals, e-encyclopedia, e-dictionary, and virtual resources. Social networking sites are the good resource for information, accumulating of knowledge, language teaching, learning, and practices simultaneously in and outside of classrooms. Most significantly, students can learn language at anytime, anywhere through these networking sites as they can carry laptops, internet modem, mobile phones, palmtops, or handheld devices very easily. This study will help the teachers, and the students to know how they can use social networking sites as their language tool.

Literature Review

A. Web 1.0 and Web 2.0 Technologies

General people may think that internet and World Wide Web are similar which is not correct. According to Chang, Pearman and Farha (2012), Internet is only the hardware and wire; whereas, World Wide Web is a software. Web 1.0 is the first generation of this software. Burners Lee coined the term web 1.0, and according to him, it is a 'read-only software' (Aghaei, Nematbakhsh & Farsani, 2012). Then, internet was slow, time consuming, and desktop-based only. In the beginning of 21st century, the computer specialists started to talk about web 2.0. Tom O'Reilly coined the term 'web 2.0' at Web 2.0 Conference, and he said (2005) that 'Web 2.0 is the network as platform.'

He further mentioned that there is no concrete definition of web 2.0. However, according to Aghaei, Nematbakhsh and Farsani (2012), web 2.0 was defined by Dale Daugharty in 2004 as read-write software.

Web 2.0 needs a web browser unlike web 1.0. Web 1.0 was depended on installed software (Chang, Pearman, & Farha, 2012). Mozilla Firefox, Google Crome, Internet Explorer are mostly used web browsers at this present status quo. These web browsers make the information search easy and speedy as well. Chang, Pearman, & Farha further mentioned that web 2.0 has become a useful language learning tool for its powerful socialization and communication tool (2012).

These tools continue to motivate recent teachers, educators, trainers, and others who are related to ESL/ EFL.

B. Web 2.0 tools for language learning

As O'reilly (2005) distinguished between web 1.0 and web 2.0, he also mentioned that web 2.0 is faster than the web 1.0. There are some other distinctive features as well.

- The broadband connection and high speed Wifi connection have made the searching very fast.
- There are many web applications and softwares to use in web 2.0. People can easily upload and download files and documents.
- People not only can read but also can write in the web pages.
- Social networking sites enable them to connect with any person across the globe. Facebook, myspace, twitter, youtube, skype, google+, etc. are some popular SNSs.

The social networking sites may enable the teachers to teach their students through internet. Language learning can easily be done through it. Teachers are already utilizing the tools like multimedia, podcast, vodcast/vidcast, blog.

C. Ways of Using Facebook

Facebook is the most popular social networking site all over the world. Mark Zuckerberg launched this website on February 2004 under Facebook Inc. (Phillips, 2007). It is now the second most used social networking site in the world. Scholars, researchers, and educators from all over the world have been working on to use facebook for educational purpose. In Bangladesh, use of facebook as an education tool is yet to be implemented. However, some researchers in Bangladesh are working on this issue now. Some features of facebook are discussed below:

i. Connecting with the World

As we already know facebook is a free site where anyone above 18 years can sign up, and make new friends, and communicate with anyone. However, there are some privacy and security issues that frequently made facebook authorities worried as they have to face legal issues.

ii. Marketing Purpose

Established multinational companies to small entrepreneurs, everyone has facebook page of their own. Film producers also create facebook page to promote their movies. Each male and female actor has their own account or page. Not only movie stars, TV channels, TV stars also have their own accounts or page. Some people create facebook fan

group to make publicity of their favorite heroes or heroine. According to Subramani and Rajagopalan (2003), this era is an age of user-generated media where web 2.0 technologies facilitate the marketers with viral marketing. The other name of this marketing is word-of-mouth (Miller & Lammas, 2010). Consumers' reaction is very prior to the marketers of this century. Facebook does not ask for money from its subscribers, yet it earns money from the marketers who post advertisement in this site. Facebook is a significant place for publicity, advertising, and marketing.

ii. Means of Communication

The subscribers of facebook can communicate with everyone at any time without any cost. Facebook has signed a contract with Skype authority. It has become convenient to communicate with friends, family, and colleagues through facebook chat, email, and video conferencing system. A group of friends can communicate with each other through this conferencing system. They can upload photos, videos, audios, document files at any time. Therefore, it is obvious that facebook can be used as a tool for language teaching very easily.

Methodology

This study is a combination of both qualitative and quantitative research. Researcher used the techniques in the classroom to show the possibilities of using facebook, and found out that facebook is a useful way of teaching for some students of Hamdard University Bangladesh, not for everyone. The success of this teaching method is fruitful when every student is able to take part in activities inside and outside of classes. The researcher made a facebook group, ENG 101, English Basics. She added 60 students in this group. Every day she uploaded new activity sheets, lecture sheets, important notices. She observed the performance of every single student of this group. Then, she distributed a questionnaire to the students of English, Economics, EEE, CSE, Mathematics department of Hamdard University Bangladesh (HUB). Students' responses and the demographical data were given importance to find out the impact of using facebook to improve reading and writing skills. The questionnaires were given to 60 undergraduate students. 53 questionnaires were returned to the researcher. Among them, 33 students were male, and 20 students were female. The questions were both open and closed ended. The setting of data collection is formal. It took only 15 minutes to fill up the questionnaires.

The analysis of data

The research question one is focused on how a teacher can use facebook inside and outside the classroom to develop the students'

reading and writing skills. The result and findings of this question are web-oriented. The Research Question two is mainly data-oriented, and it is focused on the scopes of SNSs in town like Sonargaon. Most of the students of Hamdard University Bangladesh live in Narayanganj, Sonargaon, and Comilla zone. Some of them have come from villages of Panchagar and Chapainawabganj as well.

Number of Students	53
Male	33
Female	20
Educational Institution	All are from Govt. colleges & Madrasas
Home Town	2 students are from Comilla & Kishoreganj 38 students are local (from Jatrabari, Sonargaon and Narayanganj area).
Availability of PC	17 students have their own PC
Availability of Internet	All students use mobile internet facility. University has WIFI connection

Table 1.0: Students' Profile

The questionnaire has 16 questions altogether. Question number 1 and 2 are focused on the financial condition of students' parents. Most of the parents are medium wage earner. Therefore, in reply to the question number 3, only 17 students (that is, 32%) answered that they have their own PC/laptop. Question number 4 revealed that among these 17 students, 11 students (that is, 64%) have internet facility. However, 25 students have their own email account. As they have their own email account, they have facebook account as well. 40 students out of 53 students (75% students) said they have facebook account to answer question number 8. They spend at least one hour daily in browsing the internet. 13 students out of 53 students (24%) answered they are not very regular in facebook.

From question number 10, 11, 12, and 13 (Appendix A) it is found out that 100% (53 out of 53) students did not have internet facility in their school. 9% students (5 out of 53) said they only had a few computers at their school for computer lab class. 8% students (5 out of 53) said they studied in madrasa. Those madrasas did not have a proper computer teacher. In reply to the question number 13, 53 students (100%) answered they can now easily utilize internet at their Hamdard University campus.

According to the reply of question number 14, 100% students informed that they all are the members of the facebook group, 'ENG 101.' Through this group, the students interact with the course teachers. The teacher frequently posts questions in the group. The

students answer, and the teacher gives feedback to the students after the session.

Findings and Discussion

A. According to RQ[1]

Social networking site is a part of web 2.0 technology. According to Stevenson and Liu (2010), a web 2.0 technology is a means of communication, disseminating knowledge, sharing information with everyone through any social networking site. Recently, some educators of Bangladesh are using facebook for language learning and teaching purpose. There are several ways of teaching language through facebook. Groups and pages both can be used for teaching purpose. The features of groups and pages have some distinctions.

Groups vs. Pages	Groups	Pages
Publish to users' timeline	√	√
Share photos, videos, events	√	√
Include discussion, forums, comments	√	√
Make group private and manage members	√	X
Edit group docs wiki style	√	X
Group chat all at once	X	√
Complete control over posts	√	√
Use widgets on your websites/blogs to promote	X	√
3rd party apps	X	√
Access to users stats	X	√
Delete after course end	X	√

Table 2.0 facebook groups vs. facebook pages

The distinctions show that facebook pages are better to use as a language learning tool. When the researcher created a facebook page of ENG 101: English Basics, she used to upload photos regarding grammar rules, and documents related to drills and activities. The students used to play quizzes through the poll question options.

According to RQ[2]

After analyzing the questionnaires, the survey resulted in some interesting statistics. Table 01 suggested that the students are not very internet savvy. Students do not have basic knowledge of computers. Therefore, they are not interested in social networking sites. They use mobile phones but it is impossible for them to develop their reading and writing skills through a normal mobile phone. They need android or symbian mobile phones. Though they have mobile phones through which they can connect with internet, but they could not do it because they are not financially developed. Hence, they use internet in the campus only. Students who do not have computers at home, they use computers in campus. They could not purchase any PC or desktop. Students who live in Dhaka city or at least in any divisional city, they

get the facilities of internet. Bangladesh is still developing in IT sector. Digitalization has just begun.

General Discussion

It is quite a challenge for the teachers to use facebook in and outside of the classroom to teach English language. Social networking sites can be beneficial for teachers and students. However, it is at present, only applicable for the city pupils. Rural area students are yet to get the technological facilities. 3G service is introduced, but it is only available in divisional cities, not in upzilla or villages. For an area like Sonargaon, using social networking sites to improve students' English Language reading and writing skills is quite difficult but not impossible. The university can provide internet facilities to its students. The government should take some necessary steps to ensure uninterrupted internet facility. How? The answer is followed:

1. University authorities can cover their campus with Wifi and internet with the help of an internet service provider like Brac Net, GP IT Solutions Ltd., Aamra Network Ltd., etc.
2. Students may use any 3G service provider which is available in their area. In Sonargaon, GP, Robi, Banglalink 3G services are available.
3. Network providers like Banglalion, Qubee, and Ollo are yet to be reached in rural areas. These networks do not support 3G/4G network facilities in rural areas.
4. The price of the data pack is very high. Students who study with scholarship, their financial condition is inadequate. They are unable to buy these data packs in higher price. Department of English at Hamdard University Bangladesh is facing this situation. The government should think about them, and must reduce the price.
5. All the universities that are located in divisional cities, districts, upzillas need concentration on the technological development in their campus. If the universities completely facilitate the students, teaching will be much easier in those universities.
6. Universities may have cyber café in the campus where students can sit and study.
7. The internet speed gets hampered during bad weather. Sometimes the internet service loses connection with the main server. This happens often in the rainy season. As the service providers are not available at the same day, the teachers and the students have to wait for active internet connection for one week or more. The university must ensure proper internet connection at this period.
8. The government of Bangladesh may donate some computers in the schools and colleges so that the students receive proper knowledge of computer operating. One computer for one student should be the

priority but if that is not possible, the government should assure that at least two students may learn computers by using one computer at a time during and outside class time.

Conclusion

Social Networking Sites are invented to connect people from all over the world. Educators and teachers are using technologies to teach their students. British Council, TESOL Organization, IATEFL, and some other educational institutions use facebook to spread out their day to day working activities. There are also some private entrepreneurs who are using facebook to groom up their business through facebook. Scholars are using blog to adequate their students in reading and writing by utilizing technology.

References

Chang, C. W., Pearman, C. & Farha, N. (2012). "Social Language Acquisition: Implications of Web 2.0 and Beyond" *Critical Questions in Education*, 3 (2), pp 52-64

Haque, M. S. (2012). "*'Who's afraid of technology'*: Implications of Web 1.0 and Web 2.0 in English Language and Literature Teaching" *International Conference 2012 on Teaching and Learning English Through Technology*, pp. 21

Aghaei, S., Nematbaksh, M. A., & Farsani, H.K. (2012). "Evolution of the World Wide Web: from Web 1.0 to Web 4.0" *International Journal of Web & Semantic Technology (IJWesT)*, 3(1), pp 1-10

O' Reilly, T. (2005). "What Is Web 2.0 Design Patterns and Business Models for the Next Generation of Software" *O'reill,*. Retrieved on 11 Sep. 2013 from http://www.oreillynet.com/pub/a/oreilly/tim/news/2005/09/30/what-is-web-20.html

Phillips, S. (2007). "A Brief History of Facebook" *The Guardian*, Retrieved on 20 Oct. 2013 from http://www.theguardian.com/technology/2007/jul/25/media.newmedia

Subramani, M. R., & Rajagopalan, B. (2003). "Knowledge-Sharing and Influence in Online Social Networks via Viral Marketing" *Communications of the ACM*, 46(12), pp 300-07

Miller, R. & Lammas, N. (2010). "Opportunities for using social media to generate viral Marketing" *Asia Pacific Public Relations Journal*, 11, pp 1-9, Retrieved on 22 Oct. 2013 from http://www.pria.com.au/journal/area?command=record&id=80&cid=14

Stevenson, M. P., & Liu, M. (2010). "Learning a Language with Web 2.0: Exploring the Use of Social Networking Features of Foreign Language Learning Websites" *CALICO Journal, 27*(2), pp. 233-259

Appendix A

Questionnaire for HUB Students

Age:

Hometown:

Gender:

1. How many earning members are there in your family?_____
2. What is your father's occupation?_____
3. Do you have desktop, laptop, tablet PC at home?
   a. Yes b. No
4. If you have a PC, do you have internet connection?
   a. Yes b. No
5. Do you have any email account?
   a. Yes b. No
6. Which is your email service provider? You may choose more than one.
   a. Google
   b. Yahoo
   c. MSN (hotmail/live)
   d. Rediffmail
   e. AOL
   f. Others _____
7. Do you have any social network account?
   a. Yes b. No
8. Which is your social network account from the following? You can choose more than one.
   a. Facebook
   b. Twitter
   c. Google+
   d. My space
   e. Hi5
   f. Others _____

9. How many hours do you surf the internet? (e.g. 3 to 4 hrs)_____
10. What is the name of your school?
    _____
11. Did your school have computer lab?
    a. Yes b. No
12. Did your school have internet facility?
    a. Yes b. No
13. Does your university have computer lab and internet facility?
    _____
14. Are you a member of facebook group 'HUB Language Society'?_____
15. If yes, how often you visit the group?_____
16. Write about your computer knowledge here.

Part Three
Sustainable Governance: Climate Change, Environmental Security and Disaster Management

11. Impacts of Climate Change on Winter Vegetables and Misery of Peasants to Adapt for Livelihoods in Dinajpur, Bangladesh

Md. Moshiur Rahman

Abstract

The paper intends to present the findings of impacts of climate change, extend of vulnerability and tries to show the adaptive capabilities by identifying root causes of winter vegetables production. Simultaneously, it aims to discover the potential economic development by promoting earning opportunities among the indigenous and poor peasant communities of a remote district area of Bangladesh. This study also sets to depict how the rural poor farmers are being deprived from their rights of getting proper information and facilities available regarding adverse impacts of climate change on winter vegetable production. A questionnaire survey has been conducted based on comparative analysis on vegetable production data over two decades. In total, 120 farmers were randomly selected from three Unions under Bochaganj Upazila in Dinajpur district. Both tabular and quantitative analyses were done to achieve the major objectives of the study. Resistance power of seeds and plants, pest attack pattern on crops, disease types of plants and variation in taste of commodities are used as the parameters to see the effect of climate change on vegetables cultivation. Climatic factors such as temperature, rainfall and fertilizer intake which have been used by the farmers and soil condition are closely monitored in the experimental site of vegetables production. The major findings of the study revealed that production of all the selected vegetables were profitable. However, recently farmers get abrupt suffering in vegetable production due to uneven seasonal pattern. The study reveals that based on the mode of problem prevailing on vegetables, peasants of the study area have applied different techniques in order to enhance production. Application of more fertilizers and insecticide are found to be a very common practice in their vegetable cultivation in modern time than a decade ago. Excess use of pesticide led to decline in taste of vegetables. The cost of vegetable production has been much more increased than any other time before which defiled the credit of increasing production rate. All these factors lead to increase suffering of the peasants. The study also exposed that the farmer communities are becoming financially poorer and finds it difficult to combat climate change issues with the negligible resources and technical knowledge that they have at

present. It is found that 30 farmers among 120 show unwillingness to cultivate vegetables further due to less profit now in the study area.

Keywords: climate change, impacts, adaptation, vegetables, peasant.

Introduction

As a developing country, Bangladesh is adequately suffering in the problems of poverty, unemployment and malnutrition. Vegetable sub-sector playing an important role to solve these problems in the shortest possible time. Vegetables are an important component of human diet as they are the main source of nutrients and minerals. Nearly 100 different types of vegetables comprising both of local and foreign origins are grown in Bangladesh (Akter 2011). These are also good remunerative to the farmer as they fetch higher price in the market. Vegetables can be identified as a significant one for this economy for its noteworthy contribution in raising the foreign exchange earnings in Bangladesh. Vegetables contribute 3.2% of the agricultural Gross Domestic Product (BBS, 2009). Bangladesh earned US $ 41.11 million from export of agricultural products in 2003-2004, which contributed 0.54% to total export earnings (BER, 2008). It creates a great opportunity of employment for the large number of unemployed people specially women of Bangladesh. There are a large number of vegetables having different varieties, which can be grown throughout the year. However, the largest numbers of vegetables are grown in the winter season. The northern part of Bangladesh is famous for cultivating winter vegetables for many years. However, recently this agricultural product faces much terrible in producing. Likewise other crops, they are also being hit by the consequences of climate change and irregular seasonal pattern. Late monsoon and extreme cold during winter cause big threat for vegetable cultivation which leads varieties of diseases. In Dinajpur district, the effect of severe snow fall found in December to February as it is nearer towards Himalay Mountain. Under changing climatic situations crop failures, shortage of yields, reduction in quality and increasing pest and disease problems are common and they render the vegetable cultivation unprofitable.

Hypothesis

Peasant of the study area are the worst victim of impact of climate change consequently a number of farmers tend to change their profession while a portion practiced to cope with using different tools.

Objectives: Major objectives of this study are mentioned below.

i. To know the impacts of climate change on winter vegetable production
ii. To indicate suffering faces by the farmers due to impacts of climate change

iii. Finding out the pattern of change of vegetable cultivation.

iv. Provide recommendations for taking adaptive measures to combat the impacts of climate change on vegetable production.

Area Selection

To assess the impact of climate change on winter vegetables and to depict the adaptive measures taken by the peasant to confront the impacts priority has been given in area selection where huge amount of winter vegetable are produced. At the same time, where serious damage is occurring in vegetable production due to climate change such as high humidity, extreme cold, heavy snow fall, frost, winter rainfall are considered. Considering these entire thing, three unions namely Rangaon, Morshidahat and Nafanagar of Bochanganj Upazila under Dinajpur district selected to conduct this research. This Upazila occupies an area of 224.79 sq.km. It is located between 25°40' and 25°54' north latitudes and between 88°23' and 88°32' ' east longitudes (Population Census Community report Dinajpur 2011 pp 39-40).

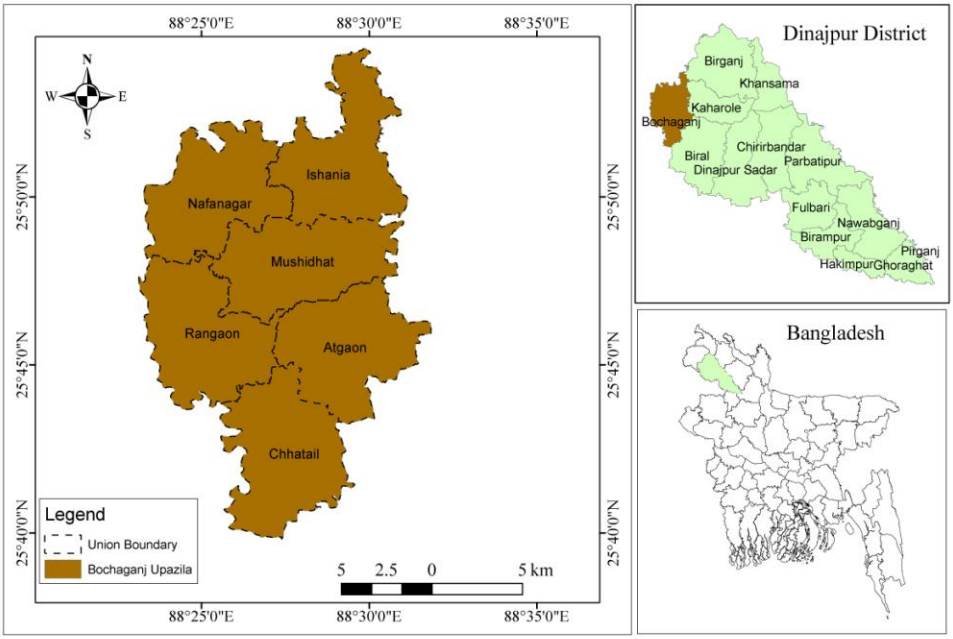


Fig. 1: Location Map of Study area- Bochaganj Upazila of Dinajpur District

Materials and Methods

This research is both qualitative and quantitative in nature. However, emphasis has been given on qualitative measures. A structured questionnaire survey has been conducted in the study area. Simultaneously, focus group discussion (FGD) and informal dialogue also arranged in the three villages of study area. In-depth interview was taken from the local farmers with open and closed question system to get idea about knowledge and practices of the farmers about impacts of climate change and adaptation measures they applied while vegetable cultivation. A total number of 120 questionnaires were completed from

the selected farmers of the study area. Out of selected 120 respondents, 52.4% (63) were from Rangaon, 25.3% (30) from Murshidhat and 22.3% (27) from Nafanagar Union. Sample size was determined based on intensity of farmers engaged in winter vegetable production. Number of total household of three selected union is 14323 (BBS, Community report 2013).

Due to short of time and budget, it is not possible to cover all the numbers of households. For that reason, Yamane's mathematical formula has been followed to determine the sample size.

Taro Yamane's (1967: 886) formula:

$$n=\frac{N}{1+Ne^2}$$

Where n = sample size, N =Total households = 14,323 and e = level of precision =95%

Therefore, the sample size, $n=\frac{14323}{1+14323x(0.05)^2}=\frac{14323}{1+93.7}=387$

Among this sample size 267 are covered by FGD and informal interview while rest 120 is covered by questionnaire survey.

Vegetables in Study Area

Farmers grow both summer and winter vegetables in the study area. Main winter vegetables are Potato, Brinjal, Radish, Arum, Lady's Finger, Cauliflower, Cabbage, Bean, Tomato, Patal, Gourd, Cucumber, Pumpkin, Knollkal-Turnip, Dhundal, Barbati, Carrot, Stem amaranth, Pea seed, Bitter guard and Red amaranth and Jute leaf. Besides, spices growth found in the study area. The main spices include Turmeric, Ginger, Chilies, Onion, Garlic, and Coriander.

Table 1: Vegetable production rate and area of land used in cultivation at Dinajpur region

Vegetable item	2009		2010		2014	
	Area in hectare	Production in M.ton	Area in hectare	Production in M.ton	Area in hectare	Production in M.ton
Brinjal	970	5505	993	5778	923	5690
Potato	14696	110553	11047	1, 30,000	35757	614358
Palong Shak	401	2029	400	2009	381	1923
Cauliflower	645	5326	639	5501	627	4709
Cabbage	560	7135	530	7052	485	6695
Bean	633	2020	204	659	201	827
Tomato	3874	46000	2706	25911	2655	2902

Source: *BBS 2013, District Statistics, Dinajpur*

From the above figure it is seen that the amount of land used for vegetable cultivation and its production rate has been decreased in most of cases. Tomato was cultivated in 3874 hectare of land in 2009 and production amount was 46000 Metric ton while it was produced in 2706 hectare of land and production rate was 25911 M.ton in the next year. Moreover, the production rate of bean cultivation is decreasing gradually which was 2020 M. ton in 2009 and come down to 827 M. ton in 2014. Similarly, Cauliflower, Palong Shak, and Cabbage production rate are also decreasing On the contrary, Potato and Tomato production rate is increasing which was 110553 M. ton in 2009 and reached 614358 M ton in 2014.

It indicates that, in spite of using modern technologies and more fertilizer in agriculture, vegetable production rate deteriorating in study area. Simultaneously, the volume of vegetable production land decreasing. On the other hand, cost of vegetable production increasing. The amount of using fertilizer and insecticide in agriculture increased much more than before. Farmers intend to use more chemical fertilizer than organic. A figure of using fertilizer vegetable production given below:

Table 2: Upazila wise use of chemical fertilizer in vegetable production at Dinajpur region during 2010-11(in metric ton)

Name of Upazila	UREA	TSP	MP	DAP	Others
Dinajpur Sadar	14100	4500	3834	2052	1317
Birampur	5569	1685	827	322	595
Ghoraghat	5394	1308	1277	536	2000
Kaharole	7629	7241	6499	56	1150
Birol	13936	3246	2130	995	2167
Birgonj	15584	2249	2714	1243	1049
Khansama	6120	1135	972	76	668
Chibirbondor	11309	3600	2615	1300	1196
Bochagonj	6163	1530	1034	337	335
Fulbari	6824	1060	1483	1017	0
Nababgonj	9087	2332	1700	1916	200
Parbotipur	9829	5115	3587	2007	0
Hakimpur	3364	740	619	1215	319
Total	114908	35741	29291	13072	10996

Source: *BBS 2013, District Statistics, Dinajpur*

Results and Discussions

The consequences of the climate change badly hit the vegetable production. Under changing climatic situations crop failures, shortage of yields, reduction in quality and increasing pest and disease problems are common and they render the vegetable cultivation unprofitable.

The intensity of cold reached in highest and the lowest temperature recorded as 6.5 degree Celsius in 2009 at Dianjpur while humidity was recorded 77% (BBS 2013). Crop land, crop cultivation and crop yield were affected due to climatic change and changing of climate might pose a big and devastating threat to the production of winter crop in Dinajpur region.

The changing behavior of climate severely affected the crop, productive land and total process of production as a whole and that was the response of about 65% interviewees while 20% said moderate and 12.5% mentioned they have no idea regarding this issue.

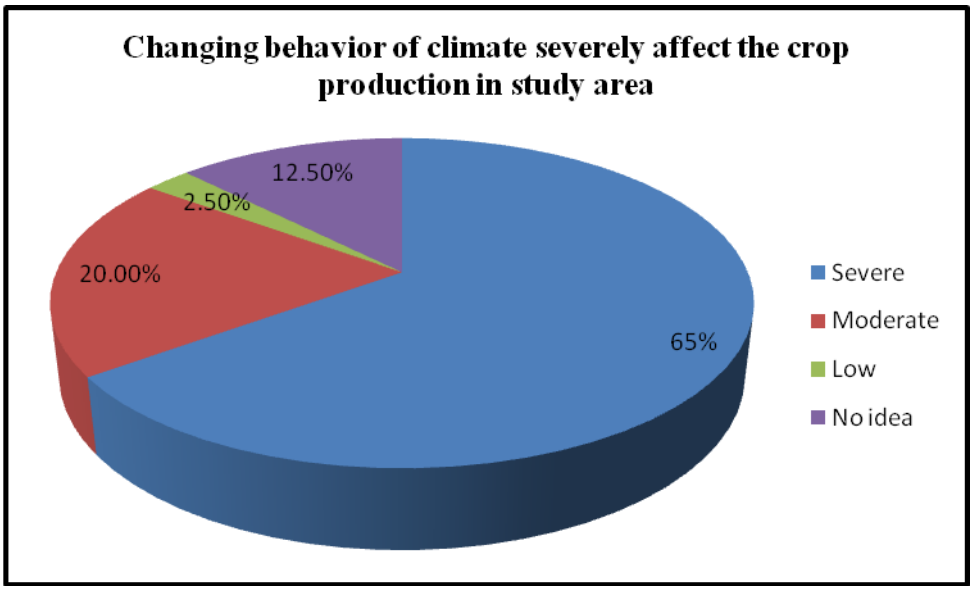


Figure 2: Respondents' comments on changing behavior of climate severely affect the crop production in study area

From the above figure it is observed that farmers of study area are aware enough to the changing pattern of climatic condition with a negative impact on their vegetable production. As 65% responded it has a severe while 20% replied moderate and 2.5% responded low impact on crop production.

Change in temperature affects the production of vegetables greatly and it is frequently occurred in study area. Sometimes winter brings unusual warmness and that was the opinion of 35% in every year. Respondents express that it is the most potential reason for loss of vegetable production.

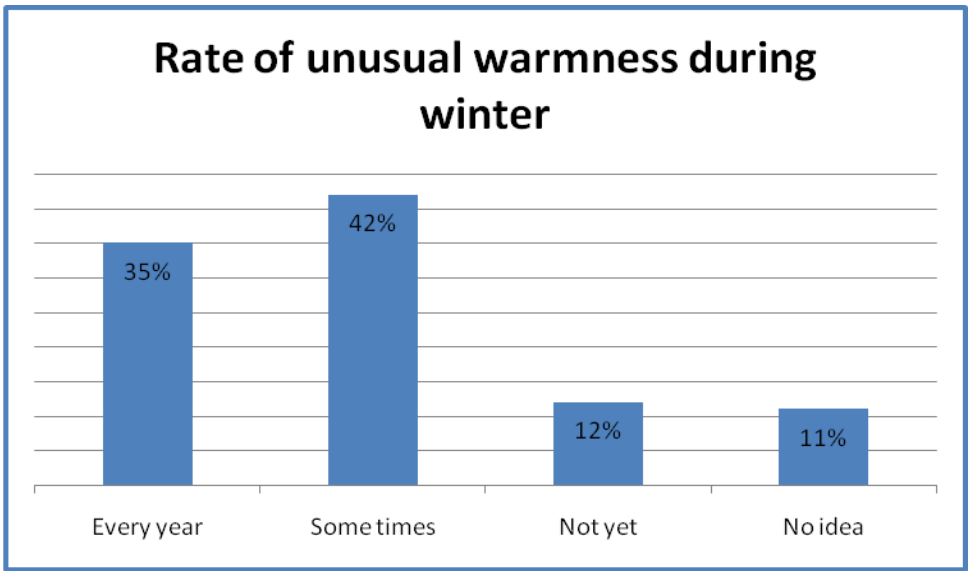


Figure 3: Respondents' comments on rate of unusual warmness during winter in study area

The above figure mentioned unusual warmness occurs during winter due to climate change. As 35% respondents replied it is occurred every year while 42% replied it occurs sometime of the year and 12% mentioned it never happened.

Changing of climate might pose a big and devastating threat to the production of vegetable. It is directly found in study area. In response of a question 58% respondents replied climate change poses a big threat for the cultivation of vegetable.

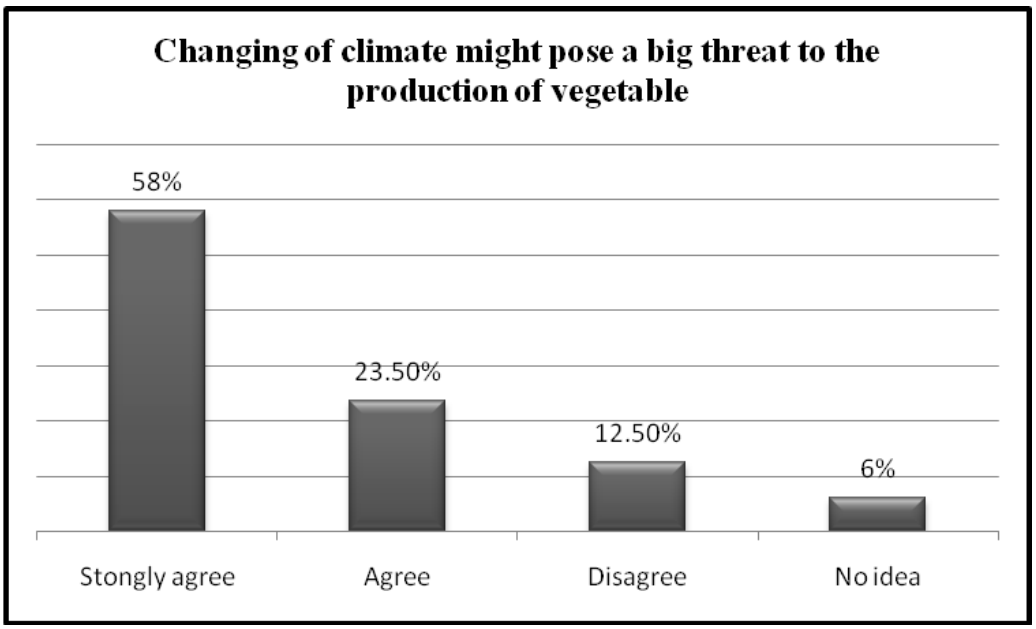


Figure 4: Respondents' comments on changing climate pose a big threat in the crop production in study area.

Form the above figure it is noticed that most of the peasant (58%) of study area are strongly agree with the fact that climate change is a

threat for winter vegetable production while 12.5% are in against of this fact and 6% replied that they have no idea regarding the issue.

Adaptation Practices in Study area

Adaptation is a spontaneous way to cope up with changing situation for avoiding unexpected losses. There are different types of adaptation techniques. Some good adaptation practices are identified in vegetable cultivation against extreme cold, dew, frost, abrupt changing of temperature, and sudden rainfall in winter and drought. Thatching on seed bed is a popular adaptation practice found in study area to protect the tender plants during heavy snow fall. Straw are broadly used in making thatcher as it is easily available in rural area. Besides, use of polythene to cover the total seed bed is a fruitful method used by the local farmers. In addition, farmers applied canal encircled seed filed to irrigate easily. Thus, these canals are also used to drain excess water that comes during sudden rainfall. Moreover, farmers used net to protect their vegetable plants from foggy atmosphere. These are good instruments for farmers to cope with the effect of climate change. Homestead gardening is a widely accepted practice in study area and mainly managed by women. It ensures food security and additional income by enhancing livelihoods of poor people in the study area as it easy to take care. So, homestead gardening is considered as good adaptation practice and widely practiced in Rangaon, Nafanagar and Morshidahat Unions. Those farmers who use traditional method and depend on nature for cultivation do not apply any adaptive method in vegetable cultivation. Different technique of adaptation to face the impact of climate change in study area is shown in following figure:

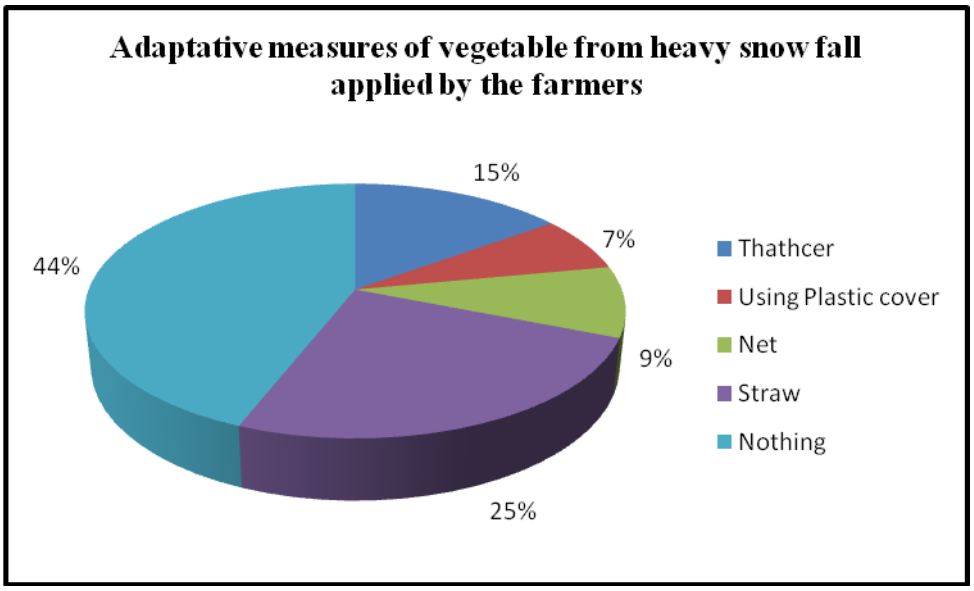


Figure 5: Percentage of respondents' comments on adaptive measures to protect vegetable from snow fall in study area.

The above figure indicates that farmers use several techniques as adaptive measures from the impact of climate change to their vegetable field. They use this method traditionally without having knowledge about climate change. But these techniques help them to adapt in changing climatic condition. During heavy snow fall, 25% farmers spread straw, 15% make thatcher, 7 % use plastic and 9% use net to cover the tender plants of vegetable in order to protect from heavy cold. However, a large portion (44%) of the farmers does not apply any adaptive measure.

Fertilizer Management

It is essential to take effective measures on fertilizer management to combat against impact of climate change. It is found that farmers of study area have little knowledge on effective fertilizer management. Rather, they tend to use more chemical fertilizer to prevent diseases. Research revealed that an increase of atmospheric carbon dioxide reduces the nitrogen uptake by plants or crops (Mazumder 2011). Moreover, fertilizer management is not same for irrigated agriculture and non-irrigated agriculture. Use of USG (Urea Super Granule) may use for rice but it is not suitable for vegetable. However, it is seen that farmers of study area use USG in their vegetable field. They emphasize on rapid grow of plants. But it defile the taste of vegetables even cause different types of disease after intake in human body. Moreover, it increases production cost of the farmers. On the other hand, use of organic manure has many positive sides. They are cheap, eco-friendly and increase water-holding capacity of the soil. Some common diseases and preventive measures taken by the farmers are given below:

Table 3: Disease and prevention measures practiced in vegetable cultivation by the peasant in study area

Name of disease	Cause of disease	Vegetable item	Treatment
Early blight, Late blight Gangrene, leaf roll, moptop, rogoes mosaic, frog eye leaf spot, stem root rot,	Fungal, bacterial nematode and phytoplasma	Potato, Tomato	Healthy seed, Thiram Biofungicide Disease fruit should be plucked and burnt
Lead curl, leaf spot, Phomopsis blight	Viral and bacterial	Brinjal	Healthy seed, Crop rotation, Good drainage system Diathane M 45

dieback, vegetable fruit fly, White rust	Bacterial	Palong Shak, amaranth, Red amaranth	Tilt, ridomil gold , native
Alternaria blight	Fungal and viral	Radish	Admire, Sumithion, Malathion
Rust of bean, Cercospora leaf spot	Fungal and viral	Bean	Prior to sowing, the seeds should be treated
Alternaria blight	Pythium and Phytophthora	Cabbage, cauliflower	Using Compost and Vermi compost.

Source: *Questionnaire survey and Upazila Agriculture Office, Bochaganj and Hossain 2010, Saydia, 2012*

The above figure showed farmers of study area experienced various types of diseases and they practice different preventive measure specially medicine available in market. Most of the diseases cause by fungal, bacteria and virus. Some of the farmers communicate with agricultural office and block supervisor to get information about disease. Nowadays, farmers are trying to involve them with modern agriculture practice. Thus, they become habituated with seed management and integrated pest management.

Recommendations

Following recommendations can be placed to get rid of climate change impact in vegetable cultivation.

- Extreme cold tolerate seeds should be developed.
- Community Agriculture Clinic may be established to identify and control pest and disease attacks.
- Awareness raising program should be taken for building adaptive capacity and the implications of climate change amongst local level NGOs, agricultural extension officers, block supervisor of Department of Agricultural Extension (DAE), and farmers.
- Tender plants can be protected from a few light frosts with row covers or blankets.
- Ensure crop diversification emphasis on heat and cold tolerant varieties and cropping pattern.
- Seed banks can be established to ensure that varieties remain available.
- Introduce alternative income opportunities for the climate vulnerable peasant.

- Proper information about the climate change has to be provided to the people.
- Different social safety net programs (Relief, Food for work, Money for work, VGD, VGF, OMS, NS etc.) have to be started on the affected peasants of study areas.
- Soft loan among the affected people has to be distributed.
- Alternate livelihoods have to be introduced which will not be affected due to climate change.
- Govt. has to be patronized for further research in climate change, so that new knowledge can be easily implemented in future.

Conclusion

Climate change is one of the most serious threats to livelihood of farmers, with adverse impacts on their socio-economic condition. It is mostly evident in the developing countries and the marginal farmers are the worst victim of the impact of climate change. The climatic elements like temperature, pressure, precipitation etc. are changing day by day. This paper find out the realistic output along with climatic issues and agricultural vulnerability specially on vegetable production. It was observed that, unpredictably changes of seasonal patterns arise many problems and push the farmers in crisis to take decision regarding vegetable production. More specifically, rainfall discontinuation in summer and sudden precipitation during winter lead the cultivators falling in dilemma. Irregular characteristics of climate very often compelled the planter late starting their operation in field while timing is a key factor for good vegetable growth. One common problem is it leads easy attack of pest which is convenient to spread diseases to the plants. Heavy snowfall remains in December to February in the study area. This is the crucial time for vegetable cultivation. Sometimes foggy weather remains for days long and seed plants attack in many diseases; notably leaf curl, leaf spot, leaf roll and vegetable fruit fly. These affects of climate change also influence the pest and disease occurrences, host-pathogen interactions, distribution and ecology of insects, time of appearance, changes in profession and their overwintering capacity, there by becoming major setback to vegetable cultivation. Potato, among the all vegetables, is most vulnerable to climate change due to its exact climatic requirement for various physiological processes. Besides, amaranth and Palang Shak like all shortly perishable vegetables face esteem vulnerability due to climate change in study area. Thus, it can be said that Peasant of the study area are the worst victim of impact of climate change while a portion practiced to cope with using different tools which support the hypothesis of this research.

References

Ahmed, J.U. 2001. A comparative economic study of potato and cauliflower production in a selected area of Comilla district. M.S. Thesis, Department of Agricultural Economics, BAU, Mymensingh, Bangladesh.

Akhter, F. 2006. Economics of some selected winter vegetables production in an area of Trishal upazila in Mymensingh district. M.S. Thesis, Department of Agricultural Economics, BAU, Mymensingh, Bangladesh.

Akter, S. M. S. Islam and M. S. Rahman. 2011. An economic analysis of winter vegetables production in some selected areas of Narsingdi district, Journal of Bangladesh Agricultural University. 9(2): 241–246, Mymensingh, Bangladesh.

Alauddin, S.M. and Rahman, K.F. (2013). "Vulnerability to Climate Change and Adaptation Practice in Bangladesh." Journal of SUB, 4(2), 25-42.

BER. 2008. Bangladesh Economic Review, Ministry of Finance, Government of the People's Republic of Bangladesh.

Bangladesh Bureau of Statistics (BBS). 2013, District Statistics 2011, Dinajpur

Food and Agriculture Organization. (2008). "Community Based Adaptation in Action, A case study from Bangladesh, Improved adaptive capacity to climate change for sustainable livelihoods in agriculture sectors", http://www.fao.org/3/a-i0481e.pdf

Hossain, M. T. Uddin, N, Rahman, M. 2010. SURVEY ON MAJOR DISEASES OF VEGETABLE AND FRUIT CROPS IN CHITTAGONG REGION *Bangladesh Journal of Agriculture*, Res. 35(3) : 423-429

Syeda, J.A. and M. Nasser, 2012. Farmers' Perception Regarding Climate Change and Crop Production, Especially for Wheat in Dinajpur District, *J. Environ. Sci. & Natural Resources*, 5(2): 129 - 136,

Mazumder M. Lokman 2011. Adapting agriculture to climate change, The daily Star, January 1, 2011, Dhaka

Sattar, S.A. and Abedin, M.Z. (2012). "Option for coastal farmers of Bangladesh adapting to impacts of climate change." International Conference of Environment, Agriculture and Food sciences (ICEAFS), Phuket, Thailand. UNFCCC. (2006). "Technologies for adaptation to climate change",

http://unfccc.int/resource/docs/publications/tech_for_adaptation_06.pdf

Yamane, Taro. 1967. Statistics: An Introductory Analysis, 2nd Ed, New York: Harper and Row, pp 880

12. Intermediate Technology as Environmental Security

Muttaki Bin Kamal

Abstract

This paper critically explored and analyzed an existent Intermediate Technology based small industry of Bangladesh through observation and ethnographic method. It poses the proof of sustaining intermediate technology based industries in the country and critically discusses the possibilities and challenges of such industries. In addition, it connects how such industries can contribute to environmental security.

Keywords : Appropriate Technology, Environmental Security, Sustainability

Introduction

Forty years ago, British Economist E.F Schumacher (1973) described the idea of "Appropriate or Intermediate Technology" in his book "*Small is beautiful"*. In this book he discussed about the small cottage based entrepreneurs of India and how they contribute to the Indian economy. By the term "Appropriate or Intermediate Technology", Schumacher defined the industry/technology type which is:

1. Environmentally friendly,
2. Based on local and indigenous technology and ingenuity,
3. Follows "optimum level production"- which means the parsimonious production to satisfy only the need of the population
4. Uses recycled raw materials that prevent excessive "ecological withdrawal"
5. Involves local people in production and especially creates opportunities for local people.

His concept gave birth to the "Appropriate technology movement" in 1970's which still guides the environmentalists.

But Paul Pollac (2010) claimed that "Appropriate Technology" is a dead "economic concept" and that it is not sustainable. Also, the mainstream capitalist and development schools reject this idea from the beginning.

On the contrary to Paul Pollac's claim, there are thousands of Appropriate Technology based industries in Bangladesh, still fully

functioning and contributing to the national economy. In a time when mainstream economy is imposing mass industrialization in Bangladesh which is increasing pressure on the environment and sustainability of economy and ecology, these industries can guide the economic management of Bangladesh. It is now a necessity to preserve the natural strengths and resources of Bangladesh and properly engage them to sustainable development.

My paper posts an observational discussion on them. I collected data from an industry situated in Gazipur, which is an example of Appropriate Technology, through observational and ethnographic method.

Appropriate Technology: (Conceptual Framework

Schumacher (1989) started his argument in his book, with stating that the modern world makes an error believing that the problem of production is solved. All over the world, he claims, from general people to the experts, mostly believe so. The rich countries are now busy with "education for leisure" and the poor with "transfer of technology".

Capitalism is taken as the economic solution in the modern world. With the fall of communism and Soviet Union capitalism is more profoundly established as the global economy. Politics, both international and national, are modified to lean towards democracy, to facilitate capitalism and open market economy.

Capitalist ideology tends to control over nature and natural resources. With the innovation of advance technology and ecological extraction method, capitalism increases the treadmill of production. According to Michael J Lynch (2014) with the advanced extraction technologies the ecological withdrawal and ecological addition increase. The more advance the extraction technology is, the more ecological withdrawal like fossil fuel extraction etc occurs and the more ecological addition like green house gases increase also. The faster the treadmill of production is the more natural resources are tuned into artificial additions in the nature.

In such a way, capitalist standpoint of mass production threatens the environmental security by upsetting the ecological balance. Use of complex machineries increase the production and reduce the labor needed for production. Such complex technologies are not accessible by everyone also. Due to the cost, most of the population is unable to access such machinery. Also, George Mcrobie's (1982) point of view, as the modern social structure is based on "competent manipulation of

the factors of production", the socio economic situation became like a battlefield where any means to control the means of production is legitimate. So, in the battle over production manipulation, only the powerful has advantage.

With the export of capitalism and transfer of technologies in the former colonies of the European empires negatively influenced the local technology. Ingenious indigenous craftsmanship and products were lost. Surgeon James F Taylor (1840) of the British East India Company mentioned how the British influence destroyed the legendary "Muslin" fabric of Dhaka, Bengal. Moreover, the natural resources of former colonies like the South Asia, Africa etc came under the Treadmill of Production effect and the environmental condition in these regions declined with species cleansing, habitat loss, deforestation etc.

But these areas had environment friendly lifestyle and production system of their own back in history. Hinduism, Buddhism and Islam merely these three prominent religions and philosophy provided the people of the Indian subcontinent with a diversity of economic systems that was environment friendly. The prosperity seen in the Bengal in the 17^{th} century by the European travelers and merchants was the result of such environment friendly and indigenous technology and production. But the colonial period and its aftermath declined such prosperity and advancement.

Observing such conditions while working in the South Asian region, Schumacher came to propose his idea of Intermediate/Appropriate technology with the characteristics indicated in the introductory remarks of this paper. Such an idea of technology was to address the majority of the population in the share of the economy, reduce environmental degradation and exploitation of environment, encourage the indigenous ingenuity, build environment friendly and sustainable technology and industry and above all, to set an economic system that is concerned with "optimum" production rather than "maximum" and thus resent from "cashing out" the natural resources that are actually the "capital".

Instantly his idea of appropriate technology gained popularity among the scholars and the people. Over the next decades the idea expanded and was adopted by several underdeveloped, developing and developed countries. The appropriate technology movement was promising the rise of a new economy.

Many business entrepreneurs like The Body Shop in US and Ben and Jerry's in UK (Bunting 2011) adopted the idea of intermediate technology and started environment friendly, small capital, people oriented business.

But from the beginning the mainstream capitalists were rejecting the idea of appropriate technology. As Schumacher advocated for Buddhist and Gandhian way of optimum production- produce only to satisfy the need- his idea was rejected by the developing countries like India itself for their persuasion of capitalism. The entrepreneur that started on the basis of intermediate technology got snuffled away in many cases. Slowly the intermediate technology movement abated down.

Paul Polak (2010) examines the cause that made the movement to abate. In his words, "*It bears repeating: the appropriate technology movement died because it was led by well-intentioned tinkerers instead of hard-nosed entrepreneurs designing for the market*". He argues, if the technologies are not designed bearing the selling value in mind, they won't sell at all and if such appropriate technologies do not sell at a cheap value to the root level people, there won't be any point to design them at all. He provides examples of ITDG's solar lantern and ATI's Manual Sunflower Oil Press originally designed for Africa; which are now selling at a price above 110USD- way above the financial ability of the African villagers and farmers.

He points out the new endeavours about designing intermediate technologies later in his writing.

Sustained example of Intermediate Technology

As I said earlier, there are thousands of small or cottage industries that are based on appropriate technology in Bangladesh. The rural areas are of Dhaka Old Town, Jinjira, Dholai Khal, Gazipur etc are potential places to find intermediate technology based industries in Bangladesh.

This paper discusses an example of such a small industry named Kamal Karigori, situated in Salna, Gazipur of Dhaka division.

Data Collection and Analysis

I used observation, ethnography and interview method to collect data about this factory because I had the most suitable set up to work in these methods. This factory is owned by my father and I have the opportunity to get involved in its conducts anytime. I noted such activities of mine and other observations about the factory then I interviewed in a casual and friendly manner with the employees.

In analysis, to determine how much intermediate technology based the industry is, I used these points,

1. The size of capital/investment of the industry
2. The involvement of people in the industry
3. Environmental impact
4. Locality, ingenuity and cost effectiveness of the machinery
5. Procuring process of raw materials

The industry

The name of the industry is Kamal Karigori as mentioned earlier. It makes leather accessories: eyelets and hooks that are used to manufacture shoes and boots. These are very unconventional products in comparison to the present trends of production in Bangladesh. It is one of the few small industries that emphasize only in these products.

In the surrounding of the factory, there is plantation of the forest department of the Government of Bangladesh. The area all over is turning to an industrial zone with mostly large industries that clear out the plantation areas and start with a big structure. Most of these factories are of big scale like readymade garments, sweater factories etc.

On the other hand, Kamal Karigori is a factory situated in the surrounding of the plantation, with a humble building and very less amount of structural attribute.

Establishment, investment and finance

Initially the industry was situated in the Dhaka Old Town. It was established in 1973-74. The initial investment of the industry was around 2900 USD (at the then price of taka against USD) including the 8 machines, place and other costs. The investment was gathered from the collection of savings of my father and donation from my grandfather. My grandfather sold a piece of land to donate his son.

In next phase in 1985, the industry shifted to Gazipur, to its present location. The investment in this phase was around 3400 USD (as per the price of taka against USD by then). It was funded from the saving from the previous turnovers of the industry and a personal loan.

In 1990-91 my father took a loan through BSCIC from Agrani Bank limited of 300,000 taka or around 770 USD (as per the price of taka against USD by then). This was the only loan or outside funding the industry received.

So, over the phases, the investment behind the industry was very small. My father had the dream to start a gigantic industry with massive investment. But lack of capital refrain him from such a concern. Rather, he started an industry based on intermediate technology not quite planned.

Machinery and techniques

Lack of capital also refrain the industry to procure big, complex machines. There are only three machines that are imported from India and Japan. They are very simple dice cutting machines. Other machines used in the factory are manufactured in Bangladesh. They are of the simplest functions, mostly ball press machines. Only five types of machines were used in the factory,

1. Lathe machine,
2. Ball press
3. Dice machines
4. Color mixing machine
5. Anodize and electroplating machine

Among the three imported machines, the Japanese one is bought second hand 1954 model. The Indian one was a bit expensive and of 1991 model. Both of them are quite old now.

Previously, to produce a single piece of Hook needed two machines and 5 labors. Recently, my father, with the help of a familiar mechanic, modified the system of the two imported machines. Now, instead of only cutting dices for hooks or eyelets, they can manufacture the whole hook under only one person's management. It saved the work of at least 4 persons.

The color mixing and anodize machine is locally designed and manufactured machines. The color mixer uses motion to apply color on the products while the anodize machine is used for Zinc and Copper plating on them.

All of the machines used in the factory are energy efficient. The ball presses are hand driven. The new modified machines consume very little energy in relation to the production they provide. The whole factory runs from the mere supply of the "rural power grid". Hence, because of the load shedding, a generator was needed to be installed. The generator only runs while the power supply is off.

The mechanisms of the machines are very simple and anyone can run these machines. Even the modified machines also run in simple command.

The industry experimented on color drier machines. None of the experiments were successful. But a simpler and natural way does the job properly. After applying color on the products, they are dispensed over a net and dried under the sun. The color choice for this purpose is a little costly but the chosen brand of color dries fast, not sticky and easy to apply evenly all over the products. Using nets and sun ray, an average of fifteen to twenty thousand pieces of eyelets and hooks can be dried within 5 minutes. An average of one hundred thousand pieces can be colored in a day in this process.

Workforce

There are only three permanent employees in the industry. One is the manager and other two are involved in more or less every type of works, from delivering the products to clients to management, of the industry. The manager is responsible for management, design of the dices for hooks and eyelets, coloring process etc.

There are 22-25 workers on an average except these three employees. Most of them are women. They work here on a contract basis. Their daily payment depends on how much of production they do per day.

These women are from the village right next to the factory. They are all housewives with an average age of 35-40.

Rowshan Ara is a widow who works in this industry. She is working here from the beginning of this industry with a few days gap while she joined a Readymade Garments factory. She earns 50 USD a month on an average. She joined the garments factory because they pay better than this industry. But eventually she left the garment factory and came back to work here. She said she did so because the garments factory has much more tight schedule and rigid work hours than this industry. It is hard for her to maintain such a time rigidity of 8 working hours a day simultaneously with her family. Working in this industry provides the opportunity to maintain both as here there is no time rigidity. Paid on the basis of production, she can come to work whenever she wants to. Also, this flexibility allows her to spend time with her family and manage the household quite easily. She works here at her leisure time and earns some money. Rowshan Ara says her earnings from here is not sufficient to run a family but she can maintain her expenditures quite easily. As her son runs a business of raw material it is not hard for the family to carry on.

Asma on the other hand, says it is not sufficient for her to bear her expenditure by her earnings. She earns around 44 USD per month. She says, "There are endless sectors to spend". Her husband is a construction worker and she has a daughter who is married. When her son in law comes, she likes to spend for him and for her daughter. But she is still working here because her home is in the adjacent village also. The time flexibility is important for her and she won't get it if work in other well paying big industries.

Afroza's husband is an orderly in a school. She is working here for 5 years. Before that she used to do no jobs. After finishing her households, she had plenty of leisure time. She joined this factory to earn some extra money. She has two daughters. They both go to school. With her average salary of 39 USD per month on an average, she is satisfied and faces no problem to run the family combined with her husband's income. She can spend for her daughters' education and pocket money. She says she can take money as loans from the factory anytime she wants; the loan is deducted from her salary at the end of the month. Afroza says it would be hard for her to take care of her daughters and look after her household if she worked in a time rigid industry.

Asma is another worker of the factory who also lives in the adjacent village. She has 2 sons and 2 daughters. She works here for around 20-25 years. Her husband is a labor currently jobless. She earns on an average of 50 USD per month. With the savings from her salary she built a house on a demesne she owns. After finishing all her household chores, she works here at her leisure time. Her income from this industry is sufficient for her, she claims. Asma says big industries pays better but has huge workload and pressure. It is much liberal and flexible to work here.

Another employee I interviewed is Morsheda. Her husband was a clerk. She started working here ten years ago. Her husband died fifteen years ago. She has two daughters and both of them are married. She lives with her husband's second wife and her four sons. Two of her sons used to work here. She has psychological problems so she does not work elsewhere. She earns around 44 USD per month on an average. With the sons income as labors, the household is broadly managed.

In answer to my question that why the number of male worker are far less than the females, the manager of the industry, Dulal, answered that the salary of the industry is not sufficient for the lads as they have

more expenditures and demand than the women. Also, the industry emphasizes on women worker more than the men because they are more sincere.

Raw Material Management

Mostly Aluminum and Steel is needed to produce eyelets and hooks. The industry buys Aluminum strips and BP Sheets as raw materials. Before the modified machine came into operations, the factory used cheaper Aluminum scraps to produce its goods. But those scrap strips are not perfect fit for the modified machine dice. So now the factory buys Aluminum strips and BP sheets. BP steel sheets are not cost effective to recycle, so the scraps of the BP sheets are sold to the scrap market.

But the industry takes the Aluminum scraps to the Aluminum sheet manufacturers. They mold the Aluminum scraps and caste out Aluminum strips in proper measurement for reuse. In such recycling process, the Aluminum strips which are 3.125 USD per kilogram in the market price come down to cost only 0,875 USD per kilogram.

Transportation, supply and demand

This small industry does not have any transportation of its own because it cannot afford the cost. The employees use public transports to supply the products to the clients.

The main clients of the industry are Bangladesh Army, Bangladesh Police, Rapid Action Battalion and few other private shoe companies. Combined, these clients have the demand of about eleven million pieces of eyelets and ten million and eighty thousand pieces of hooks on an average per year. Kamal Karigori supplies approximately three fourth amounts of the eyelets and approximately two third amounts of hooks of the whole demand. The rest is supplied by the other factories in this sector.

Impact on Environment

As mentioned earlier, the factory is surrounded by the plantation by the forest department of the government. The establishment of the factory changed none of its surrounding. It has a big yard in front of it which is used to cultivation of rice and vegetables. Many plants are planted around the factory building and in the yard. There is a diverse fauna around it too. Jackals, civets and snakes are common sight, though the number of Jackals and Civets are decreasing due to habitat loss and lack of food. The old trees of the surrounding jungle were cut by the forest department and replace by Eucalyptus and other foreign trees.

These trees are often cut and re planted with other foreign trees. Such activities are endangering the fauna there.

Last year, the yard in front of the factory was turned into a pond for fish cultivation for a few months. This project attracted many birds, snakes and frogs. A big colony of Myna lives in an adjacent tree. Egrets, Drongoes and Kingfishers are now common sight around the factory.

They can live here for the natural surrounding abandon with trees and with the pond, they find food easily too. The fish culture project faced a loss because of these birds, but the birds were not harmed. It was strictly prohibited for the employees also to harm the birds and other animals. Also, the generated sound by the factory is not too high in decibel that would scare the wildlife away. There is also no significant amount of chemical waste to dump in the surrounding that can pollute the environment. Because of the low powered, low chemical consuming machinery, the nature surrounding the factory thrives.

Evaluation

Kamal Karigori broadly checks all the criteria of intermediate technology. The majority of machinery and techniques used in this factory are generated and modified locally. They are cheap, easily accessible and applicable by anyone. For example the manager of the factory, Dulal, now runs his own factory besides working here. His factory produces the same products of eyelets and hooks and his experience of working in this factory guides him to run his factory. Kamal Karigori buys his products to supply to the clients in pressure situation.

The capital and investment of the factory is small. Its' founder dreamt of establishing a giant industry but the lack of capital guided him to intermediate technology. This is the beauty of small intermediate technology; it manages its way with small capital, depending only on the ingenuity. The case of Kamal Karigori can answer the argument of Paul Polak, that if the technology can't be sold, it won't sustain. Intermediate technology depends on neither distribution nor sell. It will make its' way naturally depending on the ingenuity of the entrepreneurs with small capital. The intermediate technology will be helpful mostly with their advice and advocacy for it.

Experimenting with intermediate technology can be a hardship. Kamal Karigori tried to manufacture combination lock with local

techniques in the 1990's. Instead of automatic die casting machine, it tried a hand driven method to cut the dice for combination lock. The experiment took a long time and expensive machinery for die cast of the lock became available through import in the hands of big industries. The project failed. In the mean time, Velcro tape technology replaced eyelets and laces in shoes. The market fell for the eyelet industry. Kamal Karigori struggled for around fifteen years with a heavy burden of loan from the bank. In recent years, eyelets regained the market. So, the industry came into business once again and thriving.

Kamal Karigori involves the local population, especially women in the production. They spend their leisure time at ease and flexibility to earn and financially help them.

Recycling the raw materials cut the production cost and most importantly slows down the treadmill of production as ecological withdrawal of metals like Aluminum lessens.

Low energy consumption, low amount of ecological release helps the nature to thrive around a mechanical industry like Kamal Karigori. Industry can run symbiotically with the flora and fauna of the surrounding.

Overall, appropriate or intermediate technology movement might be abated but intermediate technology based industries is sustaining successfully with much less affects on the environment.

Conclusion

According to Bangladesh Bureau of Statistics (2013) the number of small manufacturing units is 59,748 among 869 thousand manufacturing units in Economic Census 2013, Bangladesh. These manufacturing units run on small capital so they have to depend on locally developed technology mostly. A significant number of these might be using intermediate technology. The huge number of such manufacturing units indicates how such small scale intermediate technology based industries contribute to the national economy. Though the face of Bangladesh economy focuses on industrial giants with massive capitals, these small industries sustain and contribute. The intermediate technology movement is not powerful in Bangladesh at present. Rarely the concept is heard in economic discussions. Despite the situation, the root level population makes way for intermediate technology naturally. For sustainable development and conservation of the environment of Bangladesh, these industries are needed. Patronizing them to thrive in their way and emphasizing on such small industries will guide the economy to sustainability.

Reference

Bunting, M. (2011, November 10). *Small is beautiful – an economic idea that has sadly been forgotten*. Retrieved November 27, 2015, from http://www.theguardian.com/commentisfree/2011/nov/10/small-is-beautiful-economic-idea

BBS (2013), *Preliminary Report on Economic Census 2013*, Ministry of Planning, Bangladesh

Lynch, M. (2014, September 6). *Treadmill of Production Theory*. Retrieved November 27, 2015, from http://greencriminology.org/glossary/treadmill-of-production-theory/

McRobie, G. (1982, October 1). *The Community's Role in Appropriate Technology*. Lecture presented at Second Annual E. F. Schumacher Lectures in Cathedral St. John the Divine, New York City. (edit by, Hannum, Hildegarde

Polak, P. (2010, September 10a). The Death of Appropriate Technology I: If you can't sell it don't do it. Retrieved November 26, 2015, from http://www.paulpolak.com/the-death-of-appropriate-technology-2/

Polak, P. (2010, September 10b). The Death of Appropriate Technology I: If you can't sell it don't do it. Retrieved November 26, 2015, from http://www.paulpolak.com/the-death-of-appropriate-technology-2/

Schumacher, E. F (1973a). *Small is Beautiful: Economics as if People Mattered*, (2nd ed.) (1989). New York: Perennial Library.

Schumacher, E. F (1973b). *Small is Beautiful: Economics as if People Mattered*, (2nd ed.) (1989). New York: Perennial Library, 13.

Taylor, J. (1840), *Company Amole Dhaka*,(M. Asaduzzaman, Trans.). Dhaka: Bangla Academy, (1st ed., pp. 120-144)

13. Human Rights Issues in Climate Change Governance in Bangladesh: Adaptation and Migration Perspectives

MD. Arif Chowdhury

Abstract

Governance analysis on human rights is a precondition for human development through ensuring legal protection in the context of increasing climate change concerns. This governance approach mainly focuses on the human rights related to climate change adaptation and migration of people in Bangladesh. To explore the legal aspects on human rights to adaptation and migration- available legal documents in Bangladesh were studied based on a specific questionnaire. In the case of general human rights: right to liberty of movement, freedom to choose his residence, restrictions imposed on movements, security of person, freedom of expression and assembly, compulsory free education, right to recognition as a person, right to information, employment etc. are protected by national constitution, several national laws, policies and acts. Furthermore, in the case displaced persons: right to protect against being arbitrarily displaced from his habitat, right to seek safety in another place of country, to concern authorities to ensure alternatives to avoid displacement, equal rights to man and women etc. are also protected by national legal systems while it was found that, in the field of protecting properties left behind by internally displaced persons, right to know about missing relatives, to take measures to minimize displacements, involve affected people in relocation planning, to issue displaced persons with all documents for the enjoyment of rights etc. are not covered by legal system of Bangladesh. Government needs to address in future with proper governance approach so that climate victims in the context of climate change can get human rights protection with proper adaptation at original residence and in places of destinations. The findings of the study can help the policy makers in Bangladesh and other climate stress countries.

Keywords: Human Rights, Governance, Climate Change, Adaptation, Migration

Introduction

Climate change is an issue of human ethics and raising topic of analyzing the concept of maintaining equity in the field of human

rights, identifying relation among impacts of climate change on human communities, ecological rules including causes of climate change. Climate change is the biggest risk of the 21st century and it is mostly identified in the aspect of public welfare priority (Young et al., 2002). Bangladesh is a disaster-prone country and one of the most vulnerable countries in the world to climate change. The subtropical monsoon climate of Bangladesh associated with its huge population, increasing poverty rates; low capacity in institutional sectors, scarcity in financial resources etc. are emphasizing the vulnerability of societal and economic sectors in national level and climate change (Shahid, 2010; Islam, 1994; Eusuf, 1996).

Environmental change is one of the main causes of human migration because it changes the availability of services of ecosystem and highlight to threats and pressures (McLeman, 2011; GOS, 2011) while migration is also considered as an important adjusting or strategy of adaptation to manage against the impacts of alteration of environmental components (McLeman & Smit, 2006; Tacoli, 2009). Migration has been an important demographic, social, economic and cultural process linking communities, regions and nations. Migration is a term containing broad aspects which can incorporates all types of movements of people from one place to another which may take place within particular geographical boundary of a country or outside of its boundaries. It may be permanent or temporary, voluntarily or forced. Migration is an act of people's movement to a foreign country for a particular period of time, and with a definite purpose in mind (Mahmood, 1992). Climate change will highly affect migration in three ways. At first the effects of warming and drying in some regions for which agriculture potentials and ecosystems services will diminish, secondly, the increase in extreme weather events such as heavy precipitation, flash floods or river floods in tropical regions (Andrew et al., 2008). Understanding the impacts of climate changing patterns on migration, future behavior of migratory can be predicted (Black et al., 2011). Migration in poorer countries acknowledges the function of five types of capital such as, human, financial, physical, social and natural in emphasizing decisions related to migration and results (Hunter & David 2011; De Sherbinin et al., 2008). Addressing decision in migration aspect involves patterns of livelihood, cultural expectations, gender, historical topics, values and individual interests in the life of migrants (Gardner, 2009). Furthermore, decision making aspect also involve environmental related stresses, utility of places, characteristics of destination locations etc. (Hunter, 2005).

People's adaptation against climate change and climate awareness is related with numerous numbers of factors where climate awareness is manifested by their level of familiarity with climate events including perception and knowledge about those events. The aim of adaptation is to maintain the threat or risks of climate change within a tolerable limit. In the aspect of adjusting against climate change, in the place of origin and destination adaptation is one of the important way. To cope against adverse impacts National Adaptation Program in Action (NAPA) identified 15 priority adaptation related activities which in a short view were: coastal afforestation including community involvement, rules of drinking water in coastal communities, construction of flood shelter, salinity combating crop and fisheries, adaptation to agricultural systems and fisheries, improvement in resilience of infrastructure and industries in urban areas, capacity building for integrating climate change, sharing of information to vulnerable communities, emergency preparedness including insurance, managing adaptation into policies and programs, development of research and educational systems and improvement of eco-friendly adaptive knowledge (MoEF, 2005). Furthermore, numerous numbers of strategies such as, sharing losses, modifying threats, preventing effects, changing use and location etc. were suggested by Pender (2007).

Human rights are moral fundamental topics or norms that illustrate several standard related to human behavior including protection of legal rights in national and international law which are regardless of nationality, sex, ethnic origin, language etc. According to United Nations Universal Declaration (1948), equity in dignity and rights, right to freedom of movement and choose residence, right to liberty and security of life, right to recognition as a person before the law, full equality to a fair and public hearing, right to protect family and home from arbitrary interference, right to seek safety and nationality, right to freedom of thought, right to work and choice of employment, right to a standard living and education, right to participate in the cultural life of the society and more are identified as the basic human rights. The basic rights of human are neither created nor can be neglected by any government (Business dictionary, n.d.). The human rights approach to migration is related to legal topics in the national and international fields.

Proper governance is mandatory to set up a successful adaptation through reducing effects of climate change where presence of national government and international agencies is very important for

maintaining a proper implication of law and practices and some of these legal documents including policies, laws and conventions are now active which was performed associated with socioeconomic and political topics of adaptation at national and international levels. Several studies were conducted to understand vulnerability to climate change and adaptation practices against climate change, addressing climate change on perspective of policies and preparedness (Rahman, K.F. & Alauddin, S.M., 2013; Islam et al., 2013; Shamsuddoha, M. & Bijoy M.R., 2013) but research work on human rights issues in climate change on the perspective of adaptation and migration can not be enough scale. From the literature review it can be said that human rights issue is most important aspect for ensuring proper adaptation (Caney, S., 2010; Bee et al., 2013; Shamsuddoha, M. & Bijoy M.R., 2013) and this study was conducted to understand the present status of legal practices of human rights for displaced persons in the perspective of migration and adaptation in Bangladesh. This study will enrich the knowledge pool of human rights issues in climate change on perspective of adaptation and migration in Bangladesh.

Governance

Governance depicts all systems of governing whether followed by a government, from family to community, formal or informal organizations through applying legal practices, norms, power etc. Governance is a process which includes all actors whose influence the process of taking decisions and relevant to governing body where governing body is the authority to confirm decisions under an available political approach. Governance is a concept that relates to all aspects of organizations as well as describes the various types of topic and also defines normative or practical topic to discuss.

According to Stoker (1998), "There is, however, a baseline agreement that governance refers to the development of governing styles in which boundaries between and within public and private sectors has become blurred. The essence of governance is its focus on governing mechanisms which do not rest on recourse to the authority and sanctions of government" (p.17).

A specific view of governance differentiating from government term, "Both governance and government consist of rule systems, of steering mechanisms through which authority is exercised in order to enable systems to preserve their coherence and move towards desired goals. While the rule systems of governments can be thought of as structures, those of governance are social functions or processes that

can be performed or implemented in a variety of ways at different times and places (or even at the same time) by a wired variety of organizations“ (Rosenau, 2000, p.225).

Methodology

This study was conducted to explore the legal aspects on human rights in the aspects of adaptation and migration related to climate change. For this, available legal documents such as, constitution, laws, acts, policies and plans etc. of Bangladesh were studied based on a specific questionnaire to find out the present status of human rights in general conditions and in the case of adaptation and migration against climate changes. Questions were classified into three categories: directly relevant, indirectly relevant and uncertain relevant.

Findings

General Human Rights

Human rights are rights acquired by birth whatever identification of nationality, sex, color, origin and language etc. Human rights are unchangeable containing both rights and obligations and cannot be taken away except in any type of situations. From governance analysis on general human rights issues, it was observed that

In the case of right to liberty of movement and freedom to choose his or her residence or any restriction imposed on movement such as by registration requirements or electoral regulations, matter to any restrictions imposed in the interest of public, all citizens can enjoy the right to move freely throughout Bangladesh including to settle in any place in the country and to leave and re-enter Bangladesh [Ministry of Law, justice and Parliamentary affairs, 2011]. Furthermore, in the field to maintain an adequate standard of living, it shall be a basic responsibility of state to confirm shelter which is a basic necessity of all citizens [Ministry of Law, justice and Parliamentary affairs, 2011].

In the aspect of following freedom of expression and assembly, every citizen has the right to assemble and participate in public meetings and processions to form associations or unions through a peaceful condition excluding use of any arms or matter of any restrictions applied by law of state to maintain the welfare of public health [Ministry of Law, justice and Parliamentary affairs, 2011]. National law stated as all citizens are equal before law and all are entitled to equal protection of law against the right to recognition as a person before the law regardless of location in the relevant country [Ministry of Law, justice and Parliamentary affairs, 2011].

Adequate drinking water and hygiene are essential components to confirm human health and a right is confirmed to potable water and to water for hygiene and sanitation shall be treated as the highest priority right in the aspect of reviewing an obligation on government or relevant institutions including companies to fulfill universal service obligation with respect to water and electricity [Ministry of Law, justice and Parliamentary affairs, 2013].

Right to information is mandatory to maintain an empowerment among the people of nations to emphasize transparency and accountability in the field level of government to inspire the democracy reducing the corruptions. A right to information is covered by national law in Bangladesh and it is stated that all citizens have the right to information from the authority and the on the basis of requiring information from the citizens, authority be bound to provide information [Ministry of Law, Justice and Parliamentary Affairs, Bangladesh, 2009].

Job or scope of employment is necessary to maintain a life confirming basic necessities in the society. In the field of getting job in place, the legal aspect of Bangladesh entitled that there is a right to confirm employment including a reasonable wage maintaining quantity and quality of work. Furthermore, an equality concentration should be maintained for all citizens in the work place [Ministry of Law, justice and Parliamentary affairs, 2011].

Furthermore, national law covers the right to liberty and security of person and several legal documents stated that: deprivation of life or personal liberty cannot be done and no person shall be subjected to torture, degrading punishment or treatment and no specific action cannot be taken which will detrimental to the life, liberty, body, reputation or property of any person in accordance with related law [Ministry of Law, justice and Parliamentary affairs, 1972].

In the aspect of maintaining a right to respect family life, subject to the provisions of Commissions of Marriage and Family Laws, 1961, a family court have the right to entertain, try and dispose any matter related to dissolution of marriage, restitution of conjugal rights, dower, maintenance or guardianship and custody of children [Ministry of Law, Justice and Parliamentary Affairs, 1985]. Other hand, without previous permission in witting of the Arbitration council, no man can contract another marriage during the subsistence of an existing marriage [Ministry of Law, Justice and Parliamentary Affairs, 1974].

Education is for both boys and girls are necessary for improving the social equality in the society and improvement of personal capacity to lead the country. In the case maintaining compulsory free education for both boys and girls, the state adopt several effective measures such as, establishing a uniform, mass oriented and universal system of education and elaborating free and compulsory education to all children including producing fully trained and motivated citizens to provide necessary materials to remove illiteracy within determined time as may be taken by order of law [Ministry of Law, justice and Parliamentary affairs, 2011] while Planning Commission (2012) aimed that over the next ten years Bangladesh's human resource development will confirm education for all and Ministry of Education (2010) stated that primary education will free, compulsory and remain same for all.

Furthermore, a right to life protection is also covered by national law and according to several legal documents, all types of forced labor are banned and any type of activities against of the existing laws will be marked as punishable offence accordance with law and it is considered as a basic responsibility of state to maintain a planned economic growth including a continuous improvement in the materials and cultural standard of living of people confirming a social security [Ministry of Law, justice and Parliamentary affairs, 2011]. Other hand, in the field of ensuring adequate and sustainable supply of safe and nutritious food, it is a important issue to ensure sustainable availability of food to meet all people's demand at prices correlating with the income of peoples where Targeted food distribution programs are considered as major point in enhancing food security for the poor level and to encourage the food security of the poor and distressed households the governmental authority has taken several targeted programs such as, vulnerable group development, food/cash for education, vulnerable group feeding and food/cash for education etc. [Ministry of Food and Disaster Management, 2006].

The right to dignity and physical, mental and moral integrity is protected by national law and according to several documents- the state authority shall adopt measures to maintain the cultural heritage and traditions of the peoples to develop the national language, literature and arts of all spheres of peoples which will enrich the national culture and republic shall be a democracy in which basic rights, freedoms, respect for the dignity and value of the human person will be guaranteed through ensuring a elected representatives in administration at all levels while raising of the level of nutrition and the improvement of public health is defined as a primary duties of the state [Ministry of

Law, justice and Parliamentary affairs, 1972]. Furthermore, it is mandatory to ensure the accessibility of men and women to physical and mental health services to raise health and nutrition awareness through training from relevant institutions and organizations [Rural Development and Cooperatives Division, 2001].

Human Rights as regard Displaced persons

Displaced person is termed as a person who has been forced to leave his or her habitual residence because of natural or manmade causes. Some of the current concerns related to displaced persons in aspects of Bangladesh that have legal and policy supports of the government include:

In the case of protecting self as a human being against arbitrarily displaced from his or her home or place of habitual residence, national law protect and stated as every citizens have the right to acquire, hold, transfer or dispose of property and no property shall be compulsorily acquired, nationalized or requisitioned save by authority of law and matter to any reasonable restrictions applied by law in the aspect of the security of the state, public manner including health, public, morality etc. should be protected in his home against entry, search and seizure, and to the privacy of his correspondence and other means of communication [Ministry of Law, justice and Parliamentary affairs, 1972].

Prior to any decision requiring the displacement of persons, national law stated that along with encouraging adaptation to climate change necessary supportive measures will be introduced to strengthen regional and national mechanisms for scientific assessment, forecasting and information sharing while building national and local capacities for greater ecological literacy, agro ecosystem monitoring and for assessing and managing risks [Planning Commission, 2012] which seems that the state authorities concerned ensure that all feasible alternatives are explored in order to avoid displacement altogether.

Furthermore, National Rural Development Policy, 2001 depicts that, opportunities for development should be increased and sharing of available resources should be ensured for the disadvantaged and downtrodden sections of the rural community including a ensure form to take separate and planned programs for the development of people who are aged, destitute, disadvantaged, physically and mentally handicapped, orphaned and those women who are either widow or deserted wives and measures should be confirmed to ensure the effective safety nets to reduce the impact of personal havocs as well as natural calamities on people [Rural Development and Cooperatives Division, 2001].

Furthermore, for comprehensive development of a particular region with numerous socio-economic characters such as the baring tract, char areas, coastal areas, island, hill tracts etc. suitable integrated programs will be taken and implementation should be conducted with providing priority in the field of education, human resources, family planning, agriculture, water resources, physical infrastructures etc. and different types of supports would be provided for disadvantaged elderly people in the rural areas to ensure a helpful hand to lead a better life [Rural Development and Cooperatives Division, 2001].

The state shall take steps to protect and improve the traditional local culture of the tribal people, minor races, ethnic communities [Ministry of Law, justice and Parliamentary affairs, 2011] which seems that national law put state authorities under a obligation to protect against the displacement of indigenous peoples, minorities, peasants, pastoralists and other groups with a special dependency on and attachment to their lands.

National law provide labor standard and various sections of Ministry of Labour and Employment (2006) describes the standard of working place highlighting numerous number of issues such as, ventilation and temperature, dust and fume, disposal of wastes and effluents, artificial humidification, overcrowding, lighting, drinking water, latrines and urinals etc.

In the case of maintaining equal rights for men and women with respect to representation, property ownership and treatment before the law, the state shall endeavor to ensure equal opportunity to all citizens and women have equal rights with men in all spheres of the state and public life [Ministry of Law, justice and Parliamentary affairs, 2011].

Ministry of Law, justice and Parliamentary affairs (1972) stated in section 36 that, all citizens have the right to move freely throughout Bangladesh and to settle in any place therein and to leave and re-enter Bangladesh which indicates that national law provide internally displaced persons the right to seek safety in another part of the country, to leave country and to seek asylum in another country and right to be protected against forcible return to or resettlement in nay place where their life, safety, liberty and health would be at risk.

Other hand, in the case of identifying gap in governance on the issues of adaptation and migration for displaced person, some of the current concerns that did not have legal and policy supports of the government include: protection of property and possessions left behind by internally displaced persons against destruction, right to know the fate and where about of missing relatives, afford to the fullest extent practicable and with the least possible delay wounded and sick internally displaced persons with the medical care, a specific decision

is taken by state authority empowered by law to order measures including adequate measures to provide full information to displaced persons and the free and informed consent of those to be displaced sought during the emergency stages of armed conflicts and disasters highlighting the involvement of affected people particularly women in planning, enforcing law in necessary steps and right to an effective remedy. Furthermore, right to access to psychological and social services, provide all necessary documents for the enjoyment of displaced persons and play their legal rights, such as passports, personal identification documents, birth certificates, marriage certificate, irrespective sex without unreasonable conditions and duty or responsibility to establish conditions to allow internally displaced persons to return voluntarily, in safe and with dignity to their homes etc. topics need coverage of legal practice. Furthermore, legal practice needs to address respect to family life on the basis of relevant representatives to ensure the security of dignity of family members which is important for physical, mental and moral integrity.

Conclusion

Climate change is a burning issue and is a topic related to the theme of ensuring equal human rights in relation to impact of climate change on human. Bangladesh is a low lying and one of the most vulnerable countries to climate change in the world. This study covers the governance approach highlighting the human rights related to climate change adaptation and migration of Bangladesh. Although legal practices of Bangladesh cover many of the necessary issues related general human rights and some issues related to displaced person in the perspective of migration and adaptation. Furthermore, it is necessary to provide importance on many of the important issues related to internally displaced persons in terms of migration and adaptation with proper implication. The government in Bangladesh needs to develop proper legal procedure for issuing all necessity for the enjoyment of legal rights of internally displaced person in the context of climate change. Findings of this study about present status of legal practices on human rights protection of internally displaced person will help the policy makers, administration panel in national and global aspects.

Acknowledgement

This work was carried out under the Collaborative Adaptation Research Initiative in Africa and Asia (CARIAA), with financial support from the UK Government's Department for International Development (DFiD) and the International Development Research Centre (IDRC), Canada. The views expressed in this work are those of the creators and do no necessarily represent those of DFiD and IDRC or its Board of Governors.

References

1. Alauddin, S.M. & Rahman, K.F. (2013). Vulnerability to Climate change and adaptation practices in Bangladesh. Journal of SUB. 4(2):25-42
2. Andrew, M., Boncour, P. & Laczko, F. (2008). Human security policy challenges; Forced migration Review.
3. Bee, B., Blermann, M. & Tschakert, P. (2013). Gender, Development. And Rights-Based Approches: Lessons for Climate Change Adaptation and Adaptive Social Protection. Research, Action and Policy: Addressing the Generated Impacts of Climate Change. 95- 108
4. Black, R., Kniveton, D., & Schmidt-Verkerk, K. (2011). Migration and climate change: Towards an integrated assessment of sensitivity. Environment and Planning, Part A, 43(2), 431–450.
5. Business dictionary. (n.d.). Retrieved from http://www.businessdictionary.com/definition/human-rights.html#ixzz3reD4LMh5.
6. Caney, S. (2010). Climate Change, Human Rights, and Moral Thresholds. Global Justice and Future Generation. 163- 177
7. Commissions of Marriage and Family Laws. (1961). The Muslim Family Laws ordinance, Bangladesh.
8. De Sherbinin, A., VanWey, L. K., McSweeney, K., Aggarwal, R., Barbierie, A., Henry, S. (2008). Rural household demographics, livelihoods and the environment. Global Environmental Change, 18, 38–53.
9. Eusuf, A.Z. (1996). Urban centres in Bangladesh: their growth and change in rank-order. In: Islam N, Ahsan RM (eds) Urban Bangladesh. Urban Studies Program, Dhaka, pp 7–20.
10. Gardner, K. (2009). Lives in motion: The life-course, movement and migration in Bangladesh. Journal of South Asian Studies, 4(2), 229–251.
11. GOS. (2011). Foresight: migration and global environmental change. Final project report. The Government Office for Science, UK, London.
12. Hunter, L. M., & David, E. (2011). Displacement, climate change and gender. In E. Piguet, A. Pe´coud, & P. Guchteneire (Eds.), Migration and climate change. Cambridge, MA: Cambridge University Press.
13. Hunter, L. M. (2005). Migration and environmental hazards. Population and Environment, 26(4), 273–302.
14. Islam, N. (1994). Urban research in Bangladesh and Sri Lanka: towards an agenda for the 1990s. In: Stren R (ed) Urban research in developing World, Toronto: Centre for urban and community studies, University of Toronto, pp 101–169.
15. Islam, A., Shaw, R. & Mallick, F. (2013). Bangladesh Climate Change Strategy and Action Plans. Climate change adaptation actions in Bangladesh. Disaster Risk Reduction. 107- 118
16. Mahmood, R. (1992). Bangladesh Returned Migrants from the Middle East; Process, Achievement.
17. McLeman, R.A. & Smit, B. (2006). Migration as an adaptation to climate change. Clim Chang 76(1):31–53. doi:10.1007/s10584-005-9000-7.
18. McLeman, R.A. (2011). Settlement abandonment in the context of global environmental change. Glob Environ Chang 21, Supplement 1:S108–S120. doi:10.1016/j.gloenvcha.2011.08.004.
19. Ministry of Law, justice and Parliamentary affairs. (2013). Bangladesh Water Act, legislative and parliamentary affairs division. Government of the People's of Bangladesh.

20. Ministry of Labour and Employment, Bangladesh. (2006). Labor Act. Governments of the People's Republic of Bangladesh.
21. Ministry of Environment and Forests. (2005). National Adaptation Programme of Action. Final report. Ministry of Environment and Forests (MoEF), Dhaka, Bangladesh.
22. Ministry of Education. (2010). National Education Rules, Governments of the People's Republic of Bangladesh.
23. Ministry of Food and Disaster Management. (2006). National Food Policy, Governments of the People's Republic of Bangladesh.
24. Ministry of Law, Justice and Parliamentary Affairs. (2009). Right to Information Act, Governments of the People's Republic of Bangladesh.
25. Ministry of Law, Justice and Parliamentary Affairs. (2011). The constitution of the people's republic of Bangladesh, Legislative and Parliamentary Affairs Division, Governments of the People's Republic of Bangladesh.
26. Ministry of Law, Justice and Parliamentary Affairs. (1972). The constitution of the people's republic of Bangladesh, Legislative and Parliamentary Affairs Division, , Governments of the People's Republic of Bangladesh.
27. Ministry of Law, Justice and Parliamentary Affairs. (1985).The Family Courts Ordinance, Bangladesh.
28. Ministry of Law, Justice and Parliamentary Affairs. (1974).The Muslim Marriages and Divorces (Registration) Act, Legislative and Parliamentary Affairs Division, Bangladesh.
29. Pender, J. (2007). Community-led adaptation in Bangladesh. Case study, the 2nd international workshop on community based adaptation to climate change, Dhaka.
30. Planning Commission. (2012). Perspective plan of Bangladesh 2010-2021, making vision 2021 a reality, General Economics Division, Governments of the People's Republic of Bangladesh.
31. Rosenau, J. N. (2000). The governance of Fragmegration: Neither a world republic nor a global interstate. The congress of the international political science association. Quebec city
32. Rural Development and Cooperatives Division. (2001). National Rural Development Policy-2001, Government of the People's Republic of Bangladesh.
33. Shamsuddoha, M. & Bijoy, M.R. (2013). Addressing Climate Change in Bangladesh: Policies and Preparedness, Focusing on the Sixth five years plan (2011-2015). Network on Climate Change, Bangladesh (NCC,B)
34. Shahid, S. (2010). Probable impacts of climate change on public health in Bangladesh. Asia Pac J Public Health 22:310–319. Doi: 10.1177/1010539509335499.
35. Stoker, G. (1998). Governance as theory: five propositions. *International Social Science Journal*, 50, (155), 17-28. doi:10.1111/1468-2451.00106.
36. Tacoli, C. (2009). Crisis or adaptation? Migration and climate change in a context of high mobility. Environ Urban 21(2):513–525. Doi: 10.1177/0956247809342182.
37. Young, K., Ulloa, C., Luteyn, J. & Knall, S. (2002). Plant Evolution and Endemism in Andean South American: An Introduction. Bot. Rev. 68: 4-21.
38. United Nations Universal Declaration of Human Rights. (1948). United Nations. Retrieved from http://www.ohchr.org/EN/UDHR/Pages/Introduction.aspx

14. Enrichment of Nutrient Status of Water-Soil Systems Caused by Industrial Effluents

Sadia Alam Shammi
Abdus Salam
Md. Akhter Hossain Khan

Abstract

This study was undertaken to investigate the nutrient status (N, P, K, S, Ca, Mg, and Na concentrations) of water collected from Bangshi river and soil samples collected from agricultural lands of Dhamrai upazila of Dhaka district. The samples were analyzed by using standard methods. Both nitrogen and phosphorus content in water was in excess amount and contributed to eutrophication, indicated by readily visible algal blooms. This may cause shift in habitat characteristics due to change in assemblage of aquatic plants, replacement of desirable fish by less desirable species, production of toxins by certain algae, and may create taste and odor problems. Higher pH (above 8.0) of water collected from Bangshi river may cause complexity in nutrient balance and there by deposition of nutrients in the soil irrigated with this water. As a result plant may suffer from deficiency and ultimate result in less food production, ecological imbalance and environmental pollution.The present study provides base line information about the region. The results will be useful for effective monitoring of environmental pollution in the study area. The present study reveals that the area has been affected by increasing industrial pollution, large amount of untreated effluent discharge and lack of pollution control measures.

Keywords: Nutrient elements; industrial effluents; eutrophication; ecological imbalance; environmental pollution

Introduction

Rapid urbanization and industrialization poses a threat to our environment and industrial discharge to surface water bodies is its ultimate way of causing pollution. At present time, surface waters of Bangladesh are polluting by various ways (Momtaz *et al.*,2012 and Islam *et al.*,2009). Discharge of industrial effluents into natural hydrological system is by far number one threat to our environment (Khan, 2011). The careless disposal of industrial effluents and other

waste may contribute greatly to the poor quality of the water (Momtaz *et al.*,2012; Chindah *et al.*, 2004).Water quality also depends on effluent types and discharge quantity from different type of industries, types of agrochemicals used in agriculture, and seasonal water flow and dilution capability by the river system (DHV, 1998). Major impacts are the destruction of aquatic habitats that includes extermination of our unique and diversified fish community from rivers and other water bodies, disqualifying the water to be served for irrigation (Khan, 2011).

The study area situated at Kulla union, Dhamrai Upazila in the district of Dhaka. The sampling points were selected beside Bangshi river. Like many rivers of Bangladesh, Bangshi river also has become a victim of industrial pollution, siltation and many other man made factors. The industrialization, unplanned urbanization has affected all fishes and most of the aquatic animals to death, disruption of food chains, critical diseases to the human, and destruction of ecosystems of the river area.

Eutrophication is one of the main problems of this river. Eutrophication is the enhancement of the natural process of biological production caused by nutrient enrichment (Chorus and Bartram, 1999).The color and bad odor of the river water was observed and algal bloom also seen there. So the pollution of this river water may cause a threat to aquatic ecosystem and also problem to the social and economic life of the people of this area and to the neighborhood. The consequences of eutrophication for humans are bad taste and odor events in public water supplies, and production of cyanobacterial toxins that can threaten animal and human health (Ongley, 1996). People use surface water for various purposes like domestic, industrial, recreational, aquaculture etc. (Ahmed and Reazuddin, 2000). But this polluted river water used for irrigation purposes which cause over enrichment of nutrients to the agricultural field.

Industrial effluent from Dhaka EPZ discharged into Bangshi river which ultimately cause disruption in Aquatic ecosystem and damages of aquatic plants, aquatic animals and fish resources. The use of Bangshi river water for irrigation purpose in agricultural field may cause nutrient imbalance, soil pollution and ultimate results of it terrestrial ecosystem disturbance. So the ecological imbalance is occurring which is one of the main hazards for environment with the industrial and technological development.

Materials and Methods

Dhamrai Upazila is located about 40 kilometers north west of the capital city of Dhaka. It is one of the six upazila as of Dhaka district. Dhamrai is located within the coordinates of 90.02 - 90.14E and 23.50 - 24.02N. The total area of Dhamrai Upazila is 307.4 km². Dhamrai Upazila is composed of the alluvium soil of the Bangshi and Dholesshori rivers. Other rivers are Kolmai and Gazikhali. The study area is located at Kulla union, Dhamrai upazilla (Fig. 1).

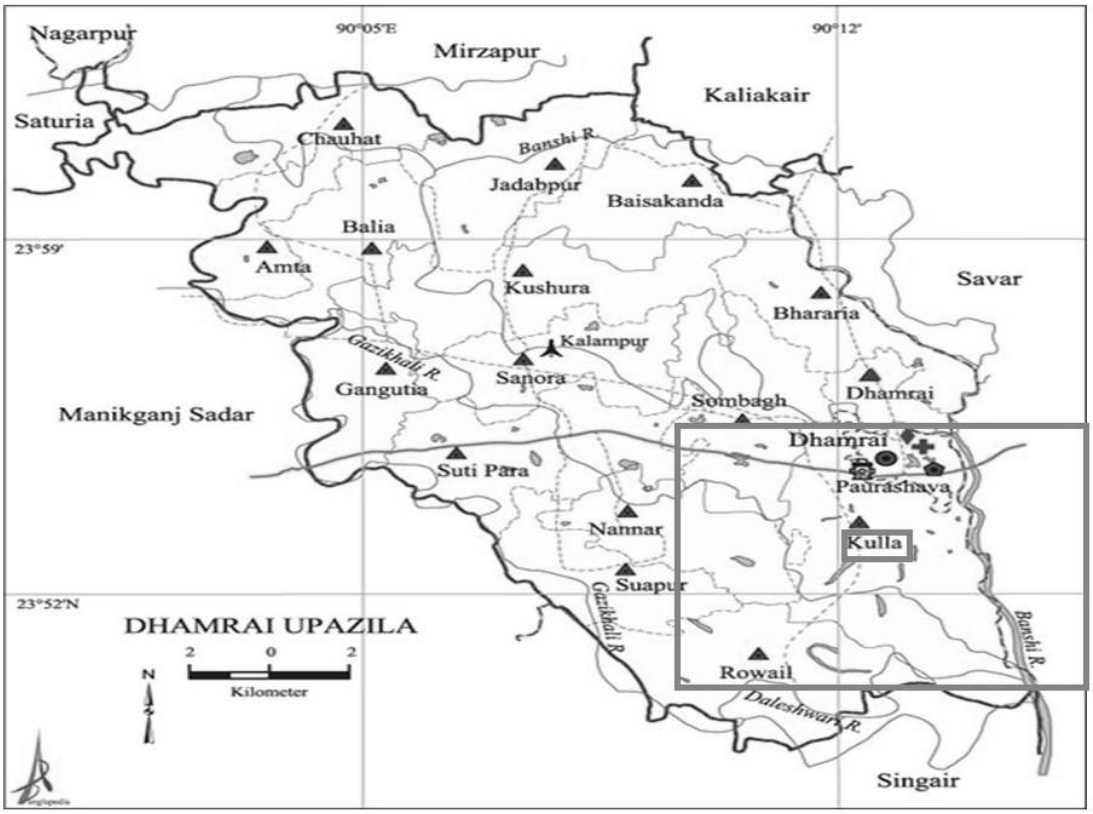


Fig.1. Map of Dhamrai Upazila

Water samples were collected from the study area in March 2015 (dry season). Six water samples (W1, W2, W3, W4, W5, and W6) were collected from middle of the Bangshi river, having 200 meter distance between two adjacent points, close to Baregaon village. The samples were stored in sterilized polyethylene bottles fitted with liquid-tight stopper.

Six soil samples (S1, S2, S3, S4, S5, and S6) were collected from agricultural fields close to the water sampling points. The soil samples were collected from 10 cm depth. Dry roots, grasses and other substances were discarded from the sample. Then the samples were air dried, ground, and screened to pass through 2mm sieve. Then the samples were stored in separate plastic containers and used for physical and chemical analysis.

The pH of water sample and soil sample was measured electrochemically by using combined electrode digital pH meter as suggested by Jackson (1962). The electrical conductivity of the water sample and soil sample was measured by Ec meter as described by USSL staff (1954). Dissolved oxygen, total dissolved solid and total organic carbon for water sample was measured by DO meter, TDS meter and TOC analyzer respectively. The moisture content of soil sample was determined by Gravimetric method. The particle size analysis of soil sample was conducted by hydrometer method as described by Black (1965). The total organic carbon and organic matter for soil sample was determined by Walkley and Black oxidation method.

The water and soil samples were digested with HNO_3: $HClO_4$ (2:1) for determination of sodium, potassium, calcium and magnesium by flame atomic absorption spectrometry (FAAS). To determine nitrogen content water and soil samples were digested by H_2SO_4 and $HClO_4$ and determined by Kjeldahl method. The phosphorous and sulphur status for both water and plant samples were determined by colorimetric method from digested samples of HNO_3 acid and $HClO_4$ acid (Huq, 2005).

Result and discussion

Water analysis

Black colored river water with bad odor was observed in the study area. Eutrophication and huge amount of algal blooms were also observed at that time (March, 2015). This river water is unsuitable for fish and aquatic animal's habitat, bathing for human and cattle, and for household uses. Now-a-days irrigation is the only use of this water which may cause deposition of nutrient elements in agricultural fields and then may be transported to the food chain.

The values of physicochemical parameters of water samples collected from the Bangshi river and its comparison with the inland surface water standard values recommended by DOE (2003) are presented in Table-1. It was observed that the value of pH varied from 7.95 to 8.11 which are in higher limit of DOE range (6-9). This high pH may be due to the added effluent from different dyeing industries and other metal processing industries. In textile dyeing industries H_2O_2 and NaOH are used as bleaching agents. Higher pH approaches in wastewater owing to the wastes composition of textile mills such as NaOCl, NaOH, $NaSiO_3$, surfactants and sodium phosphate (Sultana *et al.*, 2009). Excessive pH is harmful for aquatic life like fish,

microorganisms and aquatic plants. Water pH influences the other properties of water body activity of microorganisms and potency of toxic substances present in the aquatic environment (Yusuff *et al.*, 2005; Rouse, 1979).

Table-1: Physicochemical properties of water samples collected from Bangshi river.

Properties	**W1**	**W2**	**W3**	**W4**	**W5**	**W6**	**Average**	**DOE(2003)**
pH	8.11	8.06	8.01	7.95	8.03	7.98	8.02	6-9
Ec(mS/cm)	2.08	2.10	2.08	2.09	2.09	2.08	2.09	1.2
DO(mg/L)	3.1	4.1	3.3	2.7	3.8	3.5	3.42	4.5-8
TDS(mg/L)	926	935	911	906	938	912	921.33	2100
TOC(mg/L)	10.66	10.02	10.59	10.3	10.06	12.12	10.63	----

The averaged value of electric conductivity (Ec) of the river water is 2.09 mS/cm which exceeded the DOE limit value of 1.2 mS which indicates the increased concentration of total ionized constituents. This high value of Ec describes that this is due to the large amount of industrial effluent added to surface water bodies. Such a high value of Ec is not suitable for aquatic life and irrigation purposes.

Dissolved oxygen is the amount of oxygen found in water or any liquid phase in dissolved state. Dissolved oxygen is non-compound and free oxygen that influence the aquatic life in water body. It is consumed by aquatic organism during oxidation of organic matter and of reducing agents. It is an important water quality parameter. This study reveals that the DO level in surface water body ranges between 2.7 to 4.1 mg/L which is much below the limit of DOE(4.5-8). The lower level of DO indicates that the industries were releasing lot of organic substances most likely the dyes which require high oxygen content (Emongor *et al.*, 2005). It also indicates the organic pollution in water. The optimum value of DO is 4.5- 8 mg/L for good water quality, which ensures healthy aquatic life in a water body. Lower DO values indicate water pollution.

The average value of total dissolved solid (TDS) in the study site is 921 mg/L which is beyond the limit of DOE that is 2100 mg/L but extremely higher than the standard limit 250 mg/L (Peavy *et al.*, 1985; Davis and Cornwell, 1998). The high amount of dissolved solid increases water density and reduce solubility of gases. Water pH has a direct influence on TDS content. As the water pH of the study site was high, the total dissolved solid was also high. Increased pH value of the

sample might have resulted in the dissolution of low molecular mass organic bases originating from dye industries. This also gives rise to higher TDS value (Moore *et al.*, 1960).

The average value of total organic carbon (TOC) is 10.63mg/L which indicate that large amount of organic wastes were discharged into the surface water body. It causes organic pollution in river water.

The concentration of nutrient elements found in water sample analysis is shown in Table-2. It reveals that the content of total nitrogen is extremely high in the study site. The amount of nitrogen ranges between 39.5 to 65.0 mg/L which may cause nutrient pollution in river water. Only 0.1 mg/L of nitrate- nitrogen is permissible for river water (Huq, 2005) whereas the average value 47.98 is in exceed amount. The irrigation standard of nitrate-nitrogen is 5-30 mg/L (Huq, 2005) so this water sample is unsuitable for irrigation purpose. The increase of nitrogen content may come from industrial effluents, surface runoff, agricultural runoff etc. The phosphorus content is in lower limit. But together nitrogen and phosphorous cause eutrophication of river water and the algal bloom may also increase.

Table-2: Concentration of N, P, K, S, Na, Ca, and Mg found in water samples

Elements (mg/L)	**W1**	**W2**	**W3**	**W4**	**W5**	**W6**	**Average**	**River water standard(Huq, 2005)**
N	39.5	48.8	44.1	41.8	65.0	48.7	47.98	0.1
P	0.27	0.23	0.23	0.18	0.19	0.21	0.22	--
K	15.7	14.9	17.9	13.5	16.0	14.9	15.48	1.2
S	1.1	0.95	1.03	1.0	0.91	0.62	0.94	--
Ca	11.88	14.4	14.31	14.77	17.86	17.28	15.08	36
Mg	7.3	8.8	8.6	8.9	9.8	8.7	8.68	8.1
Na	760	820	720	770	740	1100	818.33	6.5

The potassium content ranges between 13.5-17.9 mg/L which is higher than the standard value of river water i.e. 1.2 mg/L (Huq, 2005). The Sulphur content found in less amount. The calcium and Magnesium content are also beyond the limit. But the sodium content is extremely high in the water samples. The Na content ranges between 720 -1100 mg/L whereas the standard value is only 6.5 mg/L. This increases the alkalinity of the river water and also corrosion problem.

The correlation among physicochemical properties and among nutrient contents of water samples are shown in Table-3 and Table-4, respectably.

Table-3: Correlation between physicochemical properties of the water samples

Properties	pH	Ec	DO	TDS	TOC
Ph	1				
Ec	0.029	1			
DO	0.355	0.507	1		
TDS	0.694	0.519	0.795*	1	
TOC	-0.285	-0.661	-0.144	-0.496	1

**Significant at 10% level*

Table-4: Correlation between nutrient elements of the water samples

Parameters	N	P	K	S	Ca	Mg	Na
N	1						
P	-0.489	1					
K	0.134	0.414	1				
S	-0.367	0.391	0.243	1			
Ca	0.805**	-0.752*	-0.087	-0.76*	1		
Mg	0.814**	-0.851**	-0.073	-0.376	0.851**	1	
Na	0.007	-0.105	-0.346	-0.914***	0.436	-0.007	1

** Significant at 10% level **Significant at 5% level, ***Significant at 2% level*

The coefficient of correlation analysis among physicochemical properties (Table-3) indicated that the total suspended solid has a significant contribution to the pollution of water. The coefficient of correlation ($r= 0.795^{*}$) showed that the TDS has a direct relationship with DO. On the contrary, the coefficient of correlation among nutrient elements (Table-4) indicated that N showed a significant direct correlation with Ca and Mg in case of water quality deterioration. P showed a significant negative correlation with Ca and Mg content. S showed significant negative correlation with Ca and Na content. Ca content also showed positive correlation with Mg content. So the content of nutrient elements from industrial discharge has significant contribution to the pollution of river water.

Soil analysis

The physiochemical properties of the soil samples found in analysis is shown in table-5.

Table-5: The value of physicochemical properties of soil samples

Properties	**S1**	**S2**	**S3**	**S4**	**S5**	**S6**	**Average**
pH	7.07	6.77	6.90	6.93	6.83	6.89	6.9
Ec(µS/cm)	326	265	274	295	121	177	243
Moisture(%)	20.2	21.5	18.5	16.2	20.3	20.5	19.53
Sand(%)	45.66	22.9	35.29	24.04	39.64	25.63	32.19
Silt(%)	17.1	39.95	40.16	36.06	19.95	32.24	30.91
Clay(%)	37.34	37.15	24.55	39.9	40.41	42.13	36.91
Org.carbon(%)	0.53	0.62	0.43	0.49	0.57	0.68	0.55
Org.matter(%)	0.91	1.1	0.75	0.85	1.0	1.2	0.97

The physicochemical properties for soil samples showed in Table-5. It showed that pH of different soil varied from 6.7 to 7.7 which is neutral to slightly alkaline range. Increase in alkalinity may cause due to presence of cations like Na, K, Ca, Mg etc. Further increase in soil pH may cause deterioration of soil property and nutrient uptake mechanism. The electric conductivity of soil ranges between 177 to 326 µS/cm which means there is abundant amount of cations like Na, K, Ca and Mg whereas these four cations exist in soluble salts in soils over 0.1%. So this high electric conductivity causes resistance to crop growth in soil and reduction in yield content. From the textural analysis it showed that the average value of sand, silt and clay content is almost equal amount, this means that the soil is physically in good state for crop production. The percentage of organic carbon and organic matter is 0.55% and 0.97% respectably which is adequate for crop production.

The concentration of nutrients elements found in soil sample analysis is shown in Table-6. From table-6, it showed that the average concentration of nitrogen content in the soil samples is 0.04%. From a study of 29 soils of Bangladesh, total nitrogen varied from 0.01 to 0.18 percent in the surface layer and 0.007 to 0.091 percent in the subsurface layer (Hossain *et al.,* 1989). Mian (1990) revealed that total nitrogen content of the soils of Bangladesh ranged between 0.05 to 0.2 percent in the surface layer while this parameter varied between 0.05 and 0.15 % in the subsurface layer.

Table-6: Concentration of N, P, K, S, Na, Ca and Mg found in soil sample

Elements	S1	S2	S3	S4	S5	S6	Average
N%	0.040	0.043	0.045	0.042	0.051	0.046	0.04
P ppm	17.7	57.4	59.9	20.9	67.8	3.7	37.9ppm or 0.004%
K %	0.492	0.484	0.610	0.496	0.585	0.415	0.51
S%	0.019	0.023	0.023	0.024	0.033	0.024	0.02
Ca%	0.190	0.191	0.126	0.212	0.186	0.179	0.18
Mg%	0.979	0.946	1.387	0.804	1.338	0.739	1.03
Na%	0.162	0.158	0.183	0.141	0.124	0.052	0.14

The average concentration of phosphorus content in soil samples is 0.004%. Phosphorus is one of the most important plant nutrients and the lower amount of it causes the deficiency in plant. Usually the phosphorus content of most mineral soils falls between 0.02 and 0.5 percent. About half of the soil phosphorus occurs in combination with organic matter of surface soils, and the remainder occurs in mineral or inorganic combination (Bear, 1964).The average concentration of potassium is 0.51% of the soil samples. Usually the potassium content for mineral soil ranges between 0.05 to 3.5 percent (Bear, 1964).The average concentration of Sulphur content is 0.02%. The average concentration for Calcium, magnesium and sodium content is 0.18%, 1.03% and 0.14% respectively. The results reveals that the accumulation of nutrient elements occurring simultaneously.

The correlation between physiochemical properties of soil samples and between nutrient elements of the soil samples are shown in table-7 and table-8 respectably.

The correlation between physicochemical properties of soil samples is shown in Table-7. The correlation coefficient analysis among physicoche-mical properties indicated that all parameter have both positive and negative contribution to the enrichment of the nutrient elements to the soil. Sand and silt content showed (correlation coefficient, r= -0.790) significant negative relation and contribute to the enrichment of nutrients. The organic carbon and organic matter content showed a positive correlation.

Table-7: Correlation between physicochemical properties of soil samples

Parameters	pH	Ec	Moisture	Sand	Silt	Clay	Org. carbon	Org. matter
pH	1							
Ec	0.556	1						
Moisture	-0.317	-0.358	1					
Sand	0.585	0.03	0.157	1				
Silt	-0.511	0.219	-0.265	-0.790*	1			
Clay	-0.051	-0.388	0.187	-0.225	-0.42	1		
Org. carbon	-0.371	-0.513	0.690	-0.356	-0.123	0.721	1	
Org. matter	-0.417	-0.528	0.693	-0.386	-0.081	0.699	0.998*****	1

*10% *Significance level*; *****0.1% *Significance level*

Table-8: Correlation between nutrient elements of the Soil samples

Parameters	N	P	K	S	Ca	Mg	Na
N	1						
P	0.478	1					
K	0.374	0.806*	1				
S	0.91***	0.503	0.386	1			
Ca	-0.215	-0.384	-0.555	0.099	1		
Mg	0.491	0.829**	0.952****	0.401	-0.656	1	
Na	-0.414	0.542	-0.309	-0.280	0.534		1

*10% *Significance level*; **5% *Significance level*; ***2% *Significance level*; ****1% *Significance level.*

On the contrary, the correlation between nutrient elements of soil samples is shown in Table-8. Nitrogen and Sulphur (coefficient correlation, r=0.910) showed a positive correlation between them and to the enrichment of nutrients. The coefficient of correlation of phosphorus with potassium and magnesium showed a positive significant correlation and to the enrichment of nutrients. The coefficient value, r= 0.952 evaluate a direct relation with magnesium and potassium content. So the irrigation of Bangshi river water has significant relation to the enrichment of nutrients status of the soil and also causes imbalanced nutrient cycle, nutrient deposition and hence environmental pollution.

Conclusion

With the development of Bangladesh, the industrial sector is also growing fast. Huge amount of effluent from different industries are discharged into the nearby surface water bodies. Bangshi river is one of the victims caused by DEPZ industrial area. This study reveals the enrichment of nutrient status in water and soil system by these discharged effluents and hence causes environmental pollution. If industrial pollution keeps on by this way, *i.e.* discharging effluents without Effluent Treatment plant (ETP), the Bangshi river water quality will go into a toxic and poisonous state in near future. It is the right time to take proper action to save Bangshi river water and its ultimate effect on nearby agricultural lands.

Reference

Ahmed, A. U. and Reazuddin. 2000. Industrial Pollution of water systems in Bangladesh. University Press Limited, Dhaka, Bangladesh. Pp. 175-178.

Bear, F. 1964. Chemistry of the soil.Oxford & IBH publishing CO. PVT.LTD.

Black, C. A. 1965. Methods of soil analysis. Part II. American Society of Agron.Inc. Madison, Wisconsin, USA.

Chindah, A. C, A. S. Braide, and O. C. Sibeudu. 2004. Distribution of hydrocarbons and heavy metals in sediments and a crustacean (shrimps-Penaeusnotialis) from the bonny/ new calabar river estuary, Niger Delta.Ajeam-Ragee. 9. Pp. 24-30.

Chorus, E.I and J. Bartram. 1999.Toxic cyanobacteria in water- World Health Organaisation.E and FN Spon.Routledge.11 New Fetter Lane. London.

DHV. 1998. Meghna Estuary Study: Draft Master Plan, Volume 1. Main Report for BWDB. Dhaka, Bangladesh.

DOE (Department of environment). 2003. Acompilation of Environmental laws of Bangladesh. Pp. 212-214.

Emongor,V., E. Kealotswe, I. Koorapetse, S. Sarihvasa, and S. Keikanetswe. 2005.Pollution indicators in Gaberone effluent; J.Appl. Sci., 5: 147-150.

Hossain, A. K. M. A., S. Hoque, R. Mandal, T. H. Khan, A. S. Howlader, and A. Islam. 1989.A study of availability of Soil Nitrogen by Various Extractants.Bangladesh J.Sci. Res. 7(1): 51-60.

Imamul Huq, S. M., and Md. Didar-ul-Alam. 2005. A handbook on analysis of soil, plant and water. Bangladesh- Australia Centre for Environmental Research (BACER).

Islam, M. S., M. S. Mahmud, N. Chowdhury, and S. Z. K. M. Shamsad. 2009.Water and sediment anility of Fays Lake, Chittagong, Dhaka Univ. J. Bio. Sci. 18(2):147- 158.

Jackson, M. L. 1962. Soil chemical analysis.Prentice Hall of India Pvt. Ltd. New Delhi.

Khan, M. K. A., M. Alam, M. S. Islam, M. Q. Hasan, M. A. Al-Mansur. 2011. Environmental pollution Around Dhaka EPZ and its Impact on Surface and Ground Water.Bangladesh J. Sci. Ind. Res. 46(2).Pp.153-162.

Mian, M. N. A. 1990. Nitrogen availability Indices in some cultivated soils of Bangladesh. M. Sc. Thesis. Department of Soil Science.University of Dhaka.

Momtaz, H., F. Alam, M. A. Ahsan, M. A. Akbor, and M. M. Rashid. 2012. Surface water quality around DEPZ industrial area, Savar, Dhaka. Bangladesh *J. Sci. Ind. Res.* 47(3). Pp. 279-286.

Moore, M., K. McLeod, and D. Reed. 1960. Fisheries: Conservation, propagation and regulation, Washington. Department of fisheries, USA. Pp.155-163.

Ongley, E.D. 1996. Control of water pollution from agriculture: FAO irrigation and drainage paper 55. Food and Agriculture Organization of the United Nations: Rome. Pp. 53.

Peavy, H. S., D. R. R. Rowe, and G. Tehobanoglous. 1985. Environmental engineering. McGraw-Hill Book Company, NY, USA. Pp.417-461.

Rouse, R. D. 1979. Water quality management in pond fish culture. In: Research and Development Series No.22, Project: AID/DSAN-G 0039, Auburn University, Alabama, USA.

Shamsad, S. Z. K. M., M. B. R. Khan, and M. S. Islam. 1999. Quality of Surface Water of southeastern outskirt of Dhaka city for irrigation purposes, Bangladesh *J. Agri. Res.* 24(4): 541 - 548.

Sultana, M. S., M. S. Islam, R. Saha, and M. A. Mansur. 2009. Impact of the Effluents of Textile Dyeing Industries on the surface water quality D. N.D. Embankment, Narayangonj. Bangladesh *J. Sci. Ind. Res.*, 44(1):65-80.

USSL(United States Salinity Laboratory). 1954. Diagnosis and improvement of Saline and alkali soils. Agric. Handbook No. 60.United States Dept of Agric.

Yusuff, R. O., J. A. Sonibare. 2005. Characterization of textile industrial effluents in Kaduna, Nigeria and pollution implications. Global Nest: *the Int. J.* 6(3):212-221.

15. Coal or No Coal: Sustainable Energy Policy for Bangladesh

Dr. Mahfuzul Haque

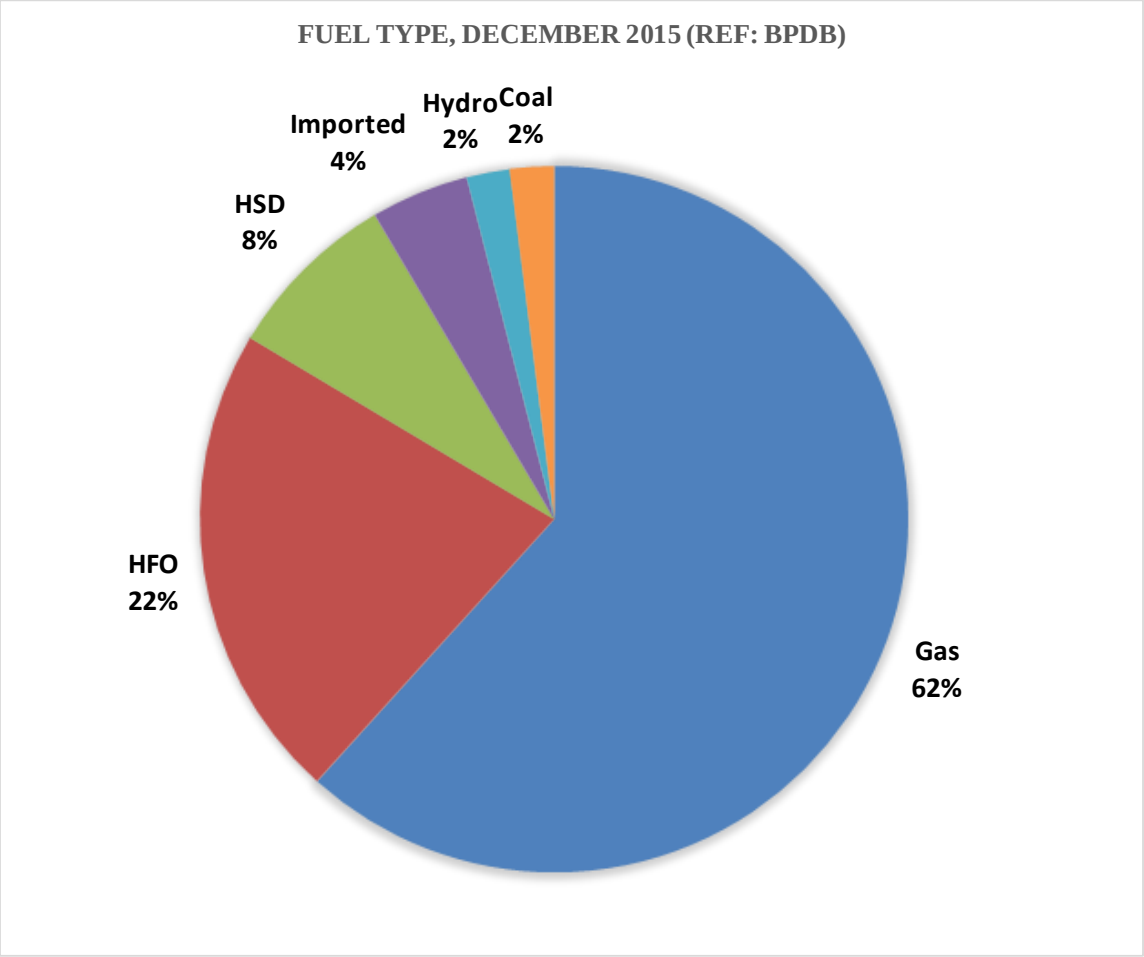
Abstract

The objectives of the paper are to look into the pollution of coal-fired power plants and other polluting non-renewable energy operated plants, while searching for a viable energy policy option for Bangladesh. The paper intends to deliberate on the current debate between renewable and non-renewable energy and suggest a viable energy policy option for the country. Popular theory of "dirty coal" needs to be revisited in order to develop a sustainable energy policy for Bangladesh. The paper would mainly use secondary sources of data available in print and electronic media. The author's book on Environmental Governance: Emerging Challenges for Bangladesh and similar other literatures would be found handy in writing this paper. The paper is expected to come out with a series of recommendations promoting sustainable energy for the country.

Introduction

Around 40 percent of population lacks access to electricity and majority of them live in rural areas in a power-deficient country like Bangladesh. Total generation of the country on 2 December 2015 was 5,248 MW (Day Peak) and 6,925 MW (Evening Peak) with zero MW load shedding, although the unofficial load shedding is as high as 1500 MW. According to Power System Master Plan (PSMP)-2010, based on 7% GDP, the projected peak demand would be 10,283 MW in 2015; 17,304 MW in 2020; and 25,199 MW in 2025. According to Bangladesh Power Development Board, 62% of the country's electricity is generated from gas, another 30% from furnace oil and high speed diesel, hydro power contributes 2% and imported coal 5% only, where coal's contribution is hardly 2% (website of BPDB, 4 December 2015). Besides electricity, natural gas also contributes to fertilizer production and CNG-run vehicles. As natural gas reserve is apprehended to decrease by 2011, we may have no other option but to explore coal in 4 coal fields (excluding the Jamalganj one) estimated reserve to be 1,168 million MT, which can serve our energy needs for the next 50 years (Draft Coal Policy, 2007; Bagchi 2006; Rasheed 2008). Policy makers dealing with the energy policy are of the pinion that local indigenous coal needs to be harnessed in order to meet growing energy demands of the country. Environment-friendly coal-

fired power plants could offset the energy crisis and help us to meet our energy demands in order to attain the status of a middle-income country**.** Against the background of increasing emphasis on non-renewable energy like indigenous coal, new debate has erupted in Bangladesh and elsewhere whether we should say "No" to coal for polluting the environment and concentrate more on renewable energy, like solar power, biogas plants, wind, wave energy and hydro-power? There are also calls by environmental activists for keeping most fossil fuel reserves, especially, coal under the ground.



Bangladesh Coal Policy (Draft)

Since 2006, National Coal Policy of Bangladesh prepared by the Energy and Mineral Resources Division of the Government has remained in draft form. It was aimed at commercially exploiting indigenous coal in order to meet ever growing demand for energy. According to the "Coal sector Master Plan", the policy intended to ensure energy security of the country for 50 years. In absence of exploration of new gas field, there would be serious energy crisis in the country. Coal would fill up the gap as an alternative energy source. Regarding coal mining, the draft policy suggested that the method to

be safe, economical and environmentally friendly. It would be based on land structure, hydrology, soil/rock formation, nature of overburden, depth, thickness, nature of coal seam and other considerations based on Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA).

The draft policy observed that through "open pit" mining maximum of 90% coal reserve could be extracted, while through "underground" mining, it won't be more than 20%. It was further stated in the draft policy that 1,050 Million MT coal could be extracted from four shallow depth mines through open pit mining, which would meet demand for existing coal-fired plants up to 2033. Through underground mining, the extracted coal won't last long beyond 2022. There were a number of attempts to finalize the draft policy, which couldn't be finalized as of now. One of the reasons could be the incident at Phulbari on 26 August 2006, when people of Phulbari led a series of demonstrations against Asia Energy which saw death of 3 people and the company had to suspend its exploration activities. Since then coal policy continued to remain as a draft.

Mining Method

Mining method remained another bone of contention between the policy makers and the environmental activists. Generally, the method depends on land structure, hydrology, soil/rock conditions, nature of overburden, depth, thickness, nature of coal seam and environmental consideration. The understanding is that the method would be safe, economical and environmentally friendly. In "open-pit" mining 90% of coal reserve could be extracted with fewer instances of death of worker and fewer health hazard. Excessive withdrawal of water causes dryness of the area and land subsidence takes place. Workers develop black lung as they constantly get in touch with coal dusts and displacement of huge population take place due to removal of upper crust coal extraction. On the other hand, in "underground" mining method, hardly 5-20% of coal reserve is extracted. There are frequent incidents of workers' death due to gas explosion, inhalation of toxic gas, heat and humidity. Workers develop black lung. Withdrawal of water cause water crisis and land subsidence. Although, displace of population is much less. In China, underground mines generally kill 5,000 people every year, unofficially the figure rises to 20,000. Story of 34 Chilean miners trapped for 69 days in August 2010 in a copper and gold mine is fresh in our memory.

Open-pit method has been in practice for more than 100 years. World Coal Institute considers open-pit mining as economic if coal seam is near the surface. Because of large scale extraction, it reduces per ton coal production cost. It may be noted here that 88% of

electrical power plants of India is coal-based. India has 218 open-pit and 354 underground mines. Its 218 open-pit mines produce 85% of total coal of the country. India's open-pit mines produce more than six times of coal produced by underground mines. Open-pit mines are also available in Germany, South Africa, Poland, China, Australia and the US.

It is true that coal releases around 20 toxic chemicals, of which 85% is manageable on site with improved technology. Coal mine produces carbon dioxide (CO2) and methane (CH4), potent Greenhouse Gases (GHGs) causing global warming. These gases also cause acid rain. Modern scientific methods are evolved to address these issues. Water is re-cycled, dust is suppressed and top soil is preserved. The question is whether the Project Affected Persons (PAPs) are compensated and relocated with proper livelihood; Environmental Impact Assessment (EIA) and Social Impact Assessment (SIA) are conducted and mitigation measures taken. Local community including indigenous people is to be consulted.

Phulbari Coal Field

By adopting an open-pit method, Phulbari coal field would extract 15 million tons of coal/ year from a depth of 150-250 metres by removing the overburden (rock, sand, mud, soil) covering an area of 5.2 sq km/year. Asia Energy (new name Global Coal Management-GCM) has been involved in exploration phase. The demonstration of 26 August 2006 by Phulbari people against Asia Energy took 3 lives, which was a turning point in open-pit mining option. It is good quality Bituminous coal of high calorific value and the reserve is estimated to be 572 million tons. It was envisaged that extracted coal would be used in power plants, steel mills, brickfields and to be exported through Mongla port in Khulna. The project area is 30 sq kms covering 7 unions and 1 municipality in 4 Upazilas of Phulbari, Birampur, Nawabganj and Parbatipur in Dinajpur district (Annual Report 2004, Asia Energy PLC; Imam 1996). About 40,000 people to be relocated over a 30-year period, majority in the first 10 years. All Project Affected Persons are to be compensated for loss of land, property and livelihood. There are also *adivasi* people of *Santals* origin. In view of indecision of the government, the project remained stalled.

Baropukuria Coal Field

Out of 390 million tons reserve coal in Baropukuria, only 1.73 million (less than 1%) tons extracted in last one decade so far. It is probable a technical blunder as underground method was not appropriate because of large aquifer above coal layer. Land subsidence continues causing demonstration of people asking for compensation. Flooding inside the

mine; spontaneous combustion of coal and release of lethal CO gas and explosive methane gas; huge land subsidence; coal dust; excessive heat; humidity; rock bump and sudden caving in took place. Project Affected Persons (PAPs) were partly compensated. It is thought that perhaps open-pit mining should have been the best option for Baropukuria.

Rampal Power Plant

Bangladesh and India have taken a joint venture to set-up at the cost of US$ 1.5 billion 1,320 MW coal-fired power plant at Rampal, Khulna only 14 km away from the Sundarbans and 4 km away from Ecological Critical Area (ECA) boundary (Equator Principle 2015). Bangladesh gave India tax waiver without setting any power tariff. Named as "Bangladesh-India Friendship Power Company", the plant is apprehended to adversely affect the mangrove forests and its wildlife. During 5 year construction period, chemical waste and oil from the construction site will affect the Passur and Maidara rivers. Emission of sulphur di-oxide (SO2), nitrogen di-oxide (NO2), CO2, CO and effluents from the power plant will affect the environment. SO2 and NO2 cause acid rain. Rampal Power plant will require 4.72 million tons of coal annually which will be imported through the sea through heart of the Sundarbans. Plying of trawlers, engine boats through the heart of the forests everyday would disturb serenity of the forests, wildlife and their habitat.

Question arises, why do we need to import coal, when we have good quality indigenous coal in the north-west Bangladesh? Moreover, there are frequent demonstrations against Rampal Power Plant and another similar coal-fired plant by Orion group in Khulna for shifting of the site from World Heritage Site, the largest mangrove forests of the world.

Nuclear Power Plant

Nuclear power is understood to be environment-friendly. No gaseous pollution, liquid waste is limited and solid waste needed to be disposed off. Nuclear power plants do not emit greenhouse gases, especially CO2. It needs 6-7 years to build a nuclear power plant, although the safety issue is of utmost importance meaning disaster related to leakage. Fuel cost and its availability is important. Cost of primary fuel (Uranium) has been low and global reserve of uranium is satisfactory. With 441 nuclear power reactors worldwide, there has not been any nuclear power accident since Chernobyl in 1986 (IAEA Report 2006). We are also aware of the Nuclear Plant disaster in Japan in 2011.

Government of Bangladesh has signed a deal in November 2011 with Russia for installing 2000 MW nuclear power plants at Rooppur, Pabna (292 acres of land taken in 1961). This is the first nuclear power plant project to be completed in 2017-18 at a cost of $1.5 to $2 billion. Two reactors of third generation, each with 1000 MW capacity are to be installed. Government has signed a MOU with Russia in January 2013 for a loan assistance of $ 500 million. No pre-feasibility study has been done so far. Nuclear power plant has to have radio-active waste management system and all spent fuel waste to be disposed off safely. Study says per unit cost of electricity at subscriber's level would be Tk 0.63/unit against present cost of Tk 2.45/unit. Apparently looks innocuous, the issue of leakage like disaster could be devastating in a densely populated country like Bangladesh. Moreover, regular supply of the raw material, uranium to be thought of.

Bio-fuel

Ethanol, Butanol, Methanol, Biodiesel are various types of bio-fuel or agro-fuel commonly used for transportation and heating replacing oil. Biofuel is produced from plants and food grains (corn and soybean in US, wheat, rapeseed, sugar beet in Europe, sugarcane in Brazil, palm oil in South-East Asia, coconut oil in Philippines, *jatropha*, *pongemia pinnata* and sugar beet in India). Food grains consumed by human being must not be allowed as fuel. It is a threat to food security and environment as there is shortage of arable land and food crops. Environmental activists are against use of food meant for human consumption as bio-fuel.

Energy from Waste

It was reported back in November 2011 that Government would set up a 50-Megawatt power plant to be run by municipal waste. Government will purchase electricity at Tk 8.75/Unit. Run by municipal wastes of Dhaka city (5,000 tons/day), the plant would generate electricity on Build Operate and Own (BOO) basis. Question remains how safe this garbage-based plant would be? Because of the fact that our garbage contains 90% moisture with poor calorific value. Prior to setting up of a waste-powered plant, a full scale EIA needs to be conducted in order to get assured that there is no dumping of waste from the developed countries in disguise of collaboration.

Renewable Energy

In line with the Renewable Energy Policy 2009, the Government is committed to facilitate both public and private sector investment in

renewable energy projects to substitute non- renewable energy and to increase use of existing renewable energy based electricity productions. The Renewable Energy Policy is projected to producing 5% of total energy production of the country by 2015 and 10% by 2020. It may be noted here that currently renewable energy's contribution is hardly 1% of the country's production.

Under the existing generation scenario of Bangladesh, Renewable Energy has a very small share to the total generation. The share of renewable energy didn't exceed more than 1% till now (draft Coal Policy). Renewable energy like solar, wind, hydro, bio-gas, and wave actions are slowly gaining momentum in Bangladesh. Although, popular in inaccessible area, remote islands and in hilly region, solar energy is inadequate for commercial purposes. By 2013, some 2.5 million Solar Home System (SHS) have been established targeting 4 million by 2015 (*Grameen Shakti*, 2007). Present generation using solar power is 35 MW of electricity in remote rural areas. It's a long way to go before solar power could be used for industrial purpose.

Wind energy is a far cry, as we do not have a good layer of steady wind to generate wind energy (BCAS, 1996). Bio-gas is mostly used for domestic cooking at a mini-scale. Potentiality of hydro-power is also less. The lone hydropower plant at Kaptai with a capacity of 230 MW contributes only 2.2% to national grid in 2015 (Haque 2013, Rasheed 2006). Moreover, question arises, whether hydropower is a clean energy? There are allegations of methane emission from the reservoirs- a potential global warming gas, besides displacement of people, loss of biodiversity and unacceptable cost of decommissioning of the dams.

We are fully aware of the adverse impacts of fossil fuels on the environment and biodiversity and there is a continuous thrust on more use of renewable energy. Question arises, why the developing country like Bangladesh will have to take the burden of cleaning this planet, when larger polluters continue to pollute with their more dependence on coal and other fossil-fuel energy?

Debate on Coal

Although, coal has been treated as a "dirty energy", following points could be considered in defense of coal:

a. It is true that coal is the single biggest contributor to human-induced climate change. Coal fired power plants are responsible for 37% of carbon dioxide emissions worldwide and 72% of greenhouse gas emissions from the electricity sector (Coal Factsheet 2, IAE). Of

late, questions are being raised by the environmental activists led by Water keeper Alliance and some other NGOs not to harness fossil-fuel like coal and to shift towards renewable energy. Referring to the world temperature increase of 3.5 degree Celsius in comparison to pre-industrial age, question arises how much Carbon in atmosphere is acceptable? 350 parts per million (ppm); 450 ppm; or in between? Following the "Polluters Pay Principle" the developed countries are to lead and set an example for the rest of the world by reducing their use of fossil fuels, which they are unable to perform;

b. The 21st Conference of Parties (COP-21) of UN Framework Convention on Climate Change (UNFCCC) held in the French capital Paris in December 2015 has adopted a legally binding document for all the parties to accept not more than 350 ppm of Carbon emission in the atmosphere. Water keeper Alliance and some other environmental conservationists are of the view that fossil fuels should not to be exploited. They are to remain buried in order to keep this planet pollution free. Question arises whether a developing country like Bangladesh could afford to continue importing of fossil fuels without exploiting her indigenous fossil fuels like high quality bituminous coal?

c. It is also true that dramatic increase in GHG emissions is largely attributed to an increase in fossil fuel use and most notably coal consumption worldwide. No matter coal is a dirty fuel, it was coal, which fueled industrial revolution in the Western Europe and also in the US, which led to the rise of the modern economy. China and India accounted for almost 90% of global coal demand growth between 2000 and 2011 (IEA, Coal Factsheet #2). The top-five CO2 emitting countries in billion tons are China (6.9); USA (5.2); and India (1.6). Other lesser emitting countries are Russia, Japan and Germany (International Energy Agency Report 2009);

d. It is interesting to note that China has signed a deal in November 2014 with US for increased use of renewable energy. China planned to get 20 percent of their energy needs from renewable energy by 2030- a tall order indeed. U.S. will reduce emissions by 26-28 percent below 2005 levels by 2025- a very slow and inadequate pledge. China's goal is to reach peak emissions around 2030. Perhaps, China intendeds to project it's three-gorges dam expected to generate 22,000 MW of electricity by 2017 as its share to renewable energy. It could be mentioned here that hydroelectricity has been blamed for generation of Methane gas- a potential GHG from its reservoir and no more treated a pollution-free energy source. Question arises, if the developed countries are so slow in transition to renewable energy, why a developing country like

Bangladesh would abruptly go for untested renewable energy and compromise with its development;

e. It may be noted here that Bangladesh is endowed with high quality bituminous coal and so far couldn't extract the same because of its failure to take political decision of how to exploit the resources. The draft Coal Policy envisioned using more coal-fired plants for generation of electricity after 2010 as around 40-60% countries of the world use coal for electricity generation (Draft Coal Policy). Question arises, if we could adopt latest technology of reducing pollution from coal-fired plants, why shouldn't we exploit our indigenous coal? And we know so far we couldn't exploit coal because of our failure to take a political decision on how to extract, open-pit or underground method? Regarding Baropukuria coal mine, it is still debated, whether underground method was a mistake, as it failed to extract less than 1% of the reserve in last one decade; and

f. As a policy, Bangladesh continues to rely on coal-fired plant (Rampal Power Plant and Orion Group plant for example) and is depending on imported coal without using its own resources. A political decision is required on how to extract its indigenous resources?

Conclusion

Adoption of National Energy Policy 1995 was an important development as it ensured environmental sustainability and cost effectiveness. EIA has been made mandatory for all energy related projects and the policy was aimed at ensuring environmentally sound sustainable energy causing minimum damage to environment. Environment consideration has been made as an integral part of any new energy project promoting environment friendly technology. Revised National Energy Policy 2008 strongly favored a nuclear power plant to meet increasing energy demand. Other policy guidelines are: Petroleum Policy 1995, which also promoted EIA in petroleum sector; Policy Guidelines for small power plants in private sector, 1997; and Private sector power generation policy 1996.

We are to finalize the National Coal Policy without delay. Excluding the mining method, there seems to be not many disagreements. If that be the case, it would be safe to mention that mining method would depend on land structure, hydrology, soil/rock conditions, nature of overburden, depth, thickness, nature of coal seam and environmental consideration. On the issue of royalty, equity and fees, discussion can take place with respective mining companies based on national interest.

It is high time that we fix up our national priority. Promotion and exploitation of renewable energy is always welcome for bringing down GHG emission globally and locally. In a developing country like Bangladesh, when contribution of renewable energy is hardly 1% to country's need, we can sit idle and wait for renewable energy to increase its contribution compromising with our development programmes. Renewable energy like wind energy, wave energy and biogas plants continue to be used for domestic purposes only at a limited scale. Solar power has not entered industrial market as yet and piloting in progress. Bio-fuel is not acceptable from ethical point of view. Nuclear power plant runs the risk of leakage disaster in a densely populated country like Bangladesh and question remains with the regular supply of raw material-uranium and disposal of nuclear waste. Energy from burning municipal waste is a fallacy. In order to achieve sustainable energy, Bangladesh shouldn't forget the country's rich mineral resources and find out environment-friendly measures to harness them.

References

Asia Energy PLC, *Annual Report 2004*.

Imam, B. (1996). *Bangladesher Khanij Shampod* (Mineral Resources of Bangladesh), Bangla Academy, Dhaka.

Bagchi, T (2006). *Phulbari Kolia Khani, Pribesh O Protikria* (Phulbari Coalfield and It's Impacts on the Environment), BARCIK, Dhaka.

Bangladesh Centre for Advanced Studies (1996). *Wind Energy Study: Progress and Preliminary Findings*, BCAS/LGED/ETSU.

Bangladesh Power Development Board website (www.bpdb.org)

Equator Principles, (2005). Analysis of the Rampal Coal-fired Power Plant Project, Bangladesh

Grameen Shakti (2007). An Introduction to *Grameen Shakti*, Dhaka.

Government of Bangladesh, Ministry of Energy and Mineral Resource, *Bangladesh Coal Policy* (Draft of June 2007).

Government of Bangladesh, Ministry of Energy and Mineral Resource, *National Energy Policy 1995*, Bangladesh Gazette, 15 January, 1996.

Haque, M (2013). *Environmental Governance, Emerging Challenges for Bangladesh*, AHDPH, Dhaka.

International Energy Agency Report, 2009 (www.iea.org)

Rasheed, S.K.B. (2008). *Bangladesh Resource and Environmental Profile*, AHDPH, Dhaka.

16. Coordination for Resilience in Disaster Management in Bangladesh

Mst. Marzina Begum*

Abstract

The debate over disaster management approaches have undergone significant changes in the recent decades and especially their effects have been profoundly felt in the disaster prone countries. The focus of this paper turns into a specific form of coordination challenges and investigates its current disaster management practices in Bangladesh. In the recent days, disaster management experts argue that disaster management is not the responsibility of any particular agency or organization rather it requires well-coordinated efforts from all concerned bodies. Therefore, coordination is required from all stakeholders such as government, NGOs, volunteers, local government, international agencies, policy makers, community representatives and other professionals from different relevant agencies with a view to making their roles and responsibilities specific related to disaster management. However, in the findings it is found that there are disaster management policies and activities in Bangladesh, but it is observed that a lack of integration and overlapping of responsibilities prevails among the agencies that hampers effective disaster management. Apart from that, there is a lack of coherence among policies in disaster management, and no accountability mechanisms are functioning in an effective manner in order to mitigate disaster in Bangladesh. I intend to discuss those issues throughout the whole paper, however, this paper will be descriptive in nature and principally, secondary data has been used to collect information and that is collected from the existing published literature on disaster management in Bangladesh.

Keywords: Bangladesh, Coordination, Disaster Management

The Status of Disaster and Disaster Management

Natural disasters increase the vulnerability of people and slow down the process of social, economic, cultural, psychological and environmental development. For example, Cyclone as a major natural disaster occurs most frequently over the northwest pacific, over the

* Associate Professor, Department of Public Administration, Rajshahi University, Rajshahi-6205, Bangladesh.

southern end of the Bay of Bengal, coast of Indian and south of Bangladesh (UNESCAP and ADB 2000,[1] Ali 1999,[2] Huang 1999,[3] Relly and Adger 2000)[4]. Super cyclone SIDR in 2007 and cyclone Aila in 2009 have demonstrated the vulnerability of natural disasters towards its fragile coastal communities in Bangladesh.

Analyzing the history of natural and artificial disaster in Bangladesh, disaster has different categorical impacts on life and livelihoods. Damages to infrastructure severely impede economic activity. Social impacts can include loss of life, injury, ill health, homelessness and disruption of communities.[5] Environmental pollution may include as environmental damage and finally all sorts of mental ill health are belonging to damage of psychological conditions. The ever-increasing human and economic costs have raised serious questions in disaster management approach but all the time a very few attention goes on environmental or psychological disruption. In particular developing countries are faced with increasing levels of possible hidden costs and challenges in order to meet financial and other obligations.[6]

There were hardly any governmental efforts until the 1990s to address the problem of institutional weaknesses and people's vulnerability in terms of maintaining disaster in Bangladesh. After devastating cyclone in 1991, the Government of Bangladesh (GOB) made some disaster management regulatory framework and developed

---

1 UNESCAP and ADB (2000). "*State of the Environment in Asia and Pacific 2000*" Economic and Social Commission for Asia and the Pacific and Asian Development Bank, New York, United Nations, Available at-http://www.unescap.org/enrd/environ/soe.htp[geo-2-266 (Last accessed on 12 December, 2014).

2 Ali, A. (1999). "*Ghurnijhar (Cyclone)*" Dhaka, Bangla Academy.

3 Huang, Z. G. (1999). "*Sea Level Change in Guangdong and its Impacts*" Guangzhou, China, Guangdong Science and Technology Press (original in Chinese).

4 Relly, P. M. and Adger, W. N. (2000). "*Theory and Practice in Assessing Vulnerabilities to Climate change*" 20 (4) Facilitating Management, PP. 527-39.

5 Crowards, Tom (May, 2000). "*Comparative Vulnerability to Natural Disasters in the Caribbean*" Caribbean Development Bank, Staff Working Paper No. 1/00. Social and Economic Research Unit, Economics and Programming Department Paper presented at the OAS/USDE-NOAA/CSC Workshop on Vulnerability Assessment Techniques, Charleston, South Carolina, March 20-22, 2000.

6 Sendai framework for disaster Risk Reduction 2015-2030.

institutional mechanisms to deal with such type of disaster and crisis management,[7] such as; Standing Order on Disaster, Disaster Management Act and National Disaster Management Policy etc.

GOB initiated a project "Support to Comprehensive Disaster Management" in 1993 with overall goal to reduce the human, economic and environmental costs of disaster in Bangladesh. One of the important objective of the project was to increase the capacities of the households and local communities in the highly disaster prone areas through establishment of Local Disaster Action Plans (LDAPs) to cope with disaster situations and the other important objective was Training and awareness rising. The project has been completed on 30 June, 2001, making scope for the formulation of Comprehensive Disaster Management Programme (CDMP) for more holistic approach to risk management with support from development partners and international agencies that was highly involved with poverty alleviation and sustainable development.

In practical condition any government alone cannot properly manage and handle all types of disasters. Base on this philosophy a new approach of managing disasters has been evolved in Bangladesh known as Community-Based Approach (CBA) which emphasizes the total participation of all people facing any hazard or disaster and makes sure to render all possible services to the community.

In January 1997 the Ministry issued the Standing Orders on Disaster (SOD) to guide and monitor disaster management activities in Bangladesh. The Disaster Management and Relief Division (DM&RD), MDMR of the GOB has the responsibility for coordinating national disaster management efforts across all agencies. A series of inter-related institutions, at both national level (10 committees) and sub-national levels (5 committees) have been created to ensure effective planning and coordination of disaster risk reduction and emergency response management.[8]

The National Disaster Management Council (NDMC) and Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) will ensure coordination of disaster related activities at the

---

[7] Haque, Emdad and Uddin, Salim M. (2013). "*Disaster Management Discourse in Bangladesh: A Shift from Post-Event Response to the Preparedness and Mitigation Approach through Institutional Partnerships"* Approaches to Disaster Management-Examining the Implications of Hazards, Emergencies and Disasters.

[8] National Plan For Disaster Mnagement (2005-2015) in Bangladesh.

National level. Coordination at District, Thana and Union levels will be done by the respective District, Thana and Union Disaster Management Committees. The Department of Disaster Management will render all assistance to them by facilitating the process.[9]

However, the GOB *has approved the Disaster Management Act (DMA)* by the Parliament on 12 September, 2012. This Act provides a major opportunity to improve the disaster management strategies in Bangladesh. In addition, the GOB has National Plan for Disaster Management for 2010-2015. Through the regulatory frameworks GOB has Policy where specifically clarifies the disaster management objectives, strategies, resources, and institutional framework for the implementation of disaster related programs. Disaster management initiatives in the country have emphasized broad-based strategies in minimizing disaster losses.

The significance of Coordination in Disaster Management

Proper disaster management coordination activities are a cost-effective investment in preventing future losses and this contributes to the sustainable development. Nevertheless, disaster management is not the responsibility of any particular agency or organization. It requires well-coordinated efforts from all concerned bodies. International and national mechanisms for strategic advice, coordination and partnership development for effective disaster management have been instrumental in the development of policies and strategies and the advancement of knowledge and mutual learning. The Hyogo Framework for Action has been an important instrument for raising public and institutional awareness, generating political commitment and focusing and catalyzing actions by a wide range of stakeholders at all levels.

Disaster management depends on coordination mechanisms within and across sectors and with relevant stakeholders at all levels, and it requires the full engagement of all State institutions of an executive and legislative nature at national and local levels. For efficient and effective coordination role, Governments should engage with relevant stakeholders, including women, children and youth, persons with disabilities, poor people, migrants, indigenous peoples, volunteers, the community of practitioners and older persons in the design and implementation of policies, plans and standards. It is necessary to empower local authorities and local communities to reduce disaster

[9] Ibid.

risk, including through resources, incentives and decision-making responsibilities. Moreover, to complement national action and capacity, there is a need to enhance international cooperation between developed and developing countries and between States and international organizations.[10]

Apart from that, Sendai framework highlights it is necessary to continue strengthening good governance in disaster management strategies at the national, regional and global levels and national coordination for disaster related activities such as disaster response, rehabilitation and reconstruction, and to use post-disaster recovery and reconstruction to "Build Back Better", supported by strengthened modalities of international cooperation.[11]

There is a need for the public and private sectors and civil society organizations, as well as academia and scientific and research institutions, to work more closely together and to create opportunities for collaboration, and for businesses to integrate disaster management practices.[12] Therefore, coordination is needed for architects, civil engineers, private builders and policy makers, and for community representatives and other professionals from different relevant agencies with a view to making their roles and responsibilities related to disaster management. There are sectoral polices in Bangladesh to address these issues, but a lack of integration and overlapping of responsibilities prevails among the agencies. Furthermore, there is a lack of coherence among policies and weak cooperation of host country and international agencies, unawareness or unpublished message of risk. These issues have been examined in the following section. The second section investigates briefly the dialectic relationship between disasters and accountability. It also highlights coordination failure associated with bad accountable system as a critical factor.

No Clear Direction about Coordination

In general all the disaster plans and programs in Bangladesh have been developed through techno-bureaucratic exercises. This approach does not expect participation from the many stakeholders. This finding was substantiated by another study conducted by Kurshid (2007) that the critical gaps in the disaster plans are the fact that there is no clear

[10] Sendai framework for disaster Risk Reduction 2015-2030.
[11] Ibid
[12] Ibid

direction about coordinating with other stakeholders in a common national goal.[13]

One of the key constraints is lack of appropriate mechanism to implement the policy for sharing the space based information in timely manner between the organizations governed by different Ministries. The channel for information exchange between the organizations governed by the Ministry of Defense and the Ministry of Disaster Management and Relief is not direct which causes huge delays in information sharing.[14]

Duplication of Work Activities

It is important to ensure that disaster relief and post-disaster recovery are managed and coordinated by a high level committee to avoid duplication of activities or waste across the spectrum of donor agencies, including government, national and international NGOs and the private sector.[15] It has also been stressed that it is essentially required to ensure an effective system within the government to coordinate the processes of planning and the management of disaster management. It is also important to link and develop networks of relevant national, regional and international organizations about disaster management.[16]

Policies are decisively dependent on levels of commitment and funding

Through the International Strategy for Disaster Reduction (ISDR) the United Nations has rightly understood that the root of the failure of disaster management is coordination. Thus, the Hyogo Protocol, formulated at the 2005 World Conference on Disaster Reduction in Japan, emphasizes the need to draw disaster risk reduction into the mainstream of policy formulation and implementation.[17] The protocol sets out comprehensively what needs to be done with respect to awareness, education, training, planning, program-building and management. It also codifies the steps, initiatives and processes needed

---

[13] Khurshid Alam and Masroor-ul Haq Siddiqi (June, 2007). "*Disaster Preparedness for Natural Hazards: Current Status in Bangladesh*" International Centre for Integrated Mountain Development (ICIMOD), Kathmandu, Hill Side Press (P) Ltd. Nepal.

[14] Ibid

[15] National Plan of Government of Bangladesh.

[16] SAARC Framework for Action (SFA) 2006-2015 (National Plan of Government of Bangladesh).

[17] UNISDR

to achieve disaster management. The ISDR and Hyogo Protocol are important initiatives for coordination, but they are critically dependent on levels of commitment and funding at the implementation stage.

Coordination gap is a very common phenomenon

Ownership of the disaster plans is very limited due to coordination gap in Bangladesh. Therefore, it has resulted in haphazard implementation by different stakeholders. However, Disaster Management Information Centre (DMIC) is a virtual centre for information exchange, and there are forums in which various stakeholders participate.[18] But there is no formal, common communication platform on disaster preparedness for a cyclone.

The Ministry of Disaster Management and Relief (MODMR) is the main coordinating organ of the government directed by the National Disaster Management Council (NDMC; headed by the Prime Minister) and Inter-Ministerial Disaster Management Coordination Committee (IMDMCC) to deal with disasters. Department of Disaster Management (DDM) is the focal point for disaster preparedness at national level, whereas various disaster management committees are responsible for disaster preparedness at district, sub-district, and local level. It is observed that there is very often overlapping of activities between the central level and local level committees.

However, Department of Disaster Management (DDM) is the lead coordinating agency for disaster preparedness. It receives support from warning issuance centers (Bangladesh Meteorological Department (BMD), Flood Forecasting Warning Centre (FFWC); warning dissemination hubs (such as the Disaster Management and Information Centre, Emergency Operation Centre, National Electronic and Print Media, Cyclone Preparedness Programme and others); and emergency management coordination [Directorate of Relief and Rehabilitation [DRR], Director General of Food, Emergency Operation Centre, Armed Forces' Division, Directorate of Health, Department of Public Health Engineering, and others. sometimes the official don't get support and message on time during a cyclone.

[18] Crowards, Tom (May, 2000). "*Comparative Vulnerability to Natural Disasters in the Caribbean*" Caribbean Development Bank, Staff Working Paper No. 1/00**.** Social and Economic Research Unit, Economics and Programming Department Paper presented at the OAS/USDE-NOAA/CSC Workshop on Vulnerability Assessment Techniques, Charleston, South Carolina, March 20-22, 2000.

However, Early Warning Centre under the Ministry of Water Resources send bulletin containing information on height of water in different media and news agencies every day in advance through e-mail, fax and courier. On the other hand, Centre for Environmental and Geographic Information Services under the Ministry of Water Resources publish annual report on erosion of different major rivers in some important places.[19] Interestingly, it is very common to find that report on both sides about the intensity of cyclone in the coastal areas is somewhat conflicting.

Poor cooperation amongst international/bilateral Technical and Financial Cooperation

Another challenge for the effective implementation of disaster management strategies is cooperation amongst international/-bilateral Technical and Financial Cooperation. In the wake of the last cyclone, Sidr in 2007, British Broadcasting Corporation (BBC) reported, "*Plenty of agencies, but not enough aid- too little, too late,"* and further quoted a professional working in an coastal affected area, *"The reason why these people are not receiving enough help is because there is no coordination between the government and aid agencies*".[20]

There are some striking examples of poor management and coordination in the coastal areas in Bangladesh. Southkhali village in Shoronkhola upa-zila of Bagerhat district was one the worst victims areas in cyclone Sidr 2007. During a visit after the event to the area, the Indian foreign minister pledged his country's intention to build all the houses in this area and the surrounding villages. From then onwards, nominal government initiative was taken to give shelters to the affected coastal people in this area. Actaully a virtual official ban was put into effect on others, including NGOs and aid agencies, to build houses for the affected people. However, the pledged Indian

---

[19] Huda, Md. Nurul 2010, cited by Oxfam-GB (March, 2011). "*Handbook Women Leadership in Disaster Management*" ISBN: 978-984-33-3086-4.

[20] Haque, Emdad and Uddin, Salim M. (2013). "*Disaster Management Discourse in Bangladesh: A Shift from Post-Event Response to the Preparedness and Mitigation Approach through Institutional Partnerships*" "Approaches to Disaster Management-Examining the Implications of Hazards, Emergencies and Disasters" Prof. John Tiefenbacher (Ed.), ISBN: 978-953-51-1093-4, InTech, DOI: 10.5772/54973. Available at-http://www.intechopen.com/books/approaches-to-disaster-management-examining-the-implications-of-hazards-emergencies-and-disasters/disaster-management-discourse-in-bangladesh-a-shift-from-post-event-response-to-the-preparedness-and (Last accessed on 13 June, 2014).

support did not come in due time and even 100 days after the event. As a consequence, coastal people in this area were forced to live under the open sky. Perhaps this unfortunate decision arose from the lack of bilateral coordination between Bangladesh and India. In addition, it is also blamed that bureaucracy on both sides in these two countries, a lack of understanding of not giving shelter to victims in time, even when in disaster.[21]

Absence of Inconsistency among Agencies

There is inconsistency in assessment tools used by various agencies. The challenge is to ensure that best practices and tools used by CDMP gets acceptance by DDM and other stakeholders. The systems developed at CDMP face constraints due to non-availability of baseline data, access to satellite images and weak linkages between GIS and disaster related databases.[22] Hence, the best practices of CDMP will be successful if smooth flow of information in the current bureaucratic set up is ensured.

On the other hand, as experiences of major cyclone in the context of Bangladesh have shown, funding for disaster response has not been a problem for the NGO sector in Bangladesh. Most of the relief and rehabilitation funds come from external donors. Given the humanitarian drive in funding emergency relief programs soon after a major disaster the NGOs are found to be '*over-inundated by funds'* that are *'beyond their management capacity and remained unutilized*'.[23] In this situation of 'abundance' of disaster funds supplied from external sources, the private sector tends to lack incentives in funding disaster management initiatives.[24]

Lack of community network

Cyclone Preparedness Programme (CPP) under the MODMR publicize early warning at community level in cyclone-prone areas with the help of community based voluntary networks. It is observed that in many

---

[21] Ibid

[22] Report of the Technical Advisory Mission to Bangladesh 19-23 June, 2010, United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER).

[23] Cutler, Peter et al. (1989). "*Evaluation of Post Flood Rehabilitation Projects of Four NGOs in Bangladesh*" A Study undertaken on behalf of NORAD, SIDA, CIDA. (mimeo); Swedegroup International Consultants 2000 Study of the Swedish Rehabilitation Support to Bangladesh. Flood 1998. (Mimeo).

[24] 'Abundance' here is defined in terms of the utilizing capacity of the funds' recipients.

cases coordination gap arises due to lack of activities of community network in the coastal areas.

The CPP experience shows that proper guidance, transparency and access to information needs at all stages of a project, including the planning, implementation and evaluation stages of development initiatives. It is found that CPP lacks recognition of people's worth in coastal community's disaster management initiatives. Although volunteers' sincerity and firm commitment to the fundamental principles of humanity, impartiality, neutrality, independence, voluntary service, unity and universality are inherent in the Red Cross movement, these were cultivated through a sustained training program.[25]

Funding for disaster management activities in Bangladesh lacks focus on preparedness and requires broad-based and long-term commitments. It has been a problem both for the government and NGOs. The culture of response to cyclone has remained reactive and short-term in nature rather than proactive and long-term. Though recent studies noted that disaster management seems to be increasingly incorporated in the policy documents of NGOs, linking of disaster management as an integral part of development programs is yet to emerge.[26]

Unawareness to Warning Message

The cyclone warning bulletins in Bangladesh have been criticized by many experts at both home and abroad. The cyclone bulletins through electronic media are being disseminated using very polished and formal language with some meteorological terms. Many people, particularly the elderly and women, living in the coastal areas are not familiar with the language used in the weather bulletin. As a consequence, they are used to fail to understand the warning announcement. It has been attempted to understand the causes of partial understanding the news bulletins in relation to level of education. In a survey it is found that about 35% illiterate people fail to

[25] Mathbor, Golam M. (2007). "*Enhancement of Community Preparedness for Natural Disasters: The Role of Social Work in Building Social Capital for Sustainable Disaster Relief and Management*" International Social Work, 50 (3): 357–369, Sage Publications: Los Angeles, London, New Delhi and Singapore.

[26] Matin, Nilufar and Muhammad, Taher and Matin, Nilufar (July, 2002). "*Corporate Social Responsibility and Natural Disaster Reduction: Insights from Bangladesh*"

understand the news bulletin clearly and about 30% people having primary and secondary education could only partially understand such bulletins. On the other hand, more than 85% people having higher secondary and above level of education can clearly understand these bulletins. Such an analysis indicates the strong positive relationship between the levels of education and the understanding of the warning signals in the coastal areas in Bangladesh. The illiterate and less educated people face difficulties in understanding properly the electronic media transmitted cyclone warning signals.[27]

Reducing the losses of life and property caused by cyclones is now a objective receiving worldwide attention. Bangladesh is not exception to take such measures. Therefore, current cyclone warning system needs to be changed according to the needs and understanding of coastal people. It is stressed that attention should be given to transmit the warning bulletins in local dialects.

There is communication gap due to late responses of warnings and a complex decision-making process in Bangladesh. The coastal people's particular process of response to cyclone can make them vulnerable during disaster. As they are used to facing multiple hazards each year, their responses to warnings depend on the intensity of wind speed, local belief in the probability of cyclone events, or the presence of a cyclone signal hoisted by the Bangladesh Meteorological Department (BMD). If the symptoms of previous hazards coincide with a BMD warning of about six to seven on average, they start to prepare to save belongings or decide to leave their homes for a cyclone shelter or other stronger buildings nearby. Before that, they adopt a '*wait-and-see*' approach, observing whether the cyclone intensity is rising.[28]

Furthermore it is observed that the weather department of the government of Bangladesh forecasts weather bulletin and early warning signal but coastal people have little trust on these. There is apperception among the coastal people that forecasted news, in many cases, treated as fake. Furthermore, still many coastal inhabitants who usually depend upon God's mercy and follow the Wait and See policy.

---

[27] M. Shahidul Islam, Mohammad Sahid Ullah and Alak Paul (2004). "*Community Response to Broadcast Media for Cyclone Warning and Disaster Mitigation: A Perception Study of Coastal People with Special Reference to Meghna Estuary in Bangladesh*" Bangladesh Asian Journal of Water, Environment and Pollution, Vol. 1, No. 1 & 2, pp. 55-64.

[28] Ibid

The related information about cyclone formation and its tracking are collected from international satellite images. The warning system uses a scale from 1 to 11 for the sea ports and 1 to 4 for river ports. The differences in cyclone severity indicated by the 11 point scale have limited use for the coastal inhabitants because they do not contain specific information regarding the wind speed and direction, possible surge heights relative to ground levels, possibilities of inundation and damages etc. However, there is general comprehension that the higher the number, the more urgent the need to react.[29] During the Cyclone Sidr on 15 November 2007, the affected people were found to have been reluctant to respond to cyclone warnings, even when the warning signal was raised to 10 for them. This was because they had not experienced a similar major cyclone since 1970 having warning signal 10. During Cyclone Sidr, most of the affected households only left their houses when they saw water coming close.[30]

Disaster response and recovery efforts require timely interaction of public emergency in order to save lives and property. Therefore, it is necessary to enhance coordination between organizations of MOD (technology providers) and MODMR (technology users). Thus it might ensure working level cooperation among DDM, DRR, SPARRSO and BMD with sole purpose of considering space based resources as a common resource for disaster management.[31]

On the other hand, poverty-stricken people who used to live in the coastal areas have limited access to media in Bangladesh. Access to the media depends upon their income level. Illiterate and less educated people of these areas face some difficulties in understanding radio and television transmitted cyclone warning signals for a number of reasons. Furthermore, news disseminated by radio and television media lack authenticity, simplicity and credibility. Early cyclone warning and preventive education system can be developed to educate and create

---

[29] Ibid

[30] (2010). "*Cyclone Disaster Vulnerability and Response Experiences in Coastal Bangladesh*" Alam, Edris Assistant Professor and Disaster and Development Centre Affiliate, Department of Geography and Environmental Studies, University of Chittagong, Bangladesh and Andrew E. Collins Reader in Disaster and Development, Disaster and Development Centre, School of Applied Sciences, Northumbria University, United Kingdom. Available at- http://www.ncbi.nlm.nih.gov/pubmed/20561338 (Last accessed on 10 May, 2014).

[31] Report of the Technical Advisory Mission to Bangladesh 19-23 June, 2010, United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER).

awareness among the coastal people. It is also stressed that year round programs on cyclonic preparedness and mitigation need to be published and broadcast by print and electronic media to create awareness so as to reduce coordination gap in facing any cyclone in future.[32]

Weaknesses of Sustained Plan for Disaster Management

Disaster management must not only be understood as relief work, but as combination of emergency response and measures taken to reduce disaster risk in the first place. To break the vicious circle susceptibility to disasters, an integrated approach to disaster management and development planning is required.[33]

The National Plan for Disaster Management (NPDM) 2010-2015 developed in 2010 by MODMR, which is an outcome of the national and international commitments for addressing the disaster risks comprehensively. The key focus of the plan is to establish institutional accountability in preparing and implementing disaster management plans at different levels of the country. The NPDM incorporates Disaster Risk Reduction and Hazard Specific Multi-Sectoral Plans to create effective mechanism for reducing risk and achieving sustainable development. The scope of the plan is to cover disaster threat analysis, vulnerability identification, investigations of disaster reduction measures, responsibilities assignment, funding provision, cost management and system for coordination.[34]

Currently, there is no provision outlined in Standing Orders on Disasters (SOD) to use space based information for rapid assessment, which also reflect in practice as space based information does not contribute enough to the rapid assessment despite the presence of centers of excellence like SPARRSO and CEGIS. National Plan for Disaster Management (NPDM) 2010-2015 defines use of the space-based technology and GIS for hazard assessment mapping.[35]

Although, the space based information is used as the reference information for disaster risk management and emergency response, it

---

[32] Ibid

[33] Ahrens and Rudolph, The Importance of Governance in Risk Reduction and Disaster Management, Journal of Contingencies and Crisis Management, Volume 14 Number 4 December 2006, P207-220

[34] Report of the Technical Advisory Mission to Bangladesh 19-23 June, 2010, United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER).

[35] Ibid

has not entered in the decision making process. The obvious reason is that it is not fully considered in the SOD and NPDM. Therefore, it is argued that a consistent effort of awareness generation and capacity building is the need for decision makers. Additionally, emphasis should be given to develop capacity of DDM and DRR to be able to use expertise and the services offered by the organizations such as SPARRSO and CEGIS.[36]

The access to moderate and high resolution satellite data is one of the main challenge in using space based information for disaster management in Bangladesh. At present the ground stations at SPARRSO mainly receives data from low resolution meteorological satellites. The bilateral agreements need to be in place to receive such data from neighboring countries. Another challenge is that existing capacity of the staff in the skills related to image processing is not adequate to explore full potential of the space based resources. The advance training on image processing, including microwave data processing, is need of the time.[37]

On the other hand, vision of BTRC is to facilitate affordable telecommunication services of acceptable quality for all regardless of their location. BTRC is aware of the need to plan emergency communications systems in cooperation with DDM based on the past experiences during cyclones when all existing communication systems were out of order for several days.[38]

It is now recognized that the community require a risk-sensitive approach to ensure accelerated achievement and sustainability. Following of this path the sufferer countries also reiterated their commitment to address disaster risk reduction and the building of resilience to disasters with a renewed sense of urgency within the context of sustainable development and poverty eradication. In case of Bangladesh, the progress to attain to integrate both disaster risk reduction and the building of resilience into policies, plans, programmes and budgets at all levels and to consider both within relevant frameworks. These initiatives have included both the risks and consequences of disaster that include disaster risk and its management. In those frameworks, involvements of local government bodies and

[36] Ibid
[37] Ibid
[38] Ibid

local communities consider an essential part of the disaster management strategy in the coastal area. Despite of these policy initiatives and programs, successful implementation of disaster management is still facing challenges in the coastal areas in Bangladesh.

Capacity building at Disaster Management (DM) institution is required to develop interface between the technology provider organizations and disaster management institutions. For example, appropriate capacity of DDM will require services offered by SPARRSO, BMD and other organizations like CEGIS.[39] It is also important to develop data and information sharing policies and coordination mechanism for supporting disaster management at national level. It is focused on the notion that data is a national property and need to be shared openly, particularly in the event of cyclonic disaster. To facilitate data sharing, the data catalogue and sharing platform should be created based on existing resources.[40]

The Importance of Accountability in Disaster Management

Accountability ensures incentive-compatibility of public action. This is one of the key features of governance structure that fosters development and supports risk reduction. This concept is applied in order to identify pointers of how to improve governance quality so that hazard management could be improved and capacities to manage disaster situations enhanced.[41] The nexus of coordination and accountability is that the disaster management programme failure and bad governance is especially the poor in developing countries who lack the administrative, organizational, financial, and political capacity to effectively cope with disasters and who are particularly vulnerable: (UNDP, 2004). Accountability involves an agreement on clear roles and responsibilities of organisations as well as individuals and a reporting on the actions taken on the basis of which stakeholders may check if their views and needs have been taken into account and whether agreed standards of performance have been complied with.

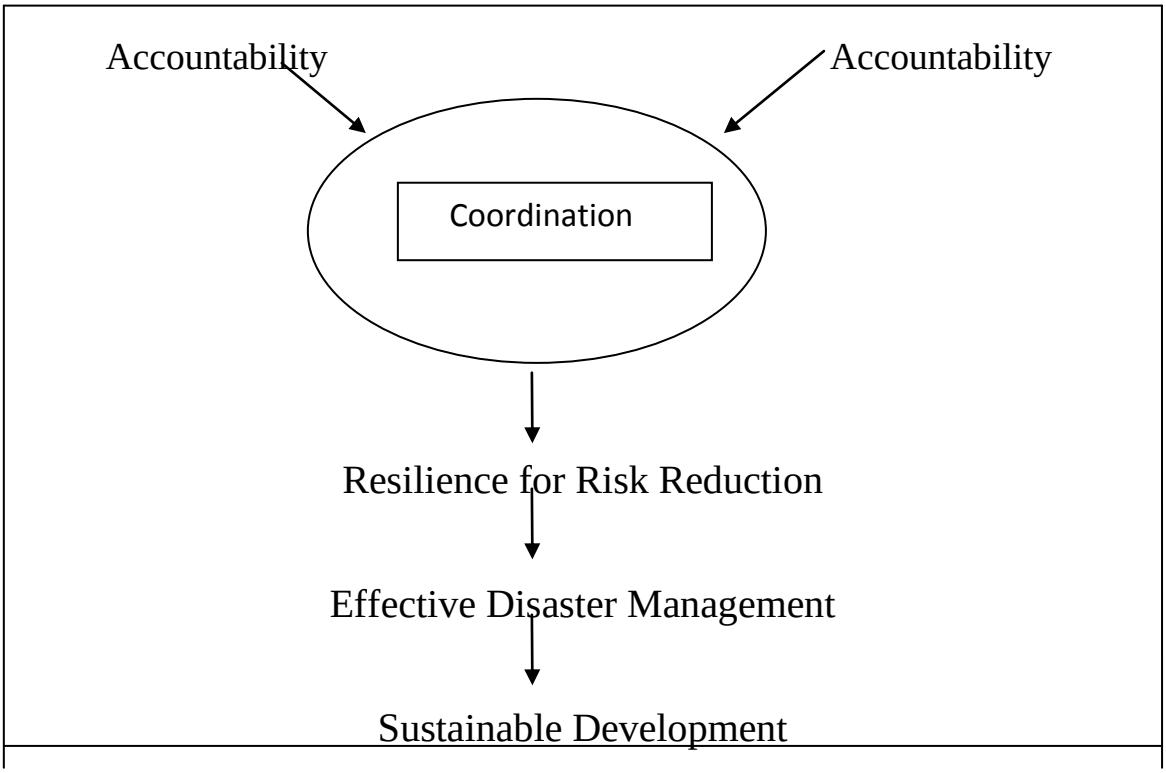
[39] Report of the Technical Advisory Mission to Bangladesh 19-23 June, 2010, United Nations Platform for Space-based Information for Disaster Management and

[40] Emergency Response (UN-SPIDER).

[41] Report of the Technical Advisory Mission to Bangladesh 19-23 June, 2010, United Nations Platform for Space-based Information for Disaster Management and Emergency Response (UN-SPIDER).

(Klitgaard, 1997; Turner and Hulme, 1997). accountability and all other strategic vision are key factors when implementing a governance structure aimed at sustainable development and disaster risk reduction (UNDP, 2004). Accountability works in two different directions: downwards, i.e. to constituencies or bene- ficiaries (e.g. through elections), and upwards, i.e. to donors or higher levels of government (through performance reviews, e.g.). When it comes to disaster risk reduction, downwards accountability is especially important.

Figure: Actors of Governance Structure and Development linkage



Source: *Author's compilation*

Conclusion

The GOB in recent years has taken a comprehensive and integrated approach to disaster management. But in the absence of coordination, a strong institutional cooperation approach remains largely on paper. It is found that the GOB and the various concerned agencies are taking part side by side to reduce the sufferings. Adequate coordination facilities should be provided to all those participating in disaster management activities and appropriate procedure of accountability can develop its efficiency and sustainability.