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Dedicated to the Father of the Nation Bangabandhu Sheikh Mujibur Rahman

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SOCIAL SCIENCES**

Volume - 1, Issue - 1, 2020



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**FACULTY OF SOCIAL SCIENCES
UNIVERSITY OF BARISHAL**

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UNIVERSITY OF BARISHAL**

**This volume of Journal of Social Sciences of
Barisal University is dedicated in honour of
the Father of the Nation
Bangabandhu Sheikh Mujibur Rahman
on his birth centenary celebration**



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Editorial

We are happy to say that this is the first independent issue of the Journal of the Faculty of Social Sciences in the history of Barishal University. Earlier the Faculty of Social Sciences, the Faculty of Arts and Humanities and the Faculty of Law together, in collaboration, published a common journal. It is our immense pleasure that in this Mujib Year we could bring out the first independent issue of our Journal of Social Sciences. This issue of the Journal of Social Sciences of Barishal University is a humble tribute to the Father of the Nation, Bangabandhu Sheikh Mujibur Rahman. It is also an expression of our solidarity with the ideals and vision of Bangabandhu Sheikh Mujibur Rahman, whose greatest gift for the nation is our Independence.

We are grateful to the honourable Vice-Chancellor Professor Dr. Md. Sadequl Arefin for his sharing with us the idea that we might dedicate all the issues of our journals of the Mujib Year to the Father of the Nation. This idea and his generous support for everything necessary to publish the issue inspired us immensely. We made sincere effort to uphold the issue with its due status as the Bangabandhu edition. We are thankful to Professor Dr. Khondoker Mokaddem Hossain for his valuable article '**Why is Bangabandhu Sheikh Mujibur Rahman (1920-1975) called the Architect of Bangladesh?**' which aptly opens the issue and draws the attention of the academia to necessary academic analysis of Bangabandhu's contribution in multitudinous fields of national interest. We would like to offer special thanks to our external editorial members who provided sincere cooperation and useful guidance in all our editorial activities.

We have tried to make this Bangabandhu issue truly interdisciplinary and international in scope and standard. Our tribute to the Father of the Nation will be really meaningful if this issue might usher in qualitative changes within academia and beyond. We hope our contributors and researchers will find this issue as a source of inspiration to initiate newer researches in the relevant fields.

Professor Dr. Md. Muhasin Uddin

Dean

The Faculty of Social Sciences

The University of Barishal

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WHY IS BANGABANDHU SHEIKH MUJIBUR RAHMAN (1920-1975) CALLED THE ARCHITECT OF BANGLADESH?

Dr. Khondoker Mokaddem Hossain*

Bangabandhu Sheikh Mujibur Rahman was born in a respectable Muslim Family on 17 March, 1920, in Tungipara village under the then Gopalganj district in the province of Bengal in British India (Frank, 2002 cited by Rahman et al., 2014). He was the third child among four daughters and two sons of Sheikh Lutfar Rahman and Sheikh Shahara Khatun. At the age of seven (1927), Bangabandhu began his schooling at Gimadanga Primary School. At nine, he was admitted to class three at Gopalganj Public School, two year later, class four at Madaripur Islamia High School (Ahmed, 1983 cited by Rahman et al., 2014). Subsequently, he was transferred to a local Missionary School. Bangabandhu was forced to go for a break of study when, at the age of fourteen (1934), one of his eyes had to be operated on. Two key qualities were observed in his early life, one quality was active social consciousness and other quality was paramount passion for politics (Rahman et al., 2014).

The young Mujib was attracted and inspired by the Swadeshi (homeland) movement upon hearing about the self-sacrifices made by armed revolutionaries and the radical activities of Madaripur's Purna Chandra Das (a colleague of Bagha Jatin, a revolutionary freedom fighter of Bengal) near his home. It appears that one important event pushed him towards the politics of Muslim individualism at that early boyhood but crucial time. A public meeting cum exhibition was arranged on the occasion of the Gopalganj visit of Bengal's Chief Minister A K Fazlul Haque and the Labour Minister Huseyn Shaheed Suhrawardy. A school-student then, Mujib was the leader of a group of volunteers. But the higher caste of Hindu youths opted out from this programme at the last moment due to the instructions of the local Congress leaders (the boys belonging to the scheduled castes however remained, because the Minister Mukundubihari Mullick was also coming with the Chief Minister).

Later Sheikh Mujib expressed his concern, "I was surprised at hearing this news, because to me there was nothing called Hindus or Muslims at that juncture. I had friendship with the Hindu boys. We used to sing, play music, play games and go out for excursions". Luckily, the whole programme passed off peacefully despite the apprehension of communal riot centering on this meeting. Later on, Sheikh Mujib lamented the Hindu-Muslim divisions many times. He felt that nobody could grasp the inherent causes of Hindu-Muslim friction like Rabindranath Tagore, Chittaranjan Das and Subhash Chandra Basu (Ministry of Foreign Affairs (2020): Bangabandhu the People's Hero).

Sheikh Mujibur Rahman is not only the architect of Bangladesh, his ideology, principles, morality, honesty, dedication, commitment, accountability, philosophy, wellbeing and welfare

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attitude, emotion, love and care for mass people, values, tolerance, sacrifice and his humanistic role for his followers is beyond imagination. Actually, Bangabandhu, by dint of his charismatic leadership, became the mass people's leader. His unconditional love and affection for his people, his indomitable spirit and commitment to establish rights of people and justice led him to make the great leader. He spent almost half of his political life in prison for mass people's welfare, yet he never gave up.

Sheikh Mujibur Rahman played catalyst role to our language movement, student's movement, nationalist movement, Six Points Demand, Eleven Points Demand, Mass Upsurge of 1968, National Parliamentary Election of Pakistan, 1970, declaration of non-cooperation to Pakistan regime, and finally led to the War of Liberation to liberate the then East Pakistan from West Pakistani regime. But before his catalyst role for liberating the then East Pakistan from West Pakistan Regime, he was sent to custody/jailed briefly as a teenager for agitating against the British colonial rule and exploitation in India and demanded for its independence. Later he began his former political career in 1949 as a cofounder of the Awami League and demanded the political autonomy of East Pakistan (Encyclopedia Britannica, 2021). As Sheikh Mujib is credited as an important figure in efforts to achieve political autonomy for East Pakistan and later as the central figure behind the Bangladesh Liberation Movement and the Bangladesh Liberation War in 1971, he is regarded as "Jatir Janak" or "Jatir Pita" (*Jatir Jônok* or *Jatir Pita*, both meaning "Father of the Nation") of Bangladesh (Wikipedia).

Being a student and later a political leader, Sheikh Mujib involved in East Bengal (from 1956, East Pakistan) politics and within the ranks of the Awami League as a charismatic and forceful orator. An advocate of socialism, Sheikh Mujib became the most popular for his leadership of ethnic *Bangalee* and became most vocal against the institutional discrimination of *Bangalees* (CSB, 2006 cited by Rahman et.al. 2014). He demanded the increased provincial autonomy, and became a fierce opponent of the military rule of Ayub Khan and Yahya Khan. At the heightening of sectional tensions, Sheikh Mujib outlined a six-point autonomy plan, which was seen as separatism by West Pakistan regime. As a consequence, he was tried in 1968 for allegedly conspiring with the Indian government but was not found guilty. Despite leading his party to a major victory in the 1970 elections, Sheikh Mujib was not invited to form the government. This was the party that eventually led us to the independence movement in 1971 again, under the leadership of none other than Sheikh Mujib, who was not just a "political colossus, but who, standing tall and with a commanding physical presence, was literally larger than life" (Quayum, 2013 cited by Rahman et.al., 2014).

From 1960s, Sheikh Mujib had two objectives. One of those was unambiguous, while another was unclear or something akin to a dream. The clear objective was to build up the Awami League, spread the organization throughout the country and establish a civil society by going to power on Awami League platform. There were infightings within the Awami League, which was natural for a big party. But Sheikh Mujib's organizational capacity was unique. He had the two qualities of tolerance and flexibility, which were needed for making the party bigger



(Mamun, 2013). But Sheikh Mujib's political career dates to the early nineteen forties, when he was elected to the Council of the All India Muslim Students Federation and then to the Muslim League. He broke with the latter, however, following partition of the Indian subcontinent. The Muslim League, which came to power in East Pakistan, jailed him for his association with the first Bengal Language Movement.

Sheikh Mujib was an effective and prime organizer of the Awami League, the East Pakistani party, and served briefly as a provincial minister in 1954 and 1956, and as a member of the constituent assembly of Pakistan in 1955. Later he served as chairman of the Pakistan Tea Board. The rise to his ultimate position of power and the undisputed leadership of Bangladesh, dates to 1966 and his arrest by the military ruler President Mohammad Ayub Khan.

Sheikh Mujib was active from the outset. The National Parliamentary elections, postponed from their original date in October, because of serious flooding in East Pakistan, were held in December, with those elected to be under a mandate to draw up a new constitution for the country, December 7, then, which in 1968 saw the first of the general strikes in East Pakistan, was in 1970 the date of the first direct franchise national election ever held in the country. The Sheikh's Awami League won an overwhelming victory, capturing some 72 per cent of the votes and 167 of the 169 seats allotted to East Pakistan in the assembly, over half of the country's total of 313 seats. The fact that the Awami League had an absolute majority in the assembly upset a number of calculations quite badly. When Yahya agreed to conduct an election in which seats would be allocated on the basis of population, no one thought that the Awami League would win virtually all the seats in the eastern wing. When this did happen, Sheikh Mujib had the chance to form a government strictly confined to his own party, and write his own constitution. Bhutto's Pakistan People's Party, though the largest group from the West with 84 of its 144 seats (including about two-thirds of those assigned to Punjab) could be shut out entirely (Blair, 1971). On February 15, 1971 Bhutto served notice that his party would boycott the National Assembly when it was due to begin meeting on March 3. Yahya, faced with the possibility of a constitution that would leave Punjab's interests out of account, announced 48 hours before the assembly was to meet that the meeting would be postponed. The mood of the Bengalis changed immediately from euphoria to outrage. Sheikh Mujib called a general strike, which completely paralysed the province for several days and precipitated a number of firings by the army. Both the anti-Ayub agitation and the smashing electoral victory of the Awami League sprang from the same root, the increasing discontent and resentment in the East over perceived exploitation by the West, especially the Punjab. During the first 20 years of Pakistan's independence, the bulk of investment and budgetary resources had gone to the western wing, a disparity that was reflected in differential growth rates. In the summer of 1968, for example, official figures were released showing that while in the West per capita income had grown from Rs 366 in 1959-60 to Rs 463 in 1966-67, it had increased in the East from Rs 278 to only Rs 313 over the same period. Certainly the fact that much of this western development was financed by the retention of foreign exchange earnings from East Pakistan's jute exports did nothing to lessen feelings of



exploitation. And Bengali underrepresentation in the bureaucracy added considerably to these feelings.

Professor Borhanuddin Khan Jahangir rightly pointed out, “the 35 directives issued by Sheikh Mujib had laid the ground for all-out noncooperation with the Pakistani state through resistance and rejection of its authority and complete cooperation of the *Bangalee* masses with their administration through establishment of a pro-people authority. The *Bangalee* people had nurtured the thought of becoming the inhabitants of a separate, different and independent state in their bosom, head and heart even before the commencement of the war” (Mamun, 2013).

Sheikh Mujib was constantly pursuing this dream of entire Bengali nation irrespective of ethnicity, religion and class, gender, caste and creed, and at this point, with a substantial portion of his supporters clamoring for an immediate declaration of independence, he probably could not have given in. Thousands of workers and students were demonstrating daily in Dacca and elsewhere, and the annual "Pakistan Day" celebrations scheduled for March 23 almost turned into a Bangladesh independence day. Bangladesh flags went up all over Dacca (including Sheikh Mujib's house), and demonstrators tore up the national flag. It would have been difficult indeed to give the West a veto power over Bengali hopes for autonomy at this stage and its all happened due to the charismatic leadership of Sheikh Mujib.

Sheikh Mujib took risk of his own life for the people of East Pakistan. The March 25, with reports mounting that an army crackdown was imminent against the popularly elected movement seeking to end the long West Pakistani domination and exploitation of the more populous eastern region, Sheikh Mujib took fearless stand. When the West Pakistan Military regime mobilized the army and arms with ammunition, and started killing innocent people, he took most courageous stand for protecting the civil lives of East Pakistan. Knowing fully that he might be arrested or even be executed by the Pakistan Regime, by 10 P.M. Sheikh Mujib had received secrets words from his reliable source that West Pakistani troops had taken up positions to attack the civilian population. A few minutes later troops surrounded his house and a mortar shell exploded nearby.

He had made some secret preparations for such an attack. At 10:30 P.M. he called a clandestine headquarters in Chittagong, the southeastern port city, and dictated a last message to his people, which was recorded and later broadcast by secret transmitter black night of 25th March to avoid the genocide.

The gist of the broadcast was that they should resist any army attack and fight on regardless of what might happen to their leader. He also spoke of independence for the 75 million people of East Pakistan. Sheikh Mujib also ordered the men of the East Pakistan Rifles, a para military unit, and of the Awami League officials and workers, his political party, and even a sect of civilians who were guarding him.

The Pakistan army started attack throughout the Dhaka city began at about 11 P.M. and quickly mounted in intensity. The troops began firing into Sheikh Mujib's house between mid night and



1 A.M. Sheikh Mujib was able to hide his wife and the two children into his dressing room upstairs and they all got clown on the floor as the bullets whizzed over head.

The troops soon broke into the house, killing a watchman who had refused to leave, and stormed up the stairs. Sheikh Mujib opened the door of the dressing room and faced them saying: “Stop shooting! Stop shooting! Why are you shooting? If you want to shoot me, then shoot me; here I am, but why are you shooting my people and my children?”

After another flurry a major halted the men and told them there would be no more shooting. He told Sheikh Mujib he was being arrested and, at his request, allowed him a few moments to say his farewells.

At one point, the West Pakistani soldiers prodded him down him from his residence forcefully and started hitting him from behind with their rifle butts. After a while he was taken to “a dark and dirty room” at a school in the military cantonment. For six consecutive days he was forced to spend his days in that room and his nights—midnight to 6 A.M.— in a room in the residence of the martial-law administrator, Lieutenant General Tikka Khan, the man the Bengalis consider most responsible for the military repression, in which hundreds of thousands of Bengalis were tortured and killed.

On April 1, Sheikh Mujib was taken to Rawalpindi, in West Pakistan—separated from East Pakistan by over a thousand miles of geo-political territory—and then moved to Mianwali Prison and put in the condemned cell. He passed the next nine months alternating between that prison and two others, at Lyallpur and at Sahiwal, all in the northern part of Punjab Province. The military Government began proceedings against him on 12 charges, six of which carried the death penalty. One was “waging war” against Pakistan.

President Yahya Khan issued a new martial-law order saying that Sheikh Mujib had to have a lawyer whether he wanted one or not. Sheikh Mujib passed the remark “You see how they were protecting my rights. They just wanted a certificate to hang me” (The New York Times, 1971).

The trial ended on December 4— the second day of the Indian Pakistani war that grew out of the East Pakistan crisis and ended in an Indo-Bangladesh joint victory and the proclamation of East Pakistan's independence under the name Bangladesh.

Under compulsion, the military regime Yahya called all the members of the military court to Rawalpindi to draft their findings in a hurry but in the meantime they all became busy with the war. But the Pakistan regime was adamant to carry out the verdict against Sheikh Mujib, which might have looked somewhat ridiculous in the middle of a full scale conflict, was never announced, but on December 7 Sheikh Mujib was moved back to Mian wall. On Dec. 15, the day before the Pakistani surrender in the East, General Yahya Khan decided to execute Sheikh Mujib.

At about 4 A.M., two hours before the execution to take place, Sheikh Mujib asked the prison superintendent, “Are you taking me to hang me?” because he had watched that the prison employees did dig a grave in the compound outside his cell (but the prison authority lied and



said it was a trench for his protection in the event of Indian air raids). The superintendent, who was greatly excited, assured Sheikh Mujib that he was not taking him for hanging.

Sheikh Mujib was still dubious and said, "If you're going to execute me, then please give me a few minutes to say my last Prayers." The superintendent said, "No, no, there's no time and we must come out very quickly!" (The New York Times, 1972).

Later, the superintendent explained that there was a plot and for saving your life, "I am taking you to my own house". He took him about a mile away and kept him there for two days. In the meantime, the war was ending in Bangladesh but there was considerable confusion in official circle of Pakistan administration, and on December 18, 1971, the superintendent told Sheikh Mujib that some of the sources of Pakistan regime has leaked out about their hide and they must have to move.

The superintendent of police then took Sheikh Mujib to an unoccupied house several miles away. He was there nine days when an army officer asked the superintendent about the where about of Sheikh Mujib. The superintendent said he did not know. The officer then said there was no reason to hide Sheikh Mujib or be frightened because Zulfikar Ali Bhutto, in the mean time taken power from the discredited generals on December 19, and he wanted to see Sheikh Mujib personally. Sheikh Mujib was immediately flown to Rawalpindi, where he was put under house arrest in the President's guest house.

After a few days, Mr. Bhutto, the leader of the majority party in the West Pakistan, who had collaborated with the army in the moves that led to the crackdown and repression in East Pakistan, and wanted to see Sheikh Mujib's execution earlier, said, "I am the President and also the chief martial-law administrator." At one stage, Mr. Bhutto said, "when General Yahya Khan was handing over power to him, he said that his one great regret was that he had not killed Sheikh Mujib and asked if he could "finish this one piece of work." Mr. Bhutto further told that the general offered to predate the papers so it would appear that the execution of Sheikh Mujib took place under him." (The New York Times, 1971).

At one point Sheikh Mujib said to Bhutto, "if you the Pakistan regime would execute me, the joint force of India and Bangladesh would kill all the Pakistan soldiers (near about 100,000) who had surrendered in Dhaka and then the people of the Punjab and the North-West Frontier Province—where most of the West Pakistani troops come from—would blame you and rise against his Government'.

Later Sheikh Mujib shared another vital information that was, Mr. Bhutto kept pressing him to enter into negotiations to retain some link, no matter how tenuous, between the two Pakistani regions (The New York Times, 1971). But Sheikh Mujib told him, "I need to know one thing first—am I free or not?" Sheikh Mujib further said. "If I'm free, let me go. If I'm not, I cannot talk." In response, Bhutto said, "You're free, but I need a few days before I can let you go" (The New York Times, 1971). But despite the promise of release, Sheikh did not discuss substantive matters with Mr. Bhutto without the presence of third party.



On January 7, 1972 the Bhutto went to see Sheikh Mujib for the last time. Sheikh Mujib said: “You must free me tonight. There is no more room for delaying. Either free me or kill me” (The New York Times, 1971). Mr. Bhutto replied that it was difficult to make arrangements at such short notice, but finally agreed to fly him to London. Sheikh Mujib said that as Mr. Bhutto saw him off, he was still asking him to consider a political tie with West Pakistan.

Within couple of days, when Sheikh Mujib returned to his native land to become its leader, after nine months in a West Pakistani prison, he told thousands of his worshipful followers, his voice choking with emotion: “My life's goal has been fulfilled. My Bengal is independent.” An ecstatic Bengali chant surged up from the throngs: “A new nation has come upon the earth—Bangladesh! Bangladesh! A new ism has come to the world—Mujibism! Mujibism!” (The New York Times, 1975).

For more than two third of his life, Sheikh Mujib was the charismatic leader to the cause of autonomy and independence for what was once East Pakistan. His goal was achieved in 1972 following a two week war in which India and East Pakistan joint force defeated Pakistan and secured independence for Bangladesh, which means Bengali Nation. During his long political movement for such a nation, he spent more than decades in various prisons. “Prison is my other home,” he once said (The New York Times, 1975).

After returning from West Pakistan when East Pakistan became Bangladesh, Sheikh Mujib assumed the prime ministership of the new nation, one of the poorest in the world, beleaguered by starvation, floods, drought, and bureaucratic incompetence (The New York Times, 1975).

Though Bangabandhu was the leader of a small and poor South Asian country, it is doubtful whether any contemporary leader achieved world wide fame like him. London's Sunday Times dubbed him as “A poet of politics”. A famous columnist from Sunday Observer said “There is no other real Bengali leader like Sheikh Mujibur Rahman in terms of his physique and facial features. The tall, handsome man has a resounding voice. He can really mesmerize his people.” Bangabandhu's success was hardly limited to guiding Bengalis towards their independence. The success he showed in re-building the war-devastated country within the span of only three and a half years is remarkable. If he did not return immediately after the independence, it would not only be impossible to rebuild the country, but it may have been impossible to protect the independence as well. Within three months of the war he managed to persuade the Indian's Prime Minister Indira Gandhi to withdraw their troops. The West European countries could not remove the American soldiers and their military establishments in 40 years. The Pakistani army had completely destroyed the communication network of Bangladesh. Within a few months, 567 bridges including the Hardinge and Meghna Bridge were rebuilt. 1851 rail wagons and passenger bogies were restarted. The Chittagong and Mongla sea ports were cleared of mines and export-import business started. Within a week of the independence the national flag, national song and the war song were decided. For the peasants, it was decided that there will be no tax for holdings under 25 bighas. Within a year, the Constitution was drafted and



implemented. Pakistan did not manage to make a constitution even in eight years (Sarker, 1975).

A number of analysts has analyzed the capability of Sheikh Mujib and said, Bangladesh gained membership of the United Nations in a few years. Communist China needed 20 years to become a UN member. In 1976, Bangladesh became a member of the Non-Aligned Movement. In the Algiers summit of NAM Countries Bangabandhu and Bangladesh was declared as the New Rising Sun of South Asia. Within a very short period of independence nearly two hundred countries recognised Bangladesh. This is no mean feat of Bangabandhu. Even Pakistan recognised Bangladesh and invited Bangabandhu to visit the country in 1974. All these were possible because of Bangabandhu's powerful personality, charisma and his role befitting a statesman. The World Peace Council awarded him the prestigious Julio Curie Peace Medal because of his contributions. The organisation also dubbed him as "The Friend of the World" (The Independent, 1975).

Bangabandhu was able to blend of both revolution and orderliness in his character. He gave leadership in a revolution to obtain independence. But he did not want to govern with the spirit of revolution. Rather he thought of using his power and personal charisma to reach the goal of attaining democracy and socialism in a peaceful manner. Which Bangabandhu termed as democracy oppressed, the counter-revolutionaries seized this opportunity to strike and destroy both-Bangabandhu and his newly created Bangladesh.

According to Bangabandhu, "A nation may not get freedom though it may attain independence. Even after the ouster of foreign rulers from a country the common masses may not become free from hunger, poverty, exploitation, illiteracy, disease and repression. It is my wish that I would start a second revolution to free the people from discrimination, inequality and poverty. Independence might have returned democracy to us but this is not the democracy of those exploited. It is the democracy of the gentlemen, educated and rich. This democracy gives gentlemen the right to say some words about democracy from the books. But it does not arrange for food for the poor, nor does it bring back smile in the face of the poor. Once the democracy of the gentlemen settles down, I would start my work for the establishment of democracy for the poor to end exploitation." (Quoted by Sarker, 1975).

Bangabandhu emphasized on the secularism in the constitution, and wanted to free the country from the grip of communalism and fundamentalism. By including socialism in the constitution he had made provisions for building a future socialist Bangladesh just to ensure equity, equality and distributive justice. Secular Bengali nationalism was to create a non-communal Bangladesh. And to ensure implementation of these steps he had introduced BAKSAL. But to deny him the fruits of success, his opponents connived to assassinate him and his family members in a most brutal and barbaric way on 15 August, 1975, just by motivating with vested and narrow group interest of some conspirators constitutes of few ambitious and greedy political leaders, civil and military personnel and external power.



Concluding Remark

According to Bangabandhu “A nation may not get freedom, though it may attain independence. Even after the ouster of foreign rulers from a country, the masses may not become free from hunger, poverty, exploitation, illiteracy, disease, and repression. It is my wish that I would start a second revolution to free the people from discrimination, inequality, and poverty. Independence might have returned democracy to us, but this is not the democracy of those exploited. It is the democracy of the gentlemen, educated, and rich. This democracy gives gentlemen the right to say some words about democracy from the books. But it does not arrange food for the poor, nor does it bring back smiles in the face of the poor. Once the democracy of the gentlemen settles down, I would start my work for the establishment of democracy for the poor to end exploitation” (Sarker, 2017).

Giving emphasis on politics of development especially alleviation of poverty, hunger, malnutrition, inequality, and ensuring distributive justice, Bangabandhu wanted to free the country from the grips of vested quarters including communalism and fundamentalism and western world’s grips and exploitation. By including socialism in the constitution, he had made provisions for building an exploitation free society. If the assassination of August 15 had not taken place, Bangladesh would not have been so miserable especially during the long military rulers rule which did cost a lot including devastating the country’s democratization process and lack of ensuring balanced development more than one and half decades. If Mahathir Mohammad of Malaysia could brush aside the brow-beating of the enemies of balanced development of the country, then Bangabandhu could have definitely the power to build an exploitation free society and most prosperous country in South Asia. But we are happy to announce that the unfinished tasks of Bangabandhu has been taken over by her brilliant and prudent daughter, honorable Prime Minister Sheikh Hasina who already demonstrated her visionary leadership by turning the country from under develop to the developing phase and with a comprehensive target to fulfill the Goals, Visions, Missions and Aims of SDGs, Vision 2021, and Delta Plan, Digital Bangladesh and achieving the 2041 targets with the support of her ethos of Good Governance, corruption free administration, accountability, transparency, tolerance, and distributive justice. Therefore, by executing all these targets and master plan of development timely, the country would able to graduate as ‘Developing Country’ by 2041 and we are waiting for that very golden moment.

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KNOWLEDGE, BELIEFS AND PRACTICES REGARDING ABORTION AMONG RURAL WOMEN IN BANGLADESH

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Abstract

Abortion is considered as a crucial part of the reproductive health of women across the world. Recent studies point out that the rate of abortion in developed countries is increasing day by day at a great pace-no exception in the developing countries, such as a country like Bangladesh. The present study sheds light on uncovering women's knowledge, beliefs, and practices on reproductive and sexual health in rural areas of Bangladesh. Various socio-cultural and economic factors shape and reshape the sexual and reproductive health of women in rural Bangladesh in various ways. The study selected two villages in the rural south-west Bangladesh from where primary data were collected. By adopting a convenient sampling procedure, the study selected 160 respondents (80 from each) from the two villages. The research included participants from a range of categories; such as, patients, nurses and community people. The study employed mixed methods to explore the research objectives and applied both structured questionnaire and in-depth interview to analyze the collected data. As part of the quantitative method, the study administered a structured questionnaire among the selected 160 respondents. Applying the qualitative method, the study conducted 05 focus group discussion (FGDs), 10 case studies and 10 Key Informants Interview (KII) in the studied areas. The study found rural women have significant amount of experiential knowledge and beliefs on the ages of sexual and reproductive health. The beliefs of beginning and ending ages upon sexual and reproductive health of women are not fixed, however. There are some micro level factors found vital as the sources of learning on reproductive and sexual health, which particularly derived from the family and community levels. The macro level factors of achieving knowledge and beliefs on the associated reproductive health included community health workers; state provided health care services, etc. The study, moreover, found that economic conditions played an important role to shape and reshape of human behavior, influenced to construct other social behaviors such as cultural practices, religious beliefs, and other performances of abortion in the rural community of the country.

Keywords: *Women, reproductive and sexual health, knowledge, beliefs, practices, rural Bangladesh*

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Introduction

Reproductive and sexual health is a concern/matter of biomedical dimension, the sickness and wellness of their health. It, however, depends on some socio-cultural and economic factors in the family and society. As a socio-cultural being, human beings have some certain behavioral patterns which govern their health socio-culturally, economically and politically. Besides, various social norms, beliefs, and practices govern the expression of sexuality and sexual behaviors particularly in society and these guides the sanction of reproduction. The study shows that various socio-cultural and economic factors shape and reshape the sexual and reproductive health of women in rural Bangladesh in various ways.

Sociology of health and illness, Medical Sociology, Medical anthropology is especially concerned with the discussion of sexual and reproductive health of women by exploring socio-cultural and political dynamism. It is found that many maternal deaths in Bangladesh occurred due to pregnancy related complications and this alarming rate is relatively high in rural areas of Bangladesh. It is also to be noticed that the maternal mortality is 3.9 persons in every thousand of women every year where the one-fourth of death occurs due to the complexities of induced abortion. Moreover, they showed that 8,00,000 women take an abortion every year, of the 8,000 women have died. The various social, economic, political, and cultural reasons are laid behind these deaths (Akhter and Ferdous 2008).

Reproductive and sexual health of women is not only a biological issue rather various socio-cultural, politico-economic factors that affect this health. Sexual and reproductive health, therefore, indicates both the physical and mental health condition of women. This health depends particularly on social relationships, social position, economic condition, and other determinants. The knowledge of sexual and reproductive health is shaped and reshaped repeatedly over the years and therefore, this knowledge is not fixed. Besides, the local people have their own perceptions, knowledge, beliefs, and attitudes on the sexual and reproductive health of women.

Studies reveal that sickness is not an isolated event, rather it is a social process- a mixture of socio-cultural, politico-economic, and environmental factors. Jordan B.A. (1978) highlighted that abortion is a bio-social mechanism of controlling the reproductive system (Jordan, 1978). Rainbow (1991) argued that bio-power is the power over biological life that has been practiced by spouse, parents, family, community, state, or even through institutions. Since practices of institutions are widely being practiced in individual life, a decision of abortion also goes to the idea of control over life. Besides, the idea of the base structure and superstructure help us to understand the economic reasons behind abortion. The concept of “biopower” helps us to understand the practice of power over biological entities.

The experiences of women vary from society to society, culture to culture, and how the medical sciences dominate the human body, especially women's bodies. The dominant metaphors in biomedical science for the delivery of babies came from the arena of industrial production. The doctor seems like the manager of the laboring process, as like a factory freeman who oversees



and regulates the production process, the uterus is regarded as the machinery of reproduction, the mother is talking about as a kind of labor and hence she is said to be ‘in labor’ during the birthing process, finally, the baby is viewing as production (Martin 1987). Given the importance of power in modern medical science through the possession of knowledge, and use of language in case of health seeking, Mitchell Foucault depicted how human beings became the field of medical sciences. The emergence of govern-mentality in various spheres/issues in health was the main focus of his findings. He explored the idea of ‘the gaze’ and ‘the language’ where by ‘gaze’ Foucault means the supervisory authority and medical power which has two forms –‘the space’ and ‘bodies’. He further stated the body as an object that could be mapped out through the classificatory process with medical intervention. In modern medical sciences, illness needs anatomical explanation, and clinics are also explored in the centers of nurturing. Thus, Foucault critiques the govern mentality of modern medical science in various issues of health.

Health seeking behaviors vary across the various social classes in Bangladesh. A study explored how various ideas such as pregnancy period, delivery pain, delivery, the notion of taking tests, and treatment all are socially and culturally constructed. However, the main focus lies on how class stratification affects health seeking behavior in the urban area of Bangladesh. In doing so, they raised questions upon the unquestioning authority of the modern medical system regarding child birth and safe pregnancy (Sultana and Islam, 2007). Moreover, different social and cultural dynamics determine reproductive and child health care practice in Bangladesh (Kawsar et al., 2004).

Abortion is a very sensitive issue of the sexual and reproductive health of women in rural Bangladesh. Generally, people keep secret those events of induced abortion. People experience this particular event from different points of view from religious, economic, social, and cultural perspectives. In various religious texts and social norms, it is a common word that mother-child relation is one of the best relations amongst all kinds of relationships forever across the world. The questions arise related to abortion are needed to explore. In this connection, it is important to explore how a mother is bound to abort her child, what how does she perceive, how does she experience the pre and post period of abortion, how do they explain various reasons behind abortion, how does she manage the family members of both her husband’s family and her father’s family. To seek the aforementioned concerned questions, the present study aims at exploring people’s knowledge, beliefs, and attitudes on sexual and reproductive health, attempting to examine socio-economic explanations of abortion of the women, inspecting the socio-cultural contexts of women’s abortion, and finding out the role of religion of women’s abortion in rural Bangladesh.

Methodology of the Study

Methods and Sampling procedure: The present study adopted triangulation research methods by applying both qualitative and quantitative research methods, particularly structured and semi-structured questionnaire, observation, case study, and focus group discussion (FGD) etc. among the respondents in the studied area. The research utilized both primary and secondary



data for supporting the research questions. The researchers selected 160 respondents by following the convenient sampling procedure, whose age ranges were between 20 to 50 years old and they were categorized based on age, sex, and socio-economic classes. The data were directly collected by the researchers and the time period of collecting the data was from October 11, 2018 to December 21, 2018. Five focus group discussions (FGD) were carried out representing 6 participants in each group. These participants were categorized based on their socio-economic positions/conditions i.e. level of education, sources of income, occupation, ages of marriage, etc. Besides, with the full consent of the participants, a semi-structured questionnaire was conducted among the respondents; which helped the researchers to understand the informants' experiences and understanding of the particular issues. Since the particular research is a sensitive issue, the study selected 10 key informants (women) who introduced us to the respondents for collecting the relevant information. Also, 10 case studies have been employed to explore the research in-depth.

Study Area: We have selected two villages namely *Kashipur and Nataiparia* by following the purposive sampling procedure at *Jhenaidah* district. The villages are located at Sadar Upazila of the district which comprises 56 villages. The two villages represent the largest locals in the south-west area of rural Bangladesh. There are around 5000 people in two villages. The study is based on convenience and near to one of the researchers' residence. Secondly, it is found that the study areas are largely affected by the abortion cases, further hindered to the overall economic development of the country.

Limitations of the Study: Since abortion is a sensitive issue in rural Bangladesh, respondents hardly showed their interest to share their experiences with the researchers. The respondents were very much worried to disclose the secret matter on sexual and reproductive health related information. Besides, the researchers felt nervous once they surveyed the questionnaire among the respondents and collected data through case studies.

Conceptual Framework

The present study developed a conceptual framework which applied to explore the research questions.

(a) Fertility behavior: The decision of abortion depends on fertility behavior in a particular society. Fertility can be seen as a decision making process and is a social behavior. Child bearing is fundamentally a social behavior. When we say fertility as social behavior, we mean that this behavior is shaped and reshaped by the social contexts in which people live. These contexts may be as large scale as the economic and political worlds in which people live or as small scale as the specific circumstances of individual couples who are deciding whether to have a baby or not.

(b) Decision about having a baby: Fertility behaviors regulate couples to decide having a baby.

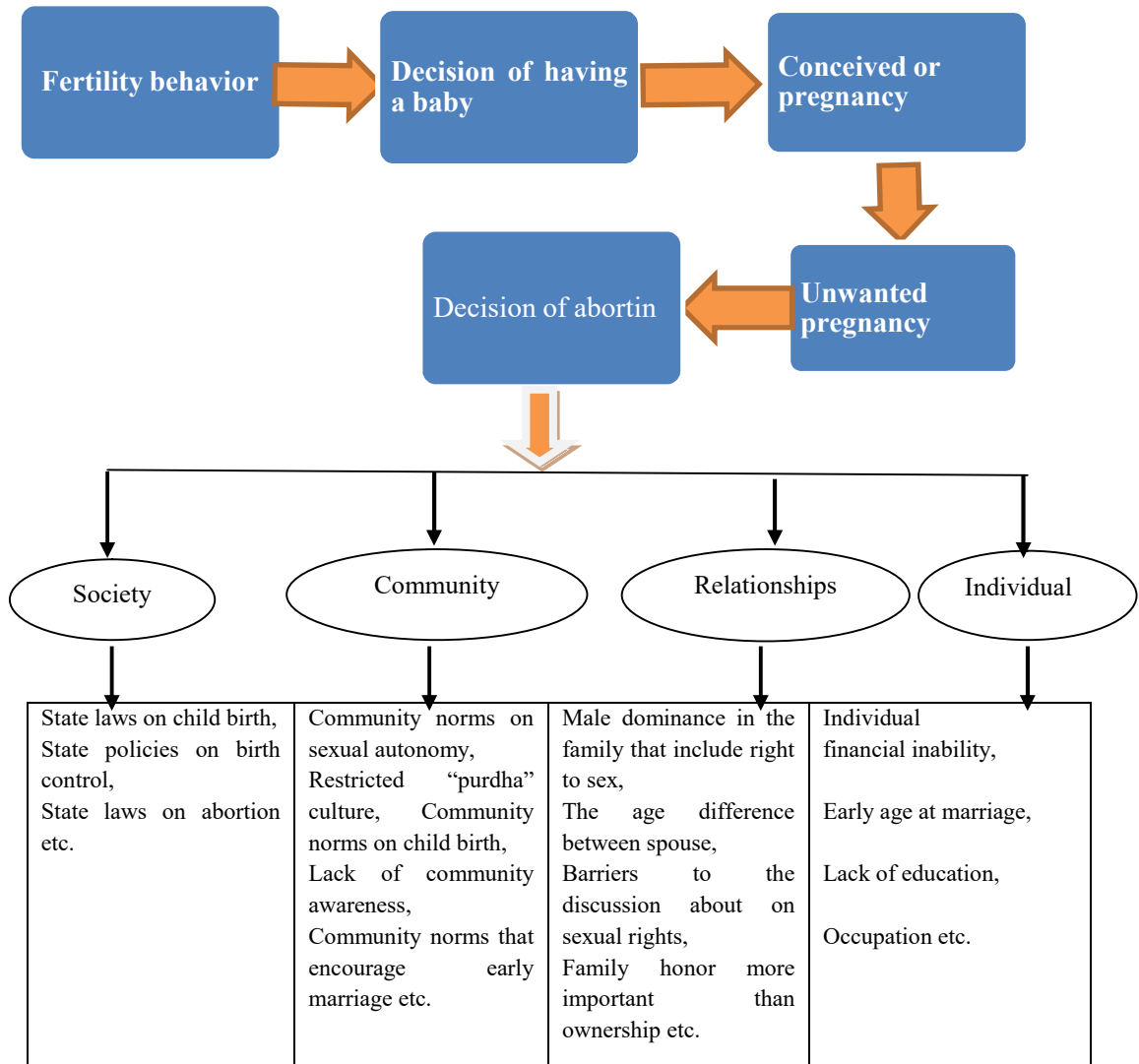


(c) **Pregnancy or Conceived:** From the cohabitation with male or female interactively and to decide of having a baby, the wife gets pregnant.

(d) **Unwanted pregnancy or unplanned pregnancy:** Due to sexual violence, uses of contraceptives failure, or even don't know to intercourse effects then unwanted or unplanned pregnancy can be occurred. Unwanted pregnancy causes a threat to women's health or even is a question of social status and economic relations. As a result, abortion may have occurred.

(e) **Abortion:** For various physical and socio-cultural and politico-economic reasons they have to go through the process of abortion.

Figure 1: Conceptual framework of understanding fertility behavior



(Source: Authors' own generated framework)



The process of fertility behavior depends on the four levels of decision making process. The individual levels, the relationships process which we called social relations, the community level, and finally the society or state level.

Individual level: Pregnancy or having a baby depends on the individual level. Such as individual economic condition, educational status, individual employment status, Ages at marriage, etc.

Relationship levels: Pregnancy is also an output of relationship level which we called social relations such as male dominance in the family, age differences between spouses, barriers to discussion on sexual rights, family honor is more important than own rights, relationship within family, etc.

Community level: Pregnancy and fertility depend on community level such as community norms on sexuality autonomy, restricted '*purda*' culture, community norms on child birth, community awareness, community norms that encourage early marriage, etc.

State level: The fertility behavior depends on state laws on child birth, policies on family planning, laws on abortion etc.

Study Findings, Analysis and Discussion

People's Knowledge, Beliefs and Attitudes towards Sexual and Reproductive Health of Women Socio-demographic profile of the informants

The present study has carried out at two different villages i.e. *Kashipur and Nataiparia* in south-west Bangladesh where data and information were collected from 160 respondents. Since the study particularly focused on women's reproductive and sexual health, the researchers collected data largely from the female gender accounted for 95% and the rest of the informants (5%) were male informants. The largest number of data were collected from the age group of 20 to 25, 25 to 30, and 35 to 40 accounted for 25% of each. Followed by the age group of 30 to 35, 40 to 45 and 45 to 50 accounted for 12.5%, 7.5%, and 5% respectively. In terms of respondents' educational status, it was found that the highest percentage, half of the respondents (50%) accounted for below primary level, whereas 25% informants completed primary level, followed by SSC and HSC level accounted for 12.5% of each respectively.

In response to household sizes, it was found that the maximum household had two to six members, and the levels were between 'more than two but less than four categories' and 'more than four but less than six' categories accounted for 37.5% each, followed by at least two categories accounted for 25%. The maximum (85%) household did not possess any land property, however only 15% of informants possessed few land property. Apart from this, only 15% of informants are service holders at various governments, semi govt. and non govt. organizations, whereas a large number of informants (80%) did not involve any services, they are just housewives and the rest of 5% respondents are labor. The case of household income, 55% of informants' monthly income was from 3000-6000 BDT, while that of 25% of informants was 9000 BDT to above, and the rest of the informants earned 6000 to 9000 BDT



per month. Regarding health issues, only 17.5% of respondents have full access to receiving health information, whereas 37.5% of respondents have little access to reproductive health information, 30% of respondents have poor access to reproductive health information and 15% of respondents have no access to getting information on health related issues.

Table- 1: Socio-demographic profile of the informants

Socio- demographic profile	Level	Frequency	Percent
Gender	Male	8	5
	Female	152	95
	Total	160	100
Age distribution	20-25	40	25
	25-30	40	25
	30-35	20	12.5
	35-40	40	25
	40-45	12	7.5
	45-50	8	5
	Total	160	100
	Level of Education	Below primary	80
Up to primary		40	25
SSC		20	12.5
HSC		20	12.5
Total		160	100
Household size	At least 2 members	40	25
	More than 2 but less than 4	60	37.5
	More than 4 but less than 6	60	37.5
	Total	160	100
Possession of Land	Possessed	24	15
	Not possessed	136	85
Occupation	Housewife	128	80
	Labor	8	5
	Service	24	15
	Total	160	100
Household income	3000-6000	88	55
	6000-9000	32	20
	9000- above	40	25
	Total	160	100
Access to health information	Full Access	28	17.5
	Little Access	60	37.5
	Poor Access	48	30
	No access	24	15
	Total	160	100

(Source: Fieldwork 2018)



Duration of Reproductive Life Time

“*Biyer age kokhono cinta korte pari ni*” I cannot even think about this matter before marriage (Source: Fieldwork 2018).

People have their experiential knowledge and beliefs on the ages of sexual and reproductive health of women. The beliefs of beginning and ending ages of sexual and reproductive health of women are not fixed. It differs from person to person based on their socio-economic condition. The following table showed the results of responses which indicated when the ages of sexual and reproductive health of women begin and end.

Table- 2: Ages of reproductive health begins and ends

Ages of reproductive health begins and ends				
Factors/Variables	Starts (Age)	Ends (Age)	Frequency	Percent
Duration of women reproductive health	12	45	96	60
Duration of women reproductive health	13	49	40	24
Duration of women reproductive health	14	45	24	16
Total			N=160	100

(Source: Fieldwork 2018)

Data on the above table show that the majority of (60%) of respondents agreed that the beginning and ending ages of sexual and informants health of women are between 12 to 45 years while 24% of informants replied that the starting and ending ages of sexual and informants health of women is 13 to 45 years. Besides, 16% of respondents have mentioned that 14 to 45 years is the average life time of sexual and reproductive health.

While talking with a religious leader, he ensured that the informants' health of women begins at the ages of 12 to 45 years. A female health worker replied that the ages of sexual and reproductive health of women begins and ends at 14 to 45 years.

**(i) When an Individual can access this knowledge?**

“*Biyer pore dadi-nani sikhiyesilo*” For the first time, researchers learned this issue from my grandmother exactly just after marriage (Source: Fieldwork, 2018).

It is assumed that a girl becomes sexually naïve and discussing/sharing sexual matters before marriage is considered as a misdeed (*paap*, meaning discussion on the sexual matters is prohibited in the society), this is in fact, the case in rural Bangladesh. The results of responses are given below;

Table-3: Time of access to sexual and reproductive health learning

Time of access to sexual and reproductive health learning		
Factors/Variables	Frequency	Per cent
After marriage	64	40
Just few years before marriage during the adolescent periods	60	36
From childhood	36	24
Total	N=160	100

(Source: Fieldwork 2018)

It becomes evident that a maximum of the informants (40%) or two-fifth of the respondents get knowledge on sexual and reproductive health after their marriage and 36% of respondents expressed that they learned this just a few years before marriage, particularly during the adolescent period. Only 24% of informants replied that they have the access to acquire knowledge on sexual and reproductive health during their childhood. Multiple responses have been found in terms of getting diverse perceptions on the sexual and reproductive health of women. Firstly, social norms can play a vital role on such kind of behavior especially in rural area. Women have few chances/opportunities to communicate with other people except family members due to the restricted “*purda protha*, where *Purdha* refers to a piece of cloth covering the entire body of the women and *protha* denotes to the particular culture. The other answer lied in their poor economic condition, as well as their low level of education. Since they have a lower level of education, they got little knowledge of their health issues.

(iii) Sources of acquiring knowledge

It is observed that women from various socio-economic classes get knowledge on sexual and reproductive health from different sources. There are some micro level factors to be found as the sources of learning on reproductive and sexual health, these are particularly from the family and community level. Some other sources are from macro level such as community health workers, state provided health care services. The results of the study are given below in the table:



Table- 4: Sources of learning on sexual and reproductive health

Sources of learning on sexual and reproductive health		
Factors/Variables	Frequency	Per cent
Mother, grandmothers, near kin members such as aunts, mother-in-law, sister-in-law, friends (<i>soi</i>).	116	72
Community clinic female health workers, NGOs female health workers, Thana and District health care centre.	20	12
Radio and television programs, health campaigns arranged by government and NGOs employers.	24	16
Total	N=160	100

(Source: Fieldwork 2018)

The above table showed that the respondents learned about their sexual and reproductive health from different kinds of sources. The majority or almost three-fourth (72%) of the respondents have learned from their mother, grandmothers, near kin members, mother-in-law, Sister-in-law, friends (*soi*). 12% of informants have mentioned that they have learned from some formal and informal institutions such as community health clinics, NGOs, thana and districts health care centers. 16% of informants have mentioned that they have learned from media such as radio and television programs, and various health campaigns arranged by government and NGOs projects.

(iv) How do they perceive the meaning of childbirth?

“Shontan chara meye manusher dam ache naki somaje? Jar baccha nai tar duniyate sukh-santi nai, somajer ovishap tara” (In fact, no value is given/imposed to the women who are without children in the society. There is no other matter of happiness in the family without children and they are considered as sin of their respective family and society) (Source: Fieldwork, 2018).

Generally, people perceive various meanings of child bearing in the rural area. The meaning of child birth is determined by the fertility behavior of a community in a particular culture. Fertility can be seen as a decision making process and is a social behavior. Child bearing is fundamentally a social behavior. When we say fertility as social behavior, we mean that this behavior is shaped and reshaped by the societal context at both macro and micro level.

Child birth is a social mechanism. It simply makes a balance between existing resources and labor forces in a particular society. The meaning of child birth has differed from industrial society to a non-industrial society. However, respondent’s meanings of child birth are shown by the following table:

**Table- 5: Meaning of child birth**

Meaning of child birth		
Factors/Variables	Frequency	Per cent
Child bearing is natural; child is for security in future life.	64	40
It is their duty to raise children.	64	40
Children are the future for their older life and they protect their resources.	32	20
Total	N= 160	100

(Source: Fieldwork 2018)

The table showed that informants perceive various meanings of child birth. 40% of informants have stated that child birth is a very natural process, and it is determined by Allah. Again 40% of informants have stated that they bear children because their son is future protection. Only 20% of respondents have noted that they need children for the expansion of their lineage, especially the male children.

(v) Knowledge over birth control

“Sele-meye beshi hole valo-vabe manush kora jai na, tai ektu cinta-vabna kore bachca nite hoy” (It becomes quite difficult to nurture children properly if it is outnumbered, therefore, it is better to give birth children in our convenient time)

(Source: Fieldwork 2018).

Local people have received experiential knowledge on birth and its control as well. They have described it through the knowledge of the use of contraceptive methods. The results of responses on knowledge about birth control are shown below:

Table- 6: Knowledge on birth control

Knowledge about birth control		
Factors/Variables	Frequency	Per cent
Using of contraceptive methods by both husbands and wives.	32	20
Did not use any contraceptive methods	96	60
Only husbands or only wife used contraceptive	32	20
Total	N=160	100

(Source: Fieldwork 2018)

The above table showed that 20% of respondents used contraceptive methods of both husbands and wives. In this connection, it is found that the majority of respondents who used contraceptive methods for birth control both husbands and wives; they believe that having maintained a small family is a matter of social status. For keeping/maintaining a small family, they used contraceptive methods for birth control. Some informants 60% expressed that they did



not use any contraceptive methods while the rest of the participants 20% have noted that only the husbands or only wives used contraceptive methods. The respondents who did not use contraceptive methods, their beliefs lied on the fact that both husbands and wives did not get much satisfaction during the period of intercourse if they used contraceptive frequently. Besides, husbands willingly used contraceptives such as condoms while wives used oral pills forcefully by their husbands. As a result, this evidence showed how birth control is a social mechanism.

(vi) Knowledge on pregnancy complications and sexually transmitted disease

“*Onek somoy pete bachca chole ase othocho amora jani na*” (Many times, baby comes to our womb in absence of our mind) (Source: Fieldwork 2018).

Rural people’s knowledge of pregnancy related complications and sexually transmitted diseases differ from individual to individual based on their social and economic position/status in society. Data on the informants’ beliefs regarding pregnancy related complications and sexually transmitted diseases are shown in the following table:

Table-7: Knowledge on pregnancy related complications and sexually transmitted disease

Knowledge on pregnancy related complications and sexually transmitted diseases		
Variables/Factors	Frequency	Per cent
Contraceptive failure, unwanted pregnancy, forced sex, abortion, menstrual regulations	64	40
Abortion (<i>pet fela, baccanosto</i>), <i>Moron Roog</i> (a fatal disease called AIDS)	44	28
Don’t Know	52	32
Total	N=160	100

(Source: Fieldwork 2018)

The above table illustrated that 40% of respondents replied that they have acquired knowledge on their reproductive health by various causes i.e. contraceptive failure, unwanted pregnancy, forced sex, abortion, menstrual regulations as pregnancy related complications. 28% of respondents have mentioned abortion (*pet fela, bachca nosto, meaning distorting the micro-form of baby in the ovum*) as pregnancy related complication, while 32% of informants did not mention any complications related to sexually transmitted disease (STDs).

(vii) Respondent’s knowledge on abortion laws

“*Nijer hate sontan nosto kora paap. Kintu kotojon eta mane*” (It is, in fact, a matter of sin if we abort/kill our children in our hand; however, it is a matter of question that how many people follow the practice) (Source: Fieldwork 2018).

According to Bangladesh law, abortion is allowed in three different cases. Firstly, it is allowed when continuing pregnancy will be getting involved with a greater risk to the mother’s life than ending the pregnancy. Secondly, abortion is allowed when continuing of pregnancy will involve



greater risks of mother's physical and mental health, and finally, it is allowed when there will be a probability of being disabled of a child being physically and mentally. This law also permits abortion within 24 weeks after being conceived. Besides, there is a religious taboo towards abortion. In Islam, it is seen as a misdeed activity (*papbodh*). In terms of socio-cultural perspective, it is very non-ethical to abort a child. The following table showed the knowledge of abortion law:

Table- 8: Respondents' knowledge on abortion laws

Respondents' knowledge on abortion		
Factors/Variables	Frequency	Per cent
Aware on religious taboos and <i>desheraheen</i> (state laws).	32	20
Aware of religious taboos.	96	60
Not aware of laws.	32	20
Total	N=160	100

(Source: Fieldwork, 2018)

From the above table, we see that 20% of informants are aware of both religious and state laws and the majority, 60% of informants are aware only of religious taboos, and only 20% of informants do not have any awareness of both religious and state laws.

(viii) Respondents' explanation on the causes of abortion

"Boro meyer biye hoye geche, baccha o hoye geche. Ekhon ami jodi baccha nei tahole loke ki bolbe?" (My elder daughter has already got married, as well as given birth to children. However, if we want to give birth to children right now, how people and society will receive the matter) (Source: Fieldwork 2018).

Although abortion is religiously and socially prohibited or restricted, it is permitted by the people in a particular context. So, the idea of abortion is shaped and reshaped by the individuals, community members, state policy makers, and global health policy makers. People identify various causes of abortion in which some social, political, and economic factors can be seen. The results of the responses or people's explanation on the causes of abortion are given by the table:



Table- 9: Respondents' explanation on the causes of abortion

Respondent's Explanation on the causes of abortion		
Factors/Variables	Frequency	Per cent
Do not want more children, medical reasons, contraceptive failure, and last child become too young, family cannot afford to raise children.	96	60
Having a small family is a matter of social status.	32	20
Poor relations with husbands, feelings of ashamed because of daughters are also married.	32	20
Total	N=160	100

(Source: Fieldwork, 2018)

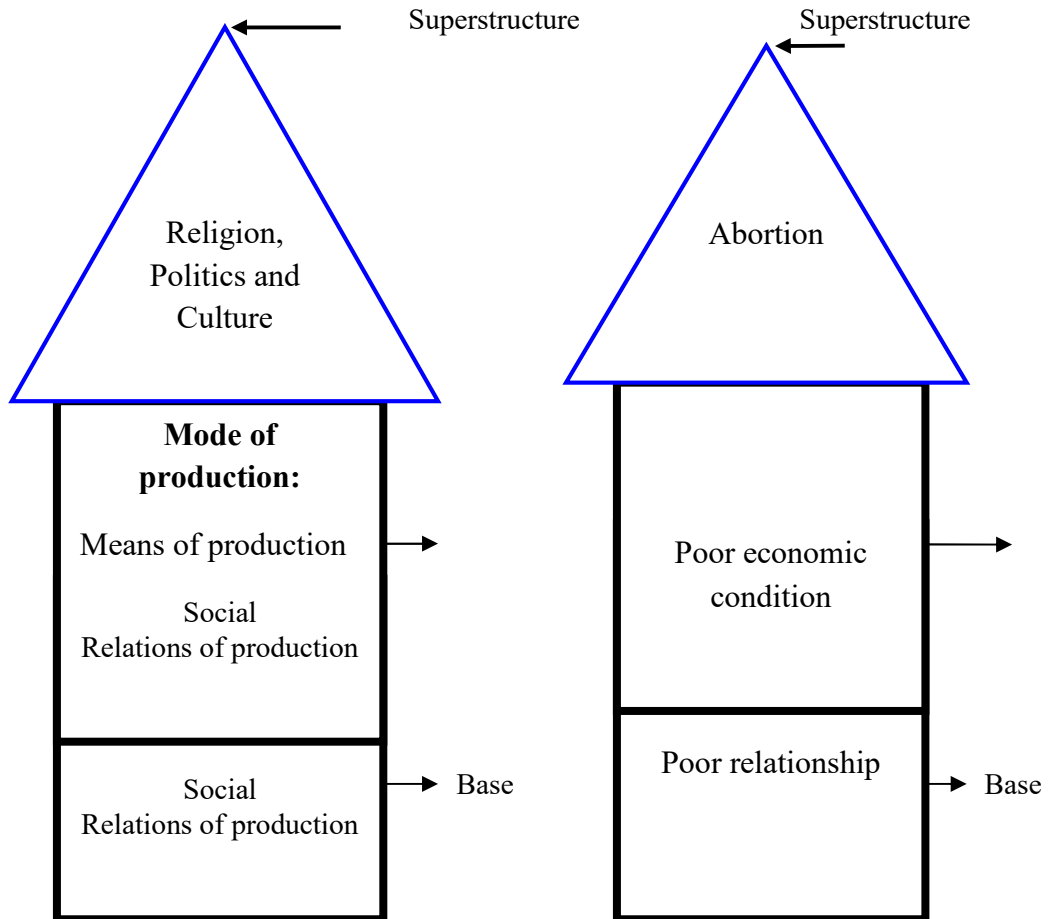
The above table showed that the majority (60%) of respondents have explained various causes of abortion by saying as they do not want more children; medical reasons; contraceptive failure; and last child become too young; the family cannot afford to raise children. 20% of participants explained that having a small family is a matter of social status. From the above discussion, it can be said that the knowledge of sexual and reproductive health of women is not a fixed idea. It is shaped and reshaped by a particular context. And another 20% of informants stated that poor relation with husbands, feeling ashamed due to elder daughters' marriage.

Socio-economic Determinants of Women's Abortion

The socio-economic factors of abortion explored how economic condition plays a crucial role to shape and reshape of human behavior which influenced to construct other social behaviors such as cultural practices, religious rituals and other performances in society. Abortion can be viewed as a cultural practice that is determined by the economy. Besides, religion is also considered an important aspect of human life which regulates human behavior. It is also an important part of social integration. No religion permits to destroy life or baby birth. In Islamic religion, to destroy a conception is equated to kill a life and it is considered as '*paap*' or '*Gunah*' (*meaning the activities are not recognized by the society or the religion*). However, this does not necessarily mean that Islamic believers do not go through the process of abortion. The findings connect to the base structure, explained by Marxist theory, which is the combination of the means of production and relations of production. Besides superstructure of a society is the combination of culture, institutions and other practices (Morrison, 1995).



Figure 2: Economic structure and practices of abortion



(Source: Authors' generated framework based on the various Marxist theories)

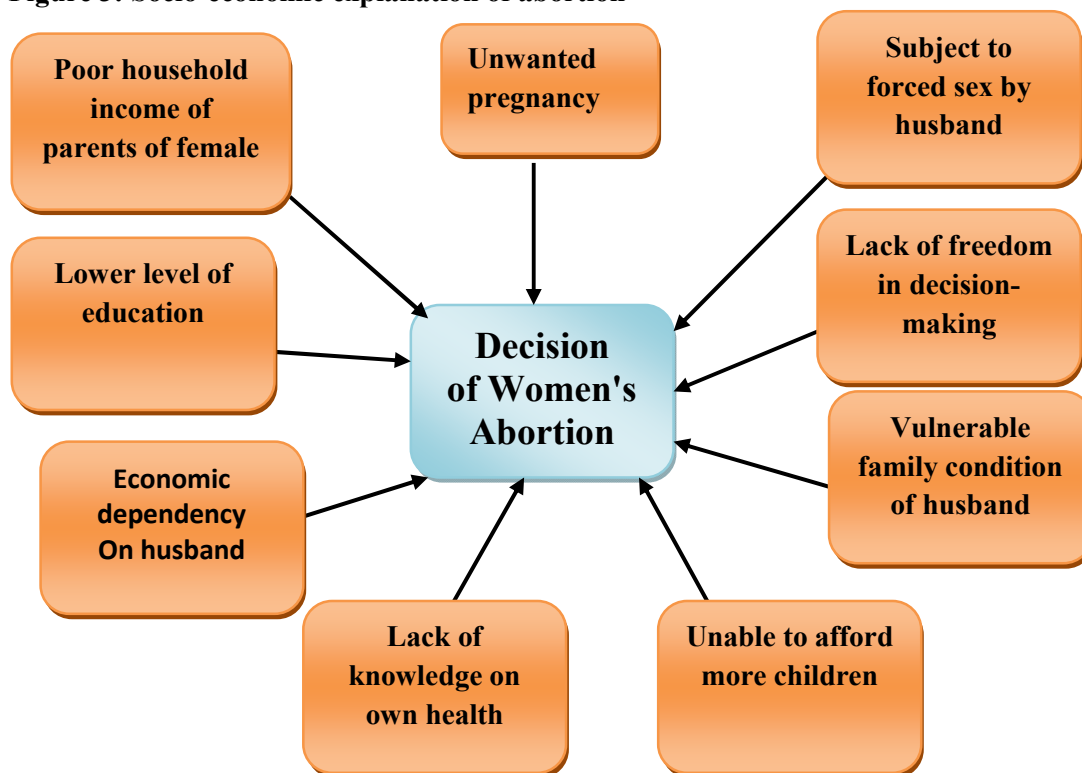
Marxist sociology explained how economic condition determines the cultural practices, religion, and politics in a particular society. If we take abortion as a cultural practice, this practice is determined by one's mode of production (Eriksen and Neilsen, 2001). The idea of Godelier helps to understand the hidden meaning of abortion which is a cultural practice to control the reproductive system of a particular society. He emphasizes that it is not hierarchies of the function of cultural practices such as religion, politics, rituals etc. rather he emphasizes the determinant of such cultural practices. Ortner focused on the factor that in every culture men control nature and women on culture (Ortner, 1974). Since women are compared with nature and men with culture and men control nature, men, therefore, also control women in reproductive health. Abortion is such a tool for controlling women's reproductive system. To Marxist theory, the base structure relies on the economy which ultimately determines the culture, religion, and politics. This idea has a strong relationship with abortion. The poor



economic condition of the household determines the control of the reproduction system. Therefore, abortion can be taken as a process of controlling the reproduction system.

The following figure showed the socio-economic context of abortion in the studied area:

Figure 3: Socio-economic explanation of abortion



(Source: Authors' generated framework)

Abortion is, in fact, a social fact that is not isolated from their socio-economic factors such as the poor economic condition of the household force to their female children towards a lower level of education. Since the female child is remaining uneducated, they have to marry early age at marriage or before their mature/standard ages of marriage. Besides, due to patriarchy, they do not get even the ownership of property like their male siblings/partner. Besides, their exclusion from educational training they become a part of dependent either on their parents before marriage and/or after marriage on their husband. Their economic dependency excludes themselves from decision-making. It is found that they have very limited spaces/scope to express their sexual willingness. They become, to some extent, a subject of forced sex by their husbands. This practice has a tremendously negative impact on their both mental and physical health. As a result, this essentially brings an unwanted pregnancy among many women since they have lack of knowledge on their health. Poor economic condition of their respective household becomes unable to bear more children and finally, they have to decide on abortion.



Poor household income has also a long term effect on abortion. Firstly, they need financial solvency rather than their child bearing. If there is much hunger in the family, they cannot bring up their children properly. Their family is highly characterized as a semi-feudal mode of production where livelihood mainly depends on cultivating lands. In some households, it is seen that both husband and wife work together in the field. Some spouses are associated with working in low level of technology. However, they are also observed dual economy systems where husband and wife work for increasing their income where the husband works in the public sphere and wife works in domestic sphere such as tailoring. This tendency has a close linkage with abortion in the studied area.

In this connection, Tasneem Akter (Pseudo name, 23 years old) stated that her father was a landless farmer and she got married when she was only 14 years old. Before getting married, she was living in her parent's house with four siblings. She added that due to poor the economic condition of her father's family, she could not even complete her education for more than class five. Since she was deprived of the light of education, she had little knowledge of her health. Due to the restricted social norms, she could not get proper education on her reproductive health during her adolescent period. The poor economic condition of her family forced her to marry at an early age. Since she was uneducated and having other shortcomings, she did not have any formal professional training which led to economic dependency on her husband. As her husband was the bread and butter provider of the family, her husband became the master of everything in their family matters including decision making on her reproductive health. She told that she has to go to sexual intercourse beyond her mind set and became a subject of forced sex. Even her husband does not take any contraceptive methods such as condom during intercourse. Therefore, the woman became pregnant unintentionally and it has already progressed for more than 4 weeks. She had now two children aged between 4 and 2 years. As her two children are very young and the vulnerable economic condition for her husband's family, they became unable to rearing any other more children. Then she decided to abort her baby. But her mother in-law opposed to aborting. However, in the end, her husband and she went to the near maternity hospital and abort her baby (Fieldwork 2018).

In this connection, another FGD member, Bristi Begum (a 17 year's old woma,) stated that she got married two years ago in 2016. Her husband was a small businessman. And they had to go through economic hardship condition. Therefore, they had decided that both husband and wife worked for bringing economic solvency to their family. Meanwhile, the woman got training on tailoring from a near household at their village. They had also got their first baby 7 months ago. The woman told that after having their first baby, she became busy caring her first child. As a result, their income was going down day by day. In this situation, getting/having another baby could seriously affect their livelihood. Therefore, after getting conceived, she decided to abort her baby willingly (Fieldwork 2018).



Social structure of the family: Male headed household

Most of the family in rural Bangladesh is mainly male headed household where women have no rights of ownership of property like their male partners. Even though they work together in the field, however; they have very limited financial recognition compared to their male partners. Their works are considered as the work of women which is termed as “*meye manusher kam, (the activates conducted by female is regarded as inferior to their counterpart)*” (Source: Fieldwork 2018).

In rural Bangladesh, income which is generated by women is particularly considered as the subsidiary income in the family. Since women have no special/recognized role in family income, they have no role in exercising power and authority. Hence, in a male headed household, males play an important role in the case of decision-making. This power practice has impacted/influenced abortion in rural Bangladesh. In the case of abortion, the family members are concerned with family income. If the woman is willing to have a baby, she has to consider the condition of her household economy. The economic condition of the household does not permit to have any alternative option except abortion. In this connection two case studies have been developed:

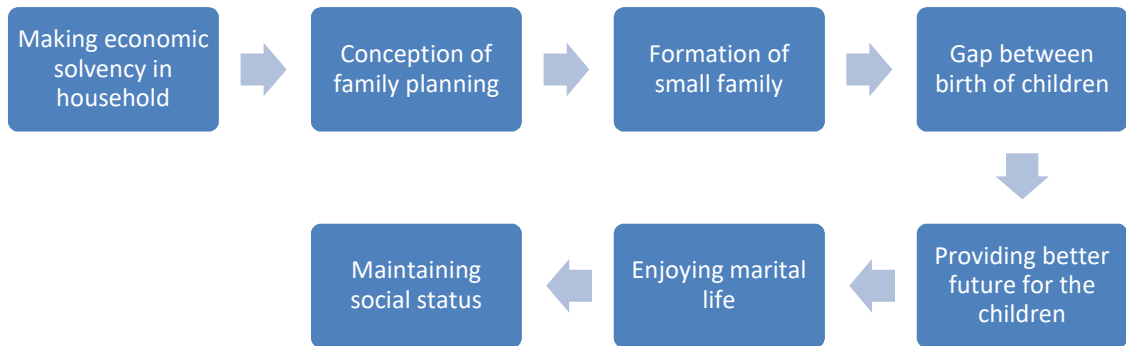
In this connection, Afrin Begum stated that after marriage her husband got a job for the first time and joined as a teacher at a local high school. At that moment, she got pregnant unconsciously and she decided to abort her upcoming baby of being three weeks. She added that her husband had just joined a high school as a teacher and she took a plan that, having settled down properly, they would take the baby. She, moreover, told me that when my husband will be established particularly economically, we will think about taking a baby (Fieldwork 2018).

In fact, poor household income has long term effect of abortion where most of the interviewees stated that they need firstly financial solvent then go for child rearing. They also explained that if there is a lot of hunger in the family they cannot raise their child properly. One respondent said that “*Ekta notun mukh duniyate anar age tader khabarer jogar to korte hobe*”. “It is essentially required to gear up the financial condition before giving birth to a baby on the earth” (Fieldwork, 2018).

The following figure showed that how socio-cultural factors determined the process of abortion in case of controlling birth;



Figure 4: socio-cultural factors affecting the process of abortion in case of controlling birth



(Source: Authors' generated framework)

The above figure showed that the economic solvency of a household generates the idea of family planning. Through the education on family planning, people tried to make a small family. Small family provides the gap between children and it also helps to provide a better future for the children. Others stated that a small family helps them to enjoy their married life. Finally, a small family allows them to maintain social status properly.

The study area is highly characterized as a semi-feudal mode of production in where cultivation and agricultural activities are the basic tools of livelihoods. Besides, these people are involved in some non-agricultural activities. The main duty of the family is to bring economic solvency to their family. Some respondents stated that they maintain a dual economy where husbands work outside in the home and wives work in others level of income generating activities by using less sophisticated level of technology such as tailoring. This tendency has an impact on abortion in the studied area. A case study is illustrated below in this regards:

Sabina Begum, 18 years old, a woman who got married just two years ago. Her husband is a small businessman. They fell into a trouble or danger situation driven by poor economic condition. They had decided that both husband and wife worked for the betterment of their family. Then the woman got training from her near household sister who was also involved in tailoring. The woman had also got her first baby in 7 months ago. This woman said that after having their first baby, she got busy with rearing her child up and that was why their total income was getting low. In this situation having another baby would seriously affect their livelihood pattern. It was not a forced abortion. She had willingly come to abort her baby (Fieldwork, 2018).

The role of Religion of Abortion

Religion is considered one of the most important elements of our life. It is observed that religion helps people to control/protect themselves from doing any other misdeeds. Religion regulates our life peacefully and happily. It, moreover, encourages them to do good deeds (*valo karma*) and prevent them from doing any bad deeds, referred to *kharap karma*). One respondent replied



that “*Allah Amader duniyate pathiyechen tar ibadat korar jonno, Amader jiboner sob kisu Allah nirdharon kore rekhesen*”. Allah has sent us in the earth to perform for His Ibadat, and in fact everything in our life has been destined by Him (Source: Fieldwork, 2018). It is an important matter that in every religion, there is a clear prohibition of abortion. In every religion, abortion is not legal and not permitted. It is, however, practiced all over the world as a part of birth control socially and culturally. Thus, the socio-economic situation and cultural conditions demand for abortion. Religious beliefs pertain more to the demand of fear than social interaction, economic condition, and social status. In light of the factor, a case study has been developed:

Serena Khatun, 40 years old, went to a local maternity clinic. She got married at the age of 27 years. Meanwhile, she had already 5 children and her husband was a religious leader. Few days ago, her eldest daughter got married; however, the woman once again expected to deliver/have a baby which became a part of social fear of interaction and issues of prestige. Beside this, if she wanted to abort her baby; there was another fear of being socially insulted because of her husband’s attachment with religious activities. Though her husband did not want to abort the baby, however, the economic condition of their family as well as the social prestige of their married daughters fell them into serious trouble. The lady was fallen in a dilemma due to both her societal context of being mother at such an age and her ending pregnancy could make her daughter’s reason for shame in her in-laws family. Falling into this serious trouble, she finally decided to abort her baby (Fieldwork 2018).

The above case study showed that people fear religious binding; however, social realism and economic condition matter in the way that they have to go through the process of abortion which is religiously illegal. Though dominant religious beliefs can play an important role in forbidding abortion, however, the socio-economic determinants pushed them to choose the path of abortion.

Conclusion

Bangladesh is a developing country and its geographical area is not much larger compared to its huge number of population growth. Therefore, various problems on women health issues are not new in our country. The economic expenditure on the medical sector in Bangladesh is much higher than the other sectors. In 2012, a report published by World Health Organization (WHO) showed that the economic expenditure of an individual was 68\$ every year which was the proportion of 3.6 percent of the total GDP (GDP means Gross domestic product measured as the total monetary or market value of all the finished goods and services produced within a country’s borders in a specific time period) in Bangladesh. Hence, the economic background of the people in our society revealed that it becomes quite difficult to bear their children with the fundamental needs for the children such as food, clothes, residents, education and medical care for parents. As a result of conceiving a baby unconsciously becomes a burden for them and they have to decide to go through an abortion.



Finally, we can say that abortion is considered one of the most important technologies of controlling human reproduction. It can be said that people of rural Bangladesh are familiar with the process of abortion but this practice is not as open as the urban region. People in rural Bangladesh use the process of induced abortion to control human reproduction. Reproduction of human beings is not only a biological entity rather it is a socio-cultural process also. The process of taking a baby or not depends on what resources the parent possesses, what social rules they followed are considered as the most important factors. Therefore, abortion is not a biological process rather it is the mixture of biological, economic, and socio-cultural process.

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PUBLIC RESPONSIVENESS OF GOVERNMENT ORGANIZATIONS DURING COVID-19 PANDEMIC IN BANGLADESH

Rifat Mahmud* and Marufa Akter**

Abstract

Every democratic government should be responsive to the needs of the people, especially during crisis situations. Very few researches have been empirically tested in the South Asian region to find out the level of public responsiveness of government organizations along with the quest for factors affecting the level of public responsiveness. This research attempts to provide an empirical assessment in explaining the level of public responsiveness of government organizations in Bangladesh considering the requirements and demands of the citizens during the COVID-19 pandemic. Participants in the research were 502 Bangladeshi citizens who reported their attitudes and perceptions on the activities of local administration, police, and public hospitals during this pandemic. Findings reveal that factors such as organizational performance, citizens' acceptance of innovative and creative actions of the government, and government impartiality in the exercise of authority contribute most in explaining the low public responsiveness during this COVID-19 pandemic in Bangladesh. Despite some limitations, the study has developed the perspective of citizen-oriented public organizations during a pandemic for explaining public responsiveness.

Keywords

Bangladesh; COVID-19; public responsiveness; organizational performance; impartiality; innovation.

Introduction

Governments across the world are facing severe challenges in responding to the threat of COVID-19 disease (Christensen & Læg Reid, 2020). With the outbreak of novel coronavirus-2 (nCoV-2) declared a pandemic and an international public health emergency by the World Health Organization (WHO), the entire world is working to address it (Anwar, Nasrullah & Hosen, 2020). The observations of recent measures to face the challenge of the pandemic highlight the role of governments and their policies. Therefore, it is essential to look at the perceived responsiveness on actions of government organizations during the pandemic as people highly rely on public institutions for services and help to deal with the pandemic.

Despite its conceptual ambiguities and theoretical controversies, responsiveness is an important value for government organizations (Bryer, 2007; Rourke, 1992; Saltzstein, 1992; Stivers, 1994). However, the operationalization of responsiveness involving forms of responsiveness, the preferable targets of responsiveness, or the best way to achieve responsiveness is yet to achieve any consensus (Yang & Pandey, 2007, p. 215). Governments that act responsively are rewarded with support and trust on behalf of the public (Linde & Peters 2020, p. 2).

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Unfortunately, as a fundamental aspect of government performance (Fried, 1976; Glaser & Denhardt, 2000), responsiveness is rarely considered in current government performance measurement efforts and only a few public administration studies have empirically assessed the factors that determine government organizations' public responsiveness (Yang & Pandey, 2007). To ensure that citizens have a positive notion of the government citizens' expectations must be met, which focuses on performance. Fulfilling the needs of citizens would make way for ensuring the public responsiveness of the government. Government responsiveness allows for the improvement of the capacity of public administrators at the central and rural level and improves the accessibility of various public resources to people in neglected areas.

We selected Bangladesh as a case because for a developing country like Bangladesh achieving good governance having values such as transparency, accountability, and responsiveness is a major challenge (Huque, 2015). The government in Bangladesh is facing a tough challenge during this COVID-19 pandemic in implementing orders like social distancing as many people are not voluntarily complying with the order as they are disabled with lower income, inadequate resources to meet their basic needs, and inconsistent information about the pandemic and government measures (Anwar et al., 2020). Bangladesh is not new to disaster or major humanitarian crises. The Coronavirus pandemic has a significant likelihood of leading to a long and severe recession. Planning and preparing for the unexpected and unknown, dealing with uncertainty and ambiguity, tackling urgent issues, and responding to citizens' demands and expectations are crucial and difficult tasks for the public authorities (Christensen & Læg Reid, 2020). In this unprecedented public health and economic challenge, it is important to perceive the level of responsiveness of the government in terms of socio-economic, range of health-related interventions, and service provisions. Considering the harsh reality of COVID-19, the question of how governments fulfill their role, and how benevolent they are to citizens' needs remain vague. Do the government or the public organizations working hard in efficiently using the resources of the country and the public money? What do citizens perceive of the quality and quantity of services they receive from government organizations? Answers to these questions may explain how citizens evaluate the responsiveness of public organizations.

This study tries to find out the perceived level of public responsiveness of the government organizations of Bangladesh during the COVID-19 pandemic. The study also tries to explore and perceive the factors that contribute most to explaining the public responsiveness of government organizations. It is important to recognize that governance has to go beyond the traditional bureaucratic attitude and embrace the values of performance, innovations, equality, and responsiveness. The research highlights citizens' behavioral perception by shedding light on understanding public sector operations and the extent to which public organizations are aware of public needs during this pandemic in Bangladesh. This research tested various hypotheses with the survey data from citizens and investigated the variables that contribute most to explaining the level of responsiveness of the public institutions during this COVID-19 pandemic in Bangladesh.



Research questions

- Does organizational performance of public agencies affect the level of public responsiveness during the COVID-19 pandemic?
- Do innovative and creative initiatives of government organizations affect the level of public responsiveness during the COVID-19 pandemic?
- Does impartiality in the provision of goods and services affect the level of public responsiveness during the COVID-19 pandemic?

Research objectives

- To measure the perceived level of public responsiveness of the government organizations of Bangladesh during the COVID-19 pandemic.
- To find out factors that explain the public responsiveness of the government organizations of Bangladesh during the COVID-19 pandemic.

Literature Review

Government responsiveness or responsiveness to the public at large reflects ‘the capacity to satisfy the preferences of citizens’ (Ostrom, 1975:275). Public responsiveness can be explained using three explanatory approaches: performance of public organization, innovation and creativity, and impartial exercise of the authority of public organizations (Vigoda, 2000; Vigoda & Yuval, 2003, and Saltzstein, 1992). Public organizations need to be perceived as reactive, sympathetic, competent, and benevolent of the public needs. It is vital to formulate a systematic approach to understanding the relationship between service recipients and service deliverers to ensure collaborative and pragmatic communication with the public. Scholars and practitioners have agreed that opinions of service receivers need to be taken seriously by policymakers or service deliverers (Palfrey et al., 1992; Winkler, 1987; National Consumer Council, 1986; DHSS, 1979, as cited in Vigoda, 2000).

Thomas and Palfrey (1996) stated that citizens must be involved in the evaluation of the performance of public institutions as citizens are the beneficiaries of public sector operations. Vigoda (2000) addressed that perception of public responsiveness depends on the performance of public organizations according to the needs and demands of the citizens. Performance in public organizations contributes to a better quality of functionality and enhances the accountability of public organizations (Cheong & Kim, 2017). Studies have elaborated on the importance of creating an efficient, skillful, professional, and committed public service to assist the government in its functioning (Staats, 1988; Hart & Grant, 1989; Holzer, 1989; Holzer & Rabin, 1987). Improving the performance of government agencies is a central concern of public administration, as it makes way for the provision of high-quality goods and services with minimum resources (Brewer & Seldon, 2000). During this pandemic, citizens of developing countries such as Bangladesh need better services from public institutions as the role and amplitude of the public services increase in any crisis. The bureaucratic performance involves a comprehensive, distinctive, reliable, and continuous assessment of citizens’ satisfaction from



governmental operation in various fields (Vigoda & Yuval, 2003). If the performance of the government institutions is high, the responsiveness of government organizations would also be on the upper scale or vice-versa. Citizens can make a better perception of public organizations' performance by analyzing the public administrator's activity as well as responsiveness.

Chun and Rainey (2005) emphasize citizen service orientation involving meeting the expectations and following on citizens' feedback in measuring public organizations' performance which can be used in perceiving the public responsiveness. Pandemics or crises demand the fast and effective whole of government responses which can be established through political will and public organizations' involvement through efficient skills and professionalism. The street-level bureaucrats are generally those who directly confront the public and need to provide immediate answers and they must portray service-orientation, professionalism, knowledge, patience, and understanding of the citizens' changing needs (Vigoda, 2000). Professional and skilled public servants would cause citizens to feel more comfortable and have less stress. During pandemic and crisis like COVID-19 passionate and empathetic public officials make way for a positive perception of government responsiveness as a performance measure. If government agencies fail to perform well in ensuring the expected quality of services for the citizens, perceived public responsiveness can be on a lower scale. Thus the hypothesis which we can draw regarding the perception of the performance of government organizations and public responsiveness is;

Hypothesis 1: *The perception of citizens on the performance of public agencies is positively correlated with the public responsiveness of government organizations during this COVID-19 pandemic.*

Government responsiveness to citizens' preferences is fundamental to most conceptions of democracy (Lijphart, 1984; Dahl, 1967). Over the last three decades, it has been advocated to place citizens' interests at high priority as a measure of public responsiveness of government (Paarlberg, 2007). During this COVID-19, citizens especially those of developing countries like Bangladesh look up to initiatives of the public institutions to prevent and mitigate the disease. The role of government in public service provision is expected to be proactive and prioritize their preferences and to satisfy their expectations and demands (Gofen, 2013). The government needs to bring about innovative and new ideas to serve the people during this pandemic. Bryer (2007) proposed entrepreneurial actions of government to citizens as a measure of public responsiveness where acceptance of the actions must equate to the demands of the public preferences (Yang & Pandey, 2007). The COVID-19 pandemic poses an acute threat to the basic structure of the public service delivery system. The government has to initiate alternative means of entrepreneurial role in the production and delivery of public services especially in the distribution and redistribution of economic resources.

Innovation and creativity serve as an essential engine for public sector organizations that seek to perform better (Vigoda & Yuval, 2003). Public responsiveness can be built upon citizens'



perception that government organizations are doing their best by the creation of new opportunities in the arrangement of public service provision during this crisis. If the public agencies lack the entrepreneurship in meeting the desired needs of citizens, the level of public responsiveness would be nominal. The situation in Bangladesh is rapidly evolving, and it is comparable with many other countries, e.g., France, Japan, which have lately seen a devastating impact from the virus (Dong et al., 2020). This is causing fear and anxiety about the pandemic leading to overwhelming stress for everyone. It can be suggested that citizens' may make good judgments at rating their preferences based on the services given by the public organizations (Swindell & Kelly, 2000; Andrews & Van de Walle, 2013). When citizens decide to embrace innovative and newly introduced service provisions, it can create a positive perception in building public responsiveness of government organizations. Failing to ensure the acceptance of the innovations and creativity can imply lower levels of public responsiveness of government agencies. During this pandemic, citizens can be influenced by the entrepreneurial role and operations of the government which would aggregately affect public responsiveness of public institutions. Thus based on the discussion above, the hypothesis which the study draws is;

Hypothesis 2: Citizens' acceptance of innovative and creative initiatives of government organizations are expected to have a positive correlation with public responsiveness during the COVID-19 pandemic.

Issues such as administrative ethics and fairness have witnessed a growing interest among various scholars (Gawthrop, 1976; Wilenski, 1980; Richardson & Nigro, 1991; Suzuki, 1995; DeLeon, 1996; Lui & Cooper, 1997, cited in Vigoda & Yuval, 2003). During this pandemic, citizens look for proper management and redistribution of economic resources both from political personnel and government officials. Public responsiveness is frequently assessed involving standards like integrity and equity (Saltzstein, 1992). Khan (2013) stated that corruption has been institutionalized in the public services in Bangladesh involving favoritism, kinship, regional empathy, patronage, bribery, abuse of authority, etc. In Bangladesh, about 21.8 percent of the total population lives below the national poverty line (ADB, 2018), a country of about 162.7 million people (BBS, 2018). A huge number of people need financial and food assistance during this pandemic. Citizens' preferences and needs can be met when public agencies are not involved in discrimination patronage, and undue interest to special interest or political groups. High public responsiveness of government organizations occurs due to the presence of quality of government involving the impartial exercise of public power by institutions.

Rothstein emphasized procedural fairness, with emphasis upon impartiality (2011) when implementing public policies. Impartiality is defined as the 'condition where the officials do not take into consideration anything about the citizen...not stipulated beforehand in the policy of the law' (2011, p. 13). When public policies neglect the basic justice, fairness, and equal treatment of the public, citizens are expected to have less satisfaction with the operating



procedure of the public institutions and the performance of the institutions. If public institutions along with government fail to provide goods and services impartially the legitimacy of government becomes questionable. Legitimacy allows a positive social contract between citizens and government officials, which is an important condition for ensuring high public responsiveness in government organizations. Public policy is mutually related to administrative culture, ethics, norms, and behaviors of public servants (Vigoda, 2000). Government organizations play important role in addressing the basic issues of citizens during this COVID-19 pandemic and the 'exercise of power' in the policy process has to be impartial in the delivery of the services. Based on the discussion that responsiveness is affected due to congruence between public agencies and citizens regarding values, issue priorities, and impartiality we hypothesize;

***Hypothesis 3:** Impartiality in the provision of goods and services is positively correlated with public responsiveness during this COVID-19 pandemic.*

Methodology

Data and Procedure

The first and main research objective of the study was to measure the perceived level of public responsiveness of government organizations. To achieve the objective, a quantitative approach was adopted based upon the attitude and perception of respondents. The quantitative approach of the study allowed perceiving the level of public responsiveness, through a numeric description of the opinions and perception of respondents. The study applied IBM SPSS (Statistical Package for the Social Sciences) 24.0 for coding in reducing the original data. The study involved descriptive analysis for all independent and dependent variables of the study such as frequencies, multivariate frequency distribution (tabulation of two or more variables), i.e. percentile distribution; the mean and standard deviation of the data. The study also applied multiple regression analyses that have allowed the understanding of the magnitude of the extent of the impact of the explanatory variables over the dependent variable, i.e. public responsiveness of government organizations. Based on the research objective the study area chosen in understanding public responsiveness involving the respondents' attitudes and opinions were restricted to three types of government organizations in Bangladesh, i.e. i) the local police administration; ii) the local Administration, and iii) the local public hospitals.

To analyze the relationships between the variables we collected data using a web-based cross-sectional survey from June 25 to July 15, 2020. We recruited participants through Facebook. It is important to note that various other previous research analyzed survey data to explain an important aspect like the responsiveness of government organizations (Vigoda, 2000; Yang & Pandey, 2007; Bonafont & Palau, 2011; Linde & Peters, 2020). We acknowledge the pandemic and government-imposed lockdown and could not collect data through an in-person survey. During a lockdown situation, we couldn't travel across the country as it would have propagated the community spread of the Coronavirus. Additionally, this study did not receive any funding



from any source. Thus, we adopted the no-cost method of recruiting participants using Facebook following the ‘push out’ strategy (Antoun et al., 2016). It is important to note that Facebook posts and advertisements often outperform postal surveys in terms of response, diverse pool of participants, and cost (Batterham, 2014; Carlini et al., 2015). We posted our survey link to different Facebook open groups where only Bangladeshi people have memberships. We found that 38 million people in Bangladesh use Facebook (Statista.com, 2020). Thus, we had the opportunity to reach a diverse participant through Facebook open groups during a lockdown and social distancing situation.

The survey questionnaire was translated from English to Bangla for the convenience of the participants and to capture responses from more diverse sections of the population. Finally, we received $n= 502$ responses from the survey. Participation in the research was voluntary and respondents were assured of full confidentiality through the entire process.

Regarding the sample description of the survey, responses came from more males (63 percent) than from females (37 percent). The reason for such a high number rests in the various socio-economic and political activities of Bangladesh. Bangladesh being a patriarchal society, services including access to various social media such as Facebook are still male-dominated. The majority of the respondents (88 percent) were young (40 years or below) and 12 percent of the respondents have the age of 41 years or above. In Bangladesh, the largest Facebook user group is from 18-24 years, which portrays the rationale for such a high number of young age respondents in the sample.

Bangladesh has made notable progress in the education sector with various economic and technological incentives for students which have been reflected in the sample where 78 percent of the respondents had a Bachelors's degree or more. The development of Bangladesh has been scattered in terms of its geographical position. Major infrastructural development has been centered on its capital Dhaka and some other big cities where access to technological services is readily available and this reflects the reason for the high number of respondents, 69 percent, of the sample being urban residents, living in towns and cities. A breakdown by occupation shows a heterogeneous distribution with 26 percent of the respondents working in government sectors, 13 percent in the private arena, and large numbers of respondents (47 percent) were students. Concerning income, 68 percent of the respondents had an income of US\$ 375 or less per month. The overall socio-demographic features of the sample illustrate a vivid assessment of the total population in Bangladesh with slightly younger and higher-income earners than the average Bangladeshi population. Detail description of the socio-demographic profile of the respondents is presented in Appendix 1.

Variables of the study

Dependent variable: perceived public responsiveness of government organizations during COVID-19

The attitude of the public towards the responsiveness of government organizations was examined based on Thomas and Palfrey's (1996) theoretical conception involving directly to the



‘accuracy’ and speed’ of public organization reaction to citizens’ demands. Speed can be referred to as the waiting time between citizens’ requests for action and the reply to that by the public agency (Vigoda & Yuval, 2003). Whereas accuracy refers to what extent government organizations respond to the needs or wishes of the citizens’ taking into account the equity, equal opportunities, and fair distribution of public goods (Rourke, 1992; Stewart & Ranson, 1994). The study used three (3) experimental responses appraising the speed and accuracy of public services provided to the citizens by three (3) government organizations, which were i) the local police administration; ii) the local Administration and iii) the local public hospitals. The three (3), experimental responses prepared were;

Response for local police administration

1) ‘your local police administration is responding to public requests quickly during this COVID-19 pandemic’; 2) ‘your local police administration is sensitive to your opinion and making a sincere effort to support residents who need help during this COVID-19 pandemic’ and 3) ‘your local police administration is treating local citizens properly, concisely, and within a reasonable period during this COVID-19 pandemic’.

Response for local administration

1) ‘your local Administration is responding to public requests quickly during this COVID-19 pandemic’; 2) ‘your local administration is sensitive to your opinion and making a sincere effort to support residents who need help during this COVID-19 pandemic’ and 3) ‘your local administration is treating local citizens properly, concisely, and within a reasonable period during this COVID-19 pandemic’.

Response for local public hospitals

1) ‘your local public hospitals are responding to public requests quickly during this COVID-19 pandemic’; 2) ‘your local public hospitals are sensitive to your opinion and making a sincere effort to support residents who need help during this COVID-19 pandemic’ and 3) ‘your local public hospitals are treating local citizens properly, concisely, and within a reasonable period during this COVID-19 pandemic’.

Response 1 and 3 involve the ‘speed’ category and Response 2 involves ‘accuracy’ of public organization reaction to citizens’ demands. We used a four-point Likert scale for every response with 1= *strongly disagree*, 2= *disagree*, 3= *agree*, 4= *strongly agree* to measure the variable. In terms of reliability and validity, the four-point Likert scale does not make any difference compared to the five and eleven-point Likert scale, including a mid-point (Leung, 2011; Kulas et al., 2008).

Independent Variables

Based on the performance measure of public institutions, innovations, and creativity in public administration and impartiality in the exercise of authority in affecting public responsiveness, three (3) independent variables were formulated. First, based on the organizational performance variable, the factor selected for measuring is the managerial performance. The second variable



is the innovations undertaken by the public agencies which have been measured based on the degree of acceptance of the creative and innovative actions from the respondents. Impartiality in the exercise of authority, the third variable, has been measured on the procedural fairness of the government organizations in the provision of services.

1. *Organizational performance*

For measuring organizational performance involving its operations, this study pragmatically selected the survey item ‘managerial performance’ from Chun and Rainey (2005). Concerning managerial performance, it can be argued that when citizens perceive highly of an organization’s managers, the positive assessments should relate to better organizational performance, which cumulatively affects public responsiveness. The performance variable consists of perception on three (3) items, i.e. quality of work, response to customer feedback, and meeting citizens’ expectations during COVID-19 pandemic. Respondents were asked to report how much they agreed with these items and the scale ranging from 1 (*very low*) to 4 (*very high*).

2. *Acceptance of innovations and creativity*

Innovation and creativity reflect entrepreneurial actions, flexibility, and ingenuity by public organizations to improve services to the people. This variable portrays the degree to which decisions taken by government organizations in the country are flexible taking account of respondents’ willingness or acceptance to adopt new ideas to fight against the pandemic. It was measured through the degree of acceptance of five (5) new initiations which the government agencies undertook during this COVID-19 pandemic, which are: i) the introduction of ‘Corona Contact Tracing Mobile Application’ for the prevention of the spread of COVID-19 pandemic; ii) the introduction of emergency hotline numbers for getting medical services regarding COVID-19; iii) dividing the country into three color zones, red, green, and yellow to control the infection and death rates from COVID-19 more effectively and closing of all offices in red zone areas; iv) introduction of COVID-19 dedicated public hospitals and v) introduction of distance learning (e-learning or online classes) at every educational tier. We used a four-point Likert scale for every response with 1= *not at all acceptable*, 2= *moderately acceptable*, 3= *acceptable*, 4= *highly acceptable* to measure the variable. To simplify the data, the ‘innovation and creativity’ index has been divided into two with ‘*high acceptance*’ and ‘*low acceptance*’. High acceptance is based on responses ‘*acceptable*’ to ‘*highly acceptable*’ and low acceptance is based on answers ‘*not at all acceptable*’ to ‘*moderately acceptable*’. The higher values of the index imply high acceptance of innovative actions and lower values imply low acceptance.

3. *Impartiality in the exercise of authority*

The study assesses impartiality in the exercise of authority through Rothstein’s (2011) ‘procedural fairness’ in treating people alike irrespective of personal relationships and personal likes and dislikes. This variable also describes the general perception of the citizens towards the morality and fairness of public personnel during this pandemic. The variable consists of four (4)



items: i) 'government officials in your locality maintain procedural fairness in carrying out their duties during this COVID-19 pandemic'; ii) 'government organizations are operating appropriately and is not affected by political pressures during this COVID-19'; iii) 'citizens of your city receive equal and fair treatment from the public officials during this COVID-19' and iv) 'necessity rather than favoritism determine who would get various public relief goods during this COVID-19'. We used a four-point Likert scale for every response with 1= *strongly disagree*, 2= *disagree*, 3= *agree*, 4= *strongly agree* to measure the variable. To simplify the data, the 'impartiality in the exercise of authority' index has been divided into two with 'weak impartiality' and 'strong impartiality'. Weak impartiality is based on responses '*strongly disagree*' to '*moderately disagree*' and strong impartiality is based on answers '*agree*' to '*strongly agree*'. The higher values of the index imply 'strong impartiality in the exercise of authority' and lower values imply 'weak impartiality in the exercise of authority'.

Control variables

There are six (6) control variables of the study, of which five (5) are dichotomous and one (1) ordinal variable. The five dichotomous variables are; i) gender (0=Male; 1=Female), ii) age (0 = Young, 40 years and lower; 1 = Old, 41 years and above), iii) education (0 = Lower educated, i.e. respondents who are illiterate to those had higher secondary school certificate, class 12; 1 = Higher educated, i.e. respondents having graduation degree and above), iv) geographical area (0 = rural; 1 = urban) and v) income (0 = low income, i.e. earning TK 0-30,000, i.e. US\$ 0-375 per month; 1 = high income i.e. earning TK 30,001 and above, i.e. US\$ 376 and above per month). The only ordinal variable is occupation, which was measured on six-point scale from 0 (unemployed) to 5 (Other jobs).

Data Analysis

To test the relationships and to establish causality between the independent variables and public responsiveness multiple regression analyses were performed. Four (4) regression models were tested where each group of independent variables was analyzed first and thereafter all the independent variables were correlated with the dependent variable, i.e. public responsiveness of government organizations.

Data Findings

Descriptive findings of dependent variable: perceived public responsiveness of government organizations during COVID-19 in Bangladesh

The study measures the perceived level of public responsiveness by formulating a 'perception index' (mean or the average value of the responses of citizens' from the responses asked in the survey) based on citizens' experimental responses on three public organizations. To simplify the data, the perceived public responsiveness index has been divided into two with low public responsiveness and high public responsiveness. Low public responsiveness consists of responses between '*strongly disagree*' to '*disagree*' in appraising the speed and accuracy of



public services provided, whereas high public responsiveness consists of responses between 'agree' to 'strongly agree'.

Table 1: Descriptive statistics for perceived public responsiveness of government organizations during COVID-19

		Mean (S.D.)			
		Local Administration	Local Police	Local Hospitals	Combined (pooled)
Public Responsiveness Perception Index	<i>Speed</i>	2.14 (0.830)	2.37 (0.842)	1.88 (0.833)	2.13 (0.813)
	<i>Accuracy</i>	2.20 (0.823)	2.47 (0.814)	1.95 (0.840)	2.21 (0.811)
	Overall Index	2.16 (0.824)	2.40 (0.834)	1.91 (0.839)	2.16 (0.805)
Valid N				502	

Note: Minimum value (1) and Maximum value (4)

Table 1 briefly shows that the combined overall public responsiveness perception index is 2.16. This suggests that the mean value is on the lower scale indicating that the respondents had a negative view about their public institutions' responsiveness, which perceives that the government agencies are not performing well during this COVID-19 pandemic. The two indicators separately, speed and accuracy, also portray a similar result of low public responsiveness. Among the three public institutions, the police score the highest (mean value = 2.40), although the responsiveness index for the police is slightly higher than the average mean value, while local hospitals score lowest (mean value = 1.91) in terms of the perceived public responsiveness. If we also reflect on the percentile distribution of respondents' perceived public responsiveness, Table 2 shows a similar trend in explaining the government performance, where 64 percent of the respondents demonstrate low public responsiveness of government organizations during this COVID-19 pandemic.

Table 2: Perceived public responsiveness of government organizations during COVID-19 in Bangladesh (Percentile distribution)

Category	Percentage
Low Public Responsiveness	64 percent
High Public Responsiveness	36 percent
Total Percentage	100 percent

Note 1: Low Public Responsiveness = [strongly disagree (1) and disagree (2) in appraising the speed and accuracy of public services]

Note 2: High Public Responsiveness = [agree (3) and strongly agree (4) in appraising the speed and accuracy of public services]

The percentages are rounded up

***Descriptive findings: Independent variables***

Table 3 provides the descriptive statistics, i.e. the mean or the average value of the responses involving the index of all the independent variables and its indicators.

Organizational performance variable

For measuring organizational performance, this study formulated an index by mapping citizens' perception of three indicators, which are: quality of work, response to customer feedback, and meeting citizens' expectations during the COVID-19 pandemic. The overall index (Table 3) for organizational performance variables for government agencies has a score of 1.81. This suggests that the mean value is very low which indicates that respondents perceive very lowly of public service orientation involving the quality of work, meeting the expectations, and following on citizens' feedback during this COVID-19 pandemic.

Acceptance of innovations and creativity variable

The overall acceptance of innovations and creativity index is 2.60 (see table 3), which portrays that the public institutions have failed to come up with promising new ideas to improve the quality of life of the respondents during this COVID-19 pandemic. Although this variable has scored highest among all the independent variables, however, the low mean value reflects that the technological advancements have not been able to maximize the acceptance of creativity for respondents to improve the service quality during this pandemic.

Impartiality in the exercise of authority variable

Impartiality in the exercise of the authority variable has an overall index of 1.86 (see table 3). This suggests that the majority of respondents perceive public institutions are involved in very weak procedural impartiality in service provisions during this pandemic. The index of all the factors of impartiality in the exercise of authority shows that there is a substantial absence of impartiality in the implementation of rules and regulations indicating public agencies are less responsive and less sensitive to their demand.

Table 3: Descriptive Statistics for the indicators of the independent variables

Independent Variable 1: Organizational performance during COVID-19 pandemic	Mean (S. D.)
a. Quality of work	1.86 (0.617)
b. Response to customer feedback	1.83 (0.654)
c. Meeting citizens' expectations	1.73 (0.605)
Overall Organizational Performance Index (Low - High)	1.81 (0.628)
Independent Variable 2: Acceptance of innovations and creativity during COVID-19 pandemic	
a. Introduction of emergency hotline numbers and mobile Apps for treatment	2.74 (0.845)
a. Introduction of COVID-19 dedicated hospitals	2.68 (0.992)
b. Dividing the country into three colored zones during the pandemic	2.64 (0.935)



c. Introduction of Distance learning (e-learning or online classes)	2.59 (0.921)
d. Introduction of 'Corona Contact Tracing Mobile Application'	2.36 (0.856)
Overall Acceptance of innovations and creativity Index (Low - High)	2.60 (0.912)

Independent Variable 3: Impartiality in exercise of authority during COVID-19 pandemic

a. Maintenance procedural fairness	2.04 (0.795)
b. Equal and fair treatment from the public officials during	1.87 (0.776)
c. Necessity rather than favoritism in getting relief goods	1.81 (0.798)
d. Political Neutrality	1.72 (0.800)
Overall Impartiality in exercise of authority Index (Weak – Strong)	1.86 (0.802)

Note 1: Mean/Index values are given in descending order

Note 2: Minimum value (1) and Maximum value (4)

In observing the descriptive findings of the independent variables, all the index values of the factors of the variables reveal a low-performance benchmark, low acceptance of innovations, and weak impartiality in the decision-making process during this COVID-19 pandemic in the country.

Regression Analysis

To analyze the effects of organizational performance, innovation, and creativity of public agencies and procedural impartiality on public responsiveness of government organization during this pandemic multiple regression analyses were performed. It tries to establish the causality between explanatory variables and public responsiveness of government organizations during this pandemic. Table 4 shows the results of the analyses.

Table 4: Regression analysis of all the independent variables explaining the perceived public responsiveness of government organizations during COVID-19 pandemic in Bangladesh

	Standardized Coefficient Beta (β)			
	Model 1	Model 2	Model 3	Model 4 (Combined/ pooled)
Organizational Performance				
a. Quality of work	0.351			0.164
b. Response to customer feedback	0.185***			0.196***
c. Meeting citizens' expectations	0.122**			0.127***
Overall	0.505*			0.551***
Acceptance of innovations and creativity				
a. Introduction of 'Corona Contact Tracing Mobile Application'		0.416		0.308
b. Introduction of emergency hotline numbers and mobile Apps for treatment		0.147***		0.193***
c. Dividing the country into three color zones during pandemic		0.166		0.201**
d. Introduction of COVID-19 dedicated public hospitals		0.166*		0.282*



e. Introduction of distance learning (e-learning or online classes)			0.625**		0.583**
Overall			0.121***		0.128***
Impartiality in exercise of authority					
a. Maintenance procedural fairness			0.215		0.146
b. Political Neutrality			0.105**		0.165**
c. Equal and fair treatment from the public officials during the pandemic			0.125**		0.465***
d. Necessity rather than favoritism in getting relief goods			0.041		0.117
Overall			0.437**		0.446***
N	502	502	502		502
R ²	0.182	0.181	0.218		0.462
Adjusted R ²	0.181	0.162	0.217		0.457

Notes: * $P < 0.10$, ** $P < 0.05$, *** $P < 0.01$

Concerning organizational performance in affecting public responsiveness, model 1 (see table 4) of the regression analysis finds positive statistical significance. The regression table shows a significant relational effect between organizational performance and public responsiveness with an overall beta coefficient (β) of 0.505 ($P < 0.10$). Two out of three factors explaining the organizational performance reflect statistically significant ($\beta = 0.185$, $P < 0.01$, and $\beta = 0.122$, $P < 0.10$) relationship between organizational performance and public responsiveness. The findings show that citizens who believe that when the organizational performance of the public agencies fails to meet their expectations during this pandemic also perceive public institutions as low responsive. The model explains a variance of 18.1 percent (Adjusted R square of 0.181) which implies that the prediction of responsiveness by the suggested set of factors for the independent variable organizational performance is meaningful, which matches our first hypothesis.

The second model examined predictors of public responsiveness with the acceptance of innovations and creative operations of government. The result yielded significant relationships between acceptances of innovations and creativity of government actions and public responsiveness, with an overall beta coefficient (β) of 0.121 ($P < 0.01$). Three out of five factors of innovation and creativity variable have a strong and positive relationship ($\beta = 0.147$, $P < 0.01$; $\beta = 0.166$, $P < 0.10$ and $\beta = 0.625$, $P < 0.01$) with public responsiveness. The explained variance of the model is about 16.2 percent (Adjusted R square of 0.162) which to accepted level support for the relationships between the variable innovation and creativity and public responsiveness during this crisis Coronavirus situation which matches with the second hypothesis of the research.

The third model analyzes citizens' perceptions about the extent to which the public institutions maintaining impartiality affect public responsiveness. The finding reveals that the variable has statistical positive significance, beta coefficient (β) of 0.437 ($P < 0.05$), with public responsiveness. Two out of four factors of impartiality in the exercise of authority variable have a strong and positive relationship ($\beta = 0.105$, $P < 0.05$ and $\beta = 0.125$, $P < 0.05$) with public responsiveness. The explanatory power of this model explains 21.7 percent (Adjusted R square



of 0.217) of the variations in public responsiveness of government organizations during this pandemic.

The fourth model includes all the explanatory variables in one regression model. The findings of the model show that each of the independent groups of variables significantly contributes to the understanding of the public responsiveness of government organizations during this pandemic. Analyzing the model it can be seen that overall coefficient (β) for each independent variable ($\beta = 0.551, P < 0.01$; $\beta = 0.128, P < 0.01$ and $\beta = 0.446, P < 0.01$) has increased from individual model. The total explained variance for the variable public responsiveness with operation by all the independent variables summed at 45.7 percent (Adjusted R square of 0.457) providing support for the model and the relationships between public responsiveness with organizational performance, innovation and creativity, and impartiality in the exercise of authority. In all the four regression models analyzed, the organizational performance variable shows the strongest significance in explaining the public responsiveness.

Discussion

What fosters public responsiveness of government organizations during crises such as the COVID-19 pandemic? The main objective of the study was to measure the perceived level of public responsiveness of government organizations and low public responsiveness of public institutions was found. A responsive government could mean responding easily to demands or entail democratic dimensions such as reflecting and giving expression to the will of the people (Pennock, 1952). As speed and accuracy of government endeavors were examined to perceive the public responsiveness, low public responsiveness indicates public administration actions were unable to satisfy the preferences of the citizens during this COVID-19 pandemic in Bangladesh. The rationale for the low public responsiveness of government organizations might be because of the slow process of conducting testing facilities and receiving the test results in the country (Rahaman et al., 2020).

The study tried perceiving the factors that explain the public responsiveness of government organizations. Regarding the organizational performance indicator, managerial performance on public service provision has positive statistical significance with public responsiveness. The study found low organizational performance index of government operations and aggregately a low public responsiveness was perceived by the citizens. The reason for perceived low organizational performance might be because of the low number of testing facilities in the country. All districts in Bangladesh reported at least one COVID-19 case but only 30 out of all 64 districts have testing facilities. This coincides with our first hypothesis, which stated that the organizational performance of government affects public responsiveness. Organizational performance is perceived as better when the preparedness and crisis management of governmental organizations match the expectations of citizens. When there is a mismatch between organizational capacity and citizens' expectations, the government response process runs into trouble (Christensen, Lægreid & Rykkja, 2016), which seems to be prevalent during this pandemic in Bangladesh. The rationale for such low organizational performance may be



because public authorities, initially knew little about the virus, its paths of transmission, and its health impact. Governments worldwide, including that of Bangladesh, were pressed into taking measures that, in the context of western liberal democracies, were seen as both unimaginable and infeasible (such as extensive lockdowns and social distancing).

The study hypothesized that flexibility, creativity, and acceptance of innovation in delivering public services by government organizations has a positive correlation with public responsiveness during a pandemic situation. The finding reveals that the level of citizens' acceptance of the innovations and changes during the COVID-19 pandemic is low and aggregately a low public responsiveness was perceived by citizens. The absence of effective networking management and citizen's satisfaction with the adopted new and innovative actions of public organizations during pandemic situations creates low responsiveness of government (Provan & Kenis, 2007; Vigoda & Yuval, 2003). Flexibility and stability are important for ensuring the rapid and consistent responses of public organizations to meet the changing needs and demands of citizens during a pandemic crisis (Provan & Kenis, 2007). One of the innovations of the policymakers in Bangladesh during the COVID-19 pandemic is the launching of the Corona Contract Tracing mobile app where only bluetooth and location-based information is being used. But, the app is likely to be of much use as it doesn't tell anything about people who do not have the app installed. Since all mobile users in Bangladesh do not have smart-phone sets, a significantly large number of people may stay out of this listing, making the tracing less effective.

The negative effect of political influence and bureaucratic partiality in the exercise of authority results in the low responsiveness of public organizations during the pandemic. The finding of the study shows the level of impartiality of public organizations in delivering public goods and services is very weak and the public responsiveness has also been at the lower side. The result yields the third hypothesis of the study which expected a positive correlation between impartiality in the exercise of power and high public responsiveness. Public responsiveness will have a downward trend when public administrators fail to respond neutrally and competently to competing interests by applying expert knowledge and skills under professional norms and standards (Kearney & Sinha, 1988). The politicization of administration, corruption, bypass of institutional rules, and regulations are the main traits of the public institutions in Bangladesh (Haque & Mohammad 2013). Mismanagements paralyzing the health sector with the increase in corruption worsening the situation to a greater degree during this COVID-19 crisis in Bangladesh (Al-Zaman, 2020). The media reported 218 relief goods-related corruption incidents from March 10, 2020, to June 15, 2020, and most of the convicts were government officials, public representatives, and ruling party leaders and activists¹. The lack of ability in the effective allocation of resources impartially tends to yield low responsiveness.

¹Available at: <https://www.newagebd.net/article/108515/tib-finds-gross-corruption-in-covid-19-purchases> (accessed on 18/10/2020)



Conclusion and Implications of the Study

Given the vastness of the conceptual understanding of the public responsiveness and the complexity in measuring it during world wide crisis such as the COVID-19 pandemic, this study is only the first leap in studying the public responsiveness of government organizations. The main goal of the study was to find the level of perceived public responsiveness of government organizations during this pandemic and suggest some credible explanation for citizens' perception of public responsiveness in Bangladesh. The finding overall suggests that various variables are involved in the process of public responsiveness. This study supports the assumption that public responsiveness is determined by the quality of services provided by public agencies. The study through plausible quantitative analysis explains that public responsiveness can be addressed with the quality of government involving procedural fairness in service delivery. The study implies that during crises such as the COVID-19 pandemic government agencies need to focus on citizens' basic priorities and values and the agencies need to develop acceptable standards of innovation for enhancing the organizational capacity.

There were certain limitations of the study that should be noted. The data was collected in a Bangladeshi setting which is different from other Asian, European, and African settings. The research implies that it should be replicated in other settings before a strong conclusion can be made. This study examined citizens' perceptions at one point in time, i.e. during this COVID-19 pandemic, thus it should be replicated in the post-pandemic situation to reveal the overall trends of public responsiveness of government organizations. This study used three variables in explaining public responsiveness, however, future studies require other variables that reflect more reliable and valid measures to comprehend the causes of the responsiveness. The contribution of the study lies in pointing out that the public agencies in Bangladesh quickly need to identify ways of improving the public service quality before the imminent second wave of the pandemic.

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**Appendix 1****Table 5:** Descriptive statistics of socio-demographic variables

Variable	Frequency (n = 502)	Percentage (%)
Gender		
Male	316	63
Female	186	37
Age		
Young (Below 40 Years)	441	88
Old (41+ years)	61	12
Education		
Lower Educated (Higher school certificate or less)	109	22
Higher Educated (Bachelor's and above)	393	78
Location		
Urban Residents (Towns and Cities)	347	69
Rural Residents (Villages)	155	31
Occupation		
Unemployed	26	05
Student	237	47
Entrepreneur/Businessman	19	04
Government job	131	26
Private job	65	13
Others	26	05
Income (US \$)		
Low Income earners (US\$ 375 or less per month)	340	68
High income earners (US \$ 376 or more per month)	162	32



UNDERSTANDING CLIMATE CHANGE ADAPTATION PRACTICES OF CLIMATE REFUGEES IN COASTAL AREAS OF BANGLADESH: A SUSTAINABLE APPROACH

Dr. Tareq Mahamud Abir*

Abstract

Globally millions of coastal people are projected to be homeless or displaced due to climate change related natural hazards in recent times and these people are labeled as 'climate refugees'. The riverine zones of Bangladesh are not absolved from this circumstance. These areas are continuously affected by natural disasters which affect the livelihood of coastal people. As such, Bangladeshi coastal communities are consistently embracing endurance procedures to adapt to changing climatic conditions. The main purpose of this article is to find out the supporting strategies of adaptation and resilience for climate refugees at risk of displacement. The investigation zones for this examination have been chosen from disaster inclined waterfront regions like Haridhali Union of Paikgachha Upazila of Khulna District, Haimchar Union of Uttar Algi Durgapur Upazila of Chandpur District and Sreepur Union of Mehendigang Upazila Barishal District. In these three areas there are 1682 households. From these 1682 households, 150 households have been selected randomly by using the sampling size formula ($n = \frac{Nz^2pq}{Nd^2 + z^2pq}$) as the sample of this study. Survey method has been utilized to gather information from the respondents accordingly; an organized structured questionnaire has been produced. Rating method was used to calculate the sustainable adaptation practices. From the findings we found that in Chandpur region, school cum cyclone shelter and concrete blocks as the sustainable adaptation practices regarding structural adaptation options. In the other two regions, we could not find any sustainable structural adaptation practices. Adaptation options regarding water sources, we found sustainable water adaptation both in Chandpur (Tube-well water by Govt. and purification of pond water using traditional knowledge) and Khulna region (Rainwater harvesting and Tube-well water by Govt.) but could not find any tenable adaptation in Barishal region. Adaptation strategies regarding livelihood we found vegetable cultivation on homestead yard as sustainable adaptation practice in Chandpur while found local rice variety cultivation as durable livelihood adaptation in Barishal but could not find any viable livelihood adaptation in Khulna. Considering all of these we can say that, Chandpur region has the most sustainable adaptation options than the other two regions. Finally, this research has proposed some implications that might be helpful for policy making and further research regarding 'climate refugees' adaptation to climate change.

Keywords: *Adaptation Practices, Coastal Areas, Climate Change, Climate Refugees, Sustainability.*

Introduction

Hazardous events because of environmental change are characteristically impacting the presence of millions of beach front individuals who are being forced to leave their natural surroundings to look for shelter in different zones. Due to climate change, most of the coastal areas of the world are at risk from natural disasters and meteorological disturbances. Accordingly, atmosphere dangers have showed up as a critical conversation for earth weak

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nations particularly Bangladesh since this nation is generally yielded as one of the most catastrophe weak nations in everywhere on the world (Ahmed, 2006). The coastal areas of Bangladesh are ecologically sensitive and climatically vulnerable because a process of erosion and accretion is continued. Furthermore, cyclone, tidal surge, flood, river bank erosion is some of the worst types of disaster which is badly and continuously affecting the livelihood of coastal citizens (Alam, 2005).

Bangladesh is a flood plain bowl pondered as the bank of encompassing waterways and trenches (Sarwar, 2005). The nation is slanting indistinctly from the North toward the South, assembling the Bay of Bengal at the southern end. The entire coast runs corresponding to the Bay of Bengal, making 710 km long coastline (CZPo, 2005). The seaside zone covers 19 out of 64 locale confronting or in vicinity to the Bay of Bengal, incorporating 153 Upazilas (MoWR, 2006). Around 30 % zone of Bangladesh has a place with the beach front territory, which is every now and again and over and over battered by dangers like, typhoon, flowing flood, immersion, interruption of saline water, ocean level ascent and riverbank disintegration, costing a large number of lives and a tremendous measure of properties (Amin et al., 2008). Nineteen locale close to the seaside limit of the nation are being influenced straightforwardly or in a roundabout way by continuous catastrophic events, which cause death toll, harm to framework and monetary resources, and antagonistically sway lives and occupations, particularly of destitute individuals. The beach front morphology of Bangladesh impacts the impact of regular perils on the district particularly in the south–western zones normal risks increment the weakness of the seaside inhabitants. All things considered, Bangladeshi seaside networks are persistently receiving endurance techniques to adapt to changing climatic conditions (Lisa, 2007). Some local refugee crises may be prevented through adaptation measures such as reinforced marshy protection or changes in agricultural production, and water supply management. Many poorer refugee households, however, are unlikely to be able to initiate sufficient adaptation strategies and again climate induced migration might be the only option for many climate refugee communities. The recent Intergovernmental Panel on Climate Change Fourth Assessment Report makes clear that “adaptation will be necessary to address impacts resulting from the climate change which is already unavoidable due to past emissions” (IPCC, 2007). As such, it supports adaptation as a complimentary response strategy to mitigation. According to Kelly & Adger (2000) the ability of people to control the variables that determine vulnerability might be translated into their capacity to adapt in the new migrated place. Compared to climate change mitigation, climate change adaptation policy development is still in its infancy. Since adaptation was put on an equal footing with mitigation in the Bali Action Plan, significant progress in policy development can be observed but yet it’s not up to the mark.

Rationale of the Study

In recent years the international community has paid increasing attention to the ways in which the rights of people who may be displaced or compelled to migrate in response to or in anticipation of changing climate conditions might be better protected and to the obligations which fall on national governments



and international actors to afford protection. As such particular research on ‘climate refugees’ is an outmost need.

The overwhelming majority of the people moving for climate variability migrate nationally or internationally, and their relocation considered probably as permanent. But In Bangladesh majority of people moving for climate hazards migrate nationally and their relocation is temporary. As such their prevailing adaptation strategies are diverse and multiple. That is why research on supporting adaptation strategies need a particular short of attention.

Objectives and Research Questions of the Study

Objectives:

- To find out the supporting strategies of adaptation and resilience for climate refugees at risk of displacement.
- To explore the sustainability of the existing adaptation practices of climate refugees in the structural, livelihood and water sector.

Research Questions:

- What are the supporting strategies of adaptation and resilience for climate refugees and which strategies are more sustainable at the risk of displacement?

Literature Review

Existing Adaptation Strategies in the Coastal Areas of Bangladesh

We could not find any relevant research work about adaptation strategies of climate refugees in the coastal areas as such this part focus on the adaptation strategies of coastal people in the river line areas of Bangladesh. Aside from the activities taken by the public specialists and by non-administrative associations, seaside network individuals have willingly volunteered to discover approaches to adjust to the uplifted danger of atmosphere related cataclysmic events. The exploration led for this paper proposes that peril influenced individuals has utilized an assortment of present moment and long haul activities to adapt to terrible conditions.

Table 1 Community-led Autonomous Adaptation Actions in Bangladesh

Adaptation Sectors	Adaptation	Description of Adaptation
Livelihood	Changing rice crop farming to non-rice farming	Farming of different varieties of crops; cultivation using crop calendar adjustment (Sarkar et al, 2013).
	Migrating to other countries for livelihood purposes	Migrating for jobs, mainly to Middle Eastern or other affordable countries (e.g., Malaysia etc.).
	Increasing involvement in a variety of income.	Earning money by wage labor, small business, construction works, and livestock farming (Pouliotte, 2009).
	Selling land and	Selling land and taking loans (especially among poor



	taking loans	households) (Pouliotte et al., 2003).
	Gender dimensions	Women are forced to take difficult jobs outside their comfort zone (Abedin et al., 2013).
	Obtaining support from relatives and social networks	Backing from family members and informal communities to balance misfortunes and adapt to destruction (Alam, 2002).
Human habitations	Raising the homestead and plinth	Low-lying waterfront and island occupants frequently raise their residence and plinth a lot higher to moderate the serious impacts of beach front flooding (Alam, 2003). Individuals raised the residence plinth and fabricated the home on it so that these don't get immersed during floods.
	Planting trees	Planting trees around the house to lessen the power of tempest flood assaults (Alam, 2003).
	Modifying houses	Building an exceptional tent-kind of shed for the individuals who have lost their homes (Haque et al., 2013)
	Changing house locations	Relocating to the adjacent mainland, mostly settling on coastal and river fringes (Alam, 2003)
	Homestead Gardening	Individuals presently develop vegetables on the brought residence up in the blustery season and late-fall. This fulfills their day by day vegetables need (Sultana and Mallick, 2015).
	Cattle Raising	Neighborhood individuals have begun to raise sheep and goats as the two of them need less food. Individuals have begun raising pigeons. Pigeons are less influenced by tempests and floods (Sultana and Mallick, 2015).
Drinking	Rainwater Collecting	Because of destitution the vast majority of individuals can't reap downpour water. They store downpour water in earthen vessels. The individuals who have their own tank can store downpour water for 3-6 months. The individuals who have earthen pots store downpour water for 2 days to multi month (Sultana and Mallick, 2015).
	Tube-well Water	A unique sort of cylinder well has been introduced by a lake to purge tainted lake water. It's anything but a standard cylinder well. It is called a fake spring



Water Management		tube well because of its similarity with underground spring (Sultana and Mallick, 2015).
		In the dry season individuals need to utilize the lake water as there is no elective choice. Individuals have raised the dykes of the lake to shield it from saline water during storm floods. Some of the time they utilize conventional aptitudes to channel lake water (Sultana & Mallick, 2015).

In the South Western seaside territory of Bangladesh Kabir and Batenc (2013) found that vocation related transformation was 64.4% where about 69% was wet occasional variation (Kabir and Baten, 2013:5). The more famous and feasible transformation practice for work incorporates nearby rice assortment. Then again dyke editing, keora nursing, property planting, developing vegetable on the raised hill and so on are some reasonably feasible business variation rehearses. The examination likewise found that fish vegetable joined development, case hydroponics, vegetable development on the raised hill with solid divider and so forth are some less and disagreeable variation rehearses (Kabir and Baten, 2013:7-8). This investigation additionally found that in the Coastal regions straightforwardly utilization of lake water through legitimate lake the board and water gathering (utilizing coarse sheet of plastic paper over covered rooftop to collect water) are the more famous and the manageable transformation rehearses for the drinking water reason. Then again, water gathering in the rectangular solid tank and sanitization of lake water utilizing conventional information are the respectably manageable practice while decontamination of lake water utilizing govt. upheld channel and lake channel are less maintainable (Kabir and Baten, 2013:8). In primary area raising plinth and bringing down house rooftop is the more mainstream and maintainable transformation practice. Then again, Eter Paja (Household Level Brick-oven), School cum tornado cover, Gola, Goalghar and so on are the respectably manageable variation rehearses (Kabir and Baten, 2013:9). Another study suggested that 24% of respondents in the coastal area considered crop selection would be the most important adaptation strategy (Salma et. al, 2013:94). In this study some other adaptation measures which can be predicted to minimize the effects of climate change are listed as an elevated house, tong or maccha, one and a half floored house, short height house. Community latrines were considered as a very useful and hygienic option for people of this study (Salma et. al, 2013:95).

Research Method

In this exploration, quantitative examination configuration has been utilized for surveying the variables affecting relocation choice. The investigation regions for this examination have been chosen from fiasco inclined beach front regions like Haridhali Union of Paikgachha Upazila of Khulna District, Haimchar Union of Uttar Algi Durgapur Upazila of Chandpur District and Sreepur Union of Mehendigang Upazila Barisal District. There are no standard information



about the family unit quantities of atmosphere outcasts in the chose study territories. As such I have made a pattern review and identified roughly 1682 Households of atmosphere exiles. For these 1682 families, 150 family units from three unique zones have been chosen arbitrarily by employing the testing size recipe ($n = Nz2pq/Nd2+z2pq$) as the example of this investigation. Family Head (Male or Female) have been chosen as the unit of examination to gather the information about the whole family. Multi-stage Sampling has been chosen for picking the example from the populace in light of the fact that the example populace was dissipated over a more extensive topographical region and no edge or rundown is accessible for testing. From the most catastrophe inclined regions (Shatkhira, Khulna, Potuakhali, Chandpur, Bagerhat, Faridpur, Barguna, Barisal, Chittagong, Cox Bazar) Khulna, Chadpur, Barisal have arbitrarily been chosen as an essential group of calamity inclined seaside region. There are absolute 9 Upazillas, 8 Upazills, and 10 Upazillas individually in this area. From these groups Paikgachha Upazila of Khulna District, Haimchar Upazila of Chadpur District and Mehendigang Upazila Barisal locale has been chosen haphazardly. In Paikgacha Upazilla there are absolute 10 Unions, in Haimchar Upazilla there are all out 6 Unions and in Mehendigang Upazila there are all out 14 Unions. From this Unions Haridhali Union, Uttar Algi Durgapur Union and Sreepur Union have been arbitrarily chosen as a particular report zone. Review technique has been utilized to gather information from the respondents in that capacity; an organized survey has been produced. There are three Multi Criteria Decision Making (MCDM) methodologies that could be used in criteria and indicators (C&I) assessment: 1) Pairwise comparisons; 2) ranking and 3) rating. Here, rating method was used to calculate the sustainable adaptation practices (Mendoza& Prabhu, 2000). In final calculation, total scores are distributed by 100. Scorings were used both of the social, economic and environmental aspects. The total average scores were taken into consideration for decision about sustainable adaptation practices.

Empirical Results

Supporting Strategies of Adaptation and Resilience for Climate Refugees in Different Coastal Areas of Bangladesh

Categorization of Existing Climate Change Adaptation Strategies

For a long time, the climate refugees of coastal areas have been fighting against the climate variability. Since it is quite obvious that these refugees are quite unable to mitigate the effects of these disruptive calamities, therefore supporting strategies of adaptation and resilience is their certain choice. In this research all the existing adaptation practices were categorized sector-wise (Structural, Livelihood and Water Sector) and seasonality based (Rainy season, Dry Season, Both Rainy and Dry season).

Categorization of Existing Adaptation to Structural Sector in Coastal Areas

From the findings, it was revealed that in Khulna 64% respondents lowered their house roof as a structural adaptation strategy while 56% of respondents raised their platform for avoiding water



in rainy season. Another 64% used bamboo for piling and 48% respondents used solar light as a structural adaptation technique in both dry and rainy season (Table 2).

Table 2 Percentage Distribution of the Respondents Multiple Responses about Adaptation to Structural Sector in Khulna (Haridhali Union)

		Frequency	Percentage
Raised platform for avoiding water	Rainy Season	28	56
	Both Dry and Rainy Season	-	-
Bamboo made piling	Rainy Season	-	-
	Both Dry and Rainy Season	32	64
Gola	Rainy Season	9	18
	Dry Season	-	-
Lowering house roof	Rainy Season	21	42
	Both Dry and Rainy Season	11	22
Solar light	Rainy Season	-	-
	Both Dry and Rainy Season	24	48

Source: Field Data, 2018

In Chandpur, respondents mentioned more structural adaptation technique than Khulna. 52% respondents said that they used school cum cyclone center in the rainy season while 44% respondents mentioned concrete blocks as a key structural adaptation strategy. 82% of respondents used solar light in both dry and rainy season while 22% of respondents lowered their house roof during the rainy season as a structural adaptation technique (Table 3).

Table 3 Percentage Distribution of the Respondents Multiple Responses about Adaptation to Structural Sector in Chandpur (Uttar Algi Durgapur Union)

		Frequency	Percentage
School cum cyclone center	Rainy Season	26	52
	Both Dry and Rainy Season	5	10
Concrete blocks	Rainy Season	-	-
	Both Dry and Rainy Season	22	44
Raised platform for avoiding water	Rainy Season	21	42
	Both Dry and Rainy Season	-	-
Lowering house roof	Rainy Season	11	22
	Both Dry and Rainy Season	5	10
Floating boats	Rainy Season	4	8
	Both Dry and Rainy Season	-	-
Solar light	Rainy Season	-	-
	Both Dry and Rainy Season	41	82

Source: Field Data, 2018



In Barishal region, 54% of respondents raised their house's base platform during the rainy season whereas 48% respondents lowered their house roof as a key structural adaptation strategy. Besides that 26% of respondents used Gola as an adaptation practice. Another 20% used bamboo for piling and 24% respondents used solar light as a structural adaptation technique (Table 4).

Table 4 Adaptation to Structural Sector in Barishal (Sreepur Union)

		Frequency	Percentage
School cum cyclone center	Rainy Season	13	26
	Both Dry and Rainy Season	-	-
Raised platform for avoiding water	Rainy Season	27	54
	Both Dry and Rainy Season	-	-
Bamboo made piling	Rainy Season		
	Dry Season	10	20
Gola	Rainy Season		
	Both Dry and Rainy Season	13	26
Lowering house roof	Rainy Season	18	36
	Both Dry and Rainy Season	6	12
Solar light	Rainy Season		
	Both Dry and Rainy Season	12	24

Source: Field Data, 2018

Categorization of Existing Adaptation to Livelihood in Different Coastal Areas of Bangladesh

Livelihood adaptation is a response to the critical situation that seeks to reduce the vulnerability of the social and economic system to relatively sudden change and thus offset the effects of critical situations. In research areas, respondents were adopting different livelihood adaptation practices. In Khulna region, 55% of respondents cultivated vegetable in homestead yard as livelihood adaptation technique in both rainy and dry season. Besides that in dry season 38% respondents and in both season 10% work outside their home as a worker. 36% of respondents used vegetable hanging technique whereas 28% respondents farmed poultry as a livelihood strategy in both Dry and rainy season (Table 5).



Table 5 Percentage Distributions of the Respondents Multiple Responses about Adaptation to Livelihood in Khulna (Haridhali Union)

		Frequency	Percentage
Earning as worker	Dry Season	19	38
	Both Dry and Rainy Season	5	10
Cattle raising	Rainy Season	-	-
	Both Dry and Rainy Season	9	18
Poultry farming	Rainy Season	-	-
	Both Dry and Rainy Season	14	28
Hanging vegetable	Rainy Season	-	-
	Both Dry and Rainy Season	18	36
Vegetable cultivation on homestead yard	Rainy Season	10	21
	Both Dry and Rainy Season	17	34
Source: Field Data, 2018			

In Chandpur region, 44% respondents raised cattle as livelihood adaptation technique in both rainy and dry season however 46% of respondents cultivated vegetable in homestead yard. Another 44% of respondents used the vegetable hanging technique in both dry and rainy season while 28% of respondents cultivated local rice variety by crop calendar adjustment (Table 6).

Table 6 Percentage Distributions of the Respondents Multiple Responses about Adaptation to Livelihood in Chandpur (Uttar Algi Durgapur Union)

		Frequency	Percentage
Earning as worker	Dry Season	15	30
	Both Dry and Rainy Season	-	-
Cattle raising	Rainy Season	-	-
	Both Dry and Rainy Season	22	44
Local rice variety cultivation by crop calendar adjustment	Dry Season	3	6
	Both Dry and Rainy Season	11	22
Poultry farming	Rainy Season	-	-
	Both Dry and Rainy Season	10	20
Hanging vegetable	Rainy Season	-	-
	Both Dry and Rainy Season	22	44
Vegetable cultivation on homestead yard	Rainy Season	-	-
	Both Dry and Rainy Season	23	46
Source: Field Data, 2018			

In Barishal, 50% respondents used cattle rising as a livelihood strategy in both seasons and the same percentage of respondents earned as worker in dry season. Besides that, 44% respondents cultivated vegetable on homestead yard and 34% of respondents used hanging vegetable as



adaptation practices to livelihood. Another 22% of respondents cultivated local rice variety by crop calendar adjustment as livelihood adaptation (Table 7).

Table 7 Percentage Distributions of the Respondents Multiple Responses about Adaptation to Livelihood in Barishal (Sreepur Union)

		Frequency	Percentage
Earning as worker	Dry Season	25	50
	Both Dry and Rainy Season	-	-
Cattle raising	Rainy Season	-	-
	Both Dry and Rainy Season	25	50
Local rice variety cultivation by crop calendar adjustment	Dry Season	-	-
	Both Dry and Rainy Season	11	22
Poultry farming	Dry Season	15	30
	Both Dry and Rainy Season	-	-
Hanging vegetable	Dry Season	9	18
	Both Dry and Rainy Season	8	16
Vegetable cultivation on homestead yard	Dry Season	12	24
	Both Dry and Rainy Season	10	20
Source: Field Data, 2018			

Categorization of Existing Adaptation to Water Sources

To adapt with the unfavorable condition, climate refugees with the help of local community, government and NGOs have developed different adaptation practices to water sources. In Khulna, 62% respondents took rainwater collecting and tube well water given by Government as options to water sources (Table 8). Another 24% of respondents purified pond water as an adaption to water sources.

Table 8 Percentage Distribution of the Respondents Multiple Responses about Adaptation to Water Sources In Khulna (Haridhali Union)

		Frequency	Percentage
Rain water collecting	Rainy Season	31	62
	Both Dry and Rainy Season	-	-
Directly use tube well water given by Govt.	Rainy Season	-	-
	Both Dry and Rainy Season	31	62
Buy purified water	Rainy Season	-	-
	Dry Season	4	8
Purification of pond water using traditional knowledge	Rainy Season	-	-
	Both Dry and Rainy Season	12	24
Source: Field Data, 2018			



In Chandpur rain water collecting as a source of water had been used by 34% respondents in rainy season while 40% respondents purified pond water in both dry and rainy season. Another 26% respondents used tube well water given by Government in both seasons (Table 9).

Table 9 Percentage Distribution of the Respondents Multiple Responses about Adaptation to Water Sources in Chandpur (Uttar Algi Durgapur Union)

		Frequency	Percentage
Rain water collecting	Rainy Season	17	34
	Both Dry and Rainy Season	1	2
Directly use tube well water given by Govt.	Rainy Season	-	-
	Both Dry and Rainy Season	13	26
Directly use tube well water given by NGO's	Rainy Season	-	-
	Both Dry and Rainy Season	5	10
Purification of pond water using traditional knowledge	Rainy Season	-	-
	Both Dry and Rainy Season	20	40
Source: Field Data, 2018			

In Barishal 48% respondents seized rainwater collecting in rainy season, 52% respondents picked up tube well water by government in dry season while 20% respondents used tube well water by NGOs in both season as adaptation practices to water sources. Another 52% respondents said that they purified pond water by using their traditional knowledge (Table 10).

Table 10 Percentage Distribution of the Respondents Multiple Responses about Adaptation to Water Sources In Barishal (Sreepur Union)

		Frequency	Percentage
Rain water collecting	Rainy Season	24	48
	Both Dry and Rainy Season	-	-
Directly use tube well water given by Govt.	Dry Season	26	52
	Both Dry and Rainy Season	3	6
Directly use tube well water given by NGO's	Rainy Season	-	-
	Both Dry and Rainy Season	10	20
Purification of pond water using traditional knowledge	Rainy Season	-	-
	Both Dry and Rainy Season	26	52
Source: Field Data, 2018			

Sustainability of Climate Change Adaptation Practices to Climate Refugees

Against impacts of climate change, climate refugees of the study areas adapted various practices along with government and donor agencies but all of them were not sustainable. The most promising adaptation practice must be socially endurable, economically admissible and environmentally sound. Considering these factors the more sustainable adaptation practices



regarding structural sector, livelihood and water sector in different coastal areas taken by climate refugees are analyzed below:

Sustainability Score of the Respondent's Existing Adaptation to Structural Sector in Coastal Areas

Sustainability of adaptation to structural sector is the key to reduce the vulnerability of a community from hazards. In Khulna region the more popular sustainable adaptation to structural sector taken by refugees were raised platform for avoiding water followed by lowering house roof and solar light. Respondents mentioned these adaptation practices as moderately sustainable (Table 11).

Table 11 Sustainability of Existing Adaptation to Structural Sector

Region	Khulna (Haridhali Union)	
Name of Adaptation	Score	Sustainability
Raised platform for avoiding water	74	Moderately Sustainable
Bamboo made piling	54	Less Sustainable
Gola	61	Moderately Sustainable
Lowering house roof	71	Moderately Sustainable
Solar light	69	Moderately Sustainable
Region	Chandpur (Uttar Algi Durgapur)	
School cum cyclone center	84	Sustainable
Concrete blocks	91	Sustainable
Raised platform for avoiding water	75	Moderately Sustainable
Lowering house roof	68	Moderately Sustainable
Floating Boats	40	Less Sustainable
Solar light	74	Moderately Sustainable
Region	Barishal (Sreepur Union)	
School cum cyclone center	58	Less Sustainable
Raised platform for avoiding water	64	Moderately Sustainable
Gola	59	Less Sustainable
Bamboo made piling	44	Less Sustainable
Lowering house roof	68	Moderately Sustainable
Solar light	67	Moderately Sustainable
Note: Average Score 80>=Sustainable, 60-<80=Moderately Sustainable, <60= Less Sustainable		
Source: Field Data, 2018		

In Chandpur region respondents pointed out differently. Here concrete blocks and school cum cyclone center were the sustainable adaptation practices mentioned by the respondents (Table 11). Raised platform for avoiding water, lowering house roof and solar light was adjudged as



moderately sustainable adaptation practices. Respondents gave very low scores regarding the sustainability to structural sectors in Barishal region. Raised platform for avoiding water, lowering house roof and solar light was considered as moderately sustainable with relatively low scores (Table 11). We could not find any sustainable adaptation practices here due to lack of government fund and initiatives of donor agencies as said by the respondents.

Sustainability Score of the Respondent's Livelihood Adaptation in Different Coastal Areas

In Khulna region Earning as worker, Cattle raising, Poultry farming and Vegetable cultivation on homestead yard were some moderately sustainable livelihood adaptation practices mentioned by the refugees.

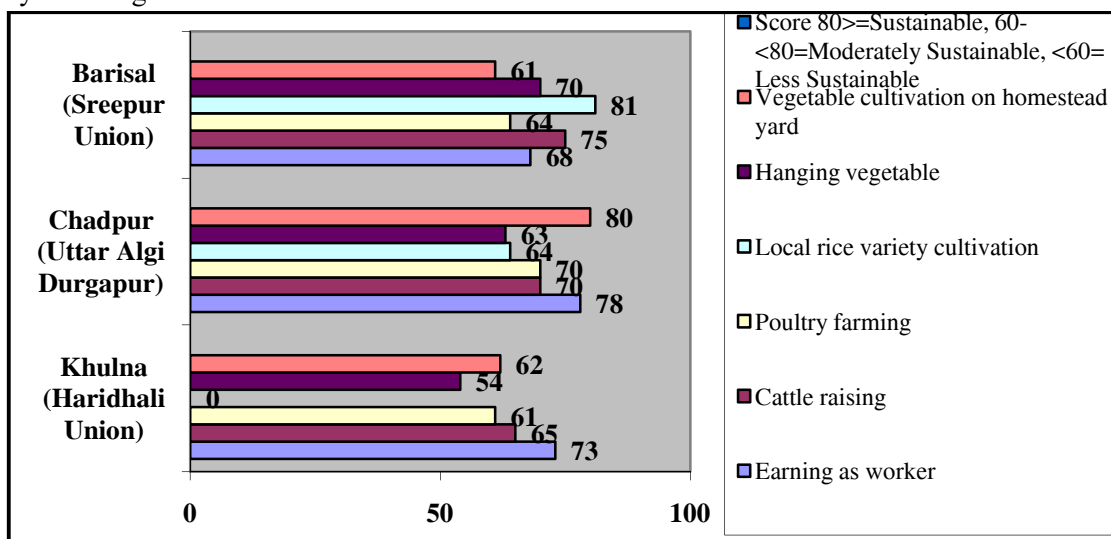


Figure 1: Sustainability of Livelihood Adaptation in Research Areas

Sustainability Score of the Respondent's Existing Adaptation to Water Sources in Different Coastal Areas

Water is considered the most affected sector by the adverse impact of climate change in coastal areas. So refugees took multiple practices. Among these practices in Khulna rain water collecting and directly use tube well water given by Government were considered as sustainable where Purification of pond water using traditional knowledge was contemplated as moderately sustainable.

In Chandpur region purification of pond water using traditional knowledge and directly using tube well water given by Government premeditated as sustainable. In Barishal region respondents could not mention any sustainable practices. They considered Rain water collecting, directly using tube well water given by Govt. and Purification of pond water using traditional knowledge as moderately sustainable adaptation practices to water sources (Figure 2).

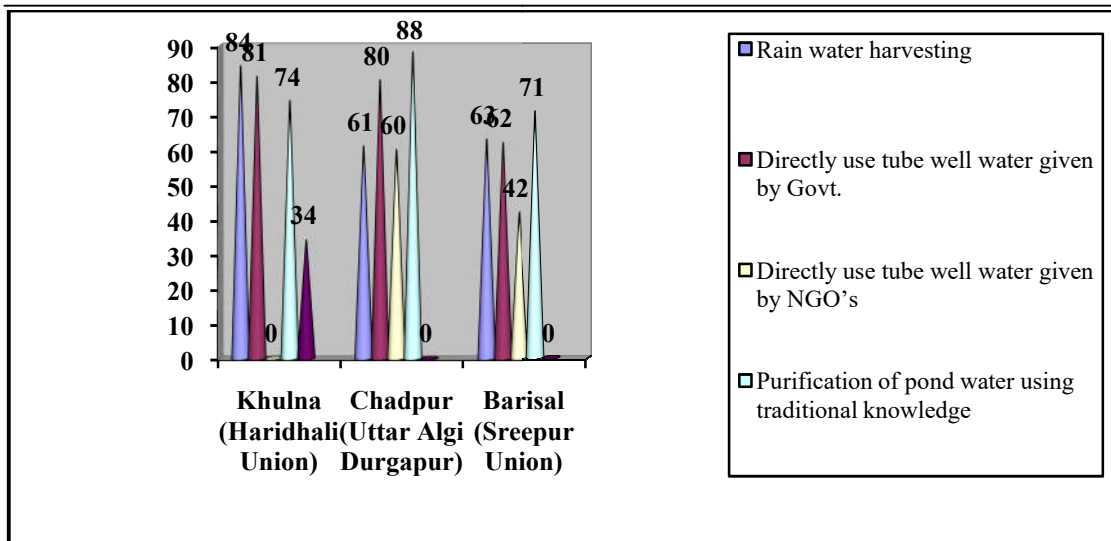


Figure 2 Sustainability of Existing Adaptation to Water

Discussions:

Transformation to environmental change didn't get a lot of thought in the first significant stretches of the worldwide ecological change considers, where there was more focus on relief and effects (Kates, 2000), yet variation has starting late been made sure about even more generally and has a fundamental spot in the fourth assessment report of the IPCC (2007). There is an arising cycle of seeing environmental change as a mainstreaming issue that infers that weaknesses are connected to systems (Halsnes and Traerup, 2009).

Getting influenced by fiascos and expanding weakness, individual or even aggregate gatherings began to get mindful of their variation procedures to lessen hazards and to react to a debacle (Callon and Law, 1989). In like manner, after any catastrophe, individuals at the network level attempt to adapt to their own endurance procedures before outside assistance from NGOs or the public authority shows up. The more diversified and sustainable adaptation strategies are the more getting chance of being less vulnerable. From the present research findings, we can also find some related findings. In Chandpur region, we find school cum cyclone shelter and concrete blocks as the sustainable adaptation practices regarding structural adaptation options. In the other two regions, we could not find any sustainable structural adaptation practices. Adaptation options regarding water sources, we found sustainable water adaptation both in Chandpur (Tube-well water by Govt. and purification of pond water using traditional knowledge) and Khulna region (Rainwater collecting and Tube-well water by Govt.) but could not find any tenable adaptation in Barisal region. Looking at adaptation adaptation strategies regarding livelihood we found vegetable cultivation on homestead yard as sustainable adaptation practice in Chandpur while found local rice variety cultivation as durable livelihood adaptation in Barishal but could not find any viable livelihood adaptation in Khulna.



Considering all of these we can see that, Chandpur region has the most sustainable adaptation options than the other two regions.

Conclusions and Policy Recommendations

The coastal inhabitants are facing frequent and intense disasters with devastating impacts. In this case, coping and adaptation strategies are more effective to minimize the vulnerability of the disaster. Involvement of local authorities and community based organizations in the development of adaptation strategies is very crucial. Risk management and risk reduction are key elements of adaptation. Development of sustainable national adaptation strategies and programmes can reduce the risk of disasters in coastline areas. For this development following recommendations can be suggested:

- Government ought to give crisis help benefits and set up emergency treatment focuses in vigorously far off and seaside regions for atmosphere uprooted people.
- Government must ensure the strong execution of the public atmosphere relocation plan. There is at present a worry that current environmental change transformation strategies and projects in various locales are being influenced by an absence of straightforwardness and defilement. It is fundamental that these issues are settled right away.
- All zones that can't be secured through expanded seaside protections for commonsense or financial reasons should be incorporated right off the bat in long haul resettlement and reintegration programs that make the cycle satisfactory for the influenced individuals. This, in any case, calls for early activity regarding setting up compelling and proper administration instruments.
- The approaches at the public level should be specific interests in physical and institutional resources that diminish climatic weakness and increment adapting ranges without causing counterproductive impacts. Instances of actual resources can be more grounded foundation identified with transport, energy, and water gracefully just as new alternatives for farming procedures, though institutional resources can be data frameworks, financial and hazard sharing frameworks, protection, schooling, and cautioning frameworks that straightforwardly or in a roundabout way address nearby, public, or local weakness to environmental change and inconstancy.
- Regional fortitude can raise collaboration and learning in reinforcing strength. Through shared activities, for example, provincial early admonition frameworks, food banks, and fair ways to deal with trans-limit water administration the weaknesses of atmosphere outcasts can be diminished.
- Domestic relocation for climate displaced persons with sufficient transparency and awareness in implementation might be a fruitful option.



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SHRIMP CULTIVATION: CREATING RESILIENCE OR THREATING SUSTAINABILITY?

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Abstract

Shrimp cultivation, popularly known as a positive and potential economic contribution to our national economy since early 1980's, and emerged as a prospective foreign currency earning source after the fall of jute export in the international market. Gradually, this sector has emerged as a gateway to some investors who became millionaire all of a sudden. Some seasonal businessmen and small traders also emerged in this sub-sector of agriculture. Moreover, central body has emerged who enjoys the profit, leaving many fellows hapless. But such trend of unplanned cultivation has created a long-term negative impact on local ecology, environment and biodiversity. But scanty research evidence in this regard is found. The commercial exploitation of shrimp (White Gold) is setting loop holes and creating a number of adverse impacts in sustaining the environmental resources in the cultivated area. The research seeks to highlight how environmental degradation is occurring by the investors. This research also examines how natural and man-made calamities are perpetrated in the name of economic progress. Finally, the research outcome reveals how a few numbers of financial beneficiaries are devastating the habitat and creating threat to a more sustainable livelihood.

Key words: Shrimp Cultivation, Foreign Currency, Environment Degradation, Livelihood

Introduction

During the early eighties, shrimp farms started to operationalize by rotation with paddy in the greater Khulna division. As a result, a degrading trend of environmental resources arose there from the perspective of sustainability. Nowadays, people of this area have realized that expansion of shrimp cultivation not only reduces the production of rice but also the grazing land livestock populations. Moreover, shrimp cultivation induces sharp social division and disparity by possessing of shrimp *ponds*, *investors* and entrepreneurs. Additionally, this new trend of cultivation is inducing the displacement of labors and aggregating the poverty level of small farmers. Irrespective of assessing overall any socio-economic consequences, some local farmers and investors decide cultivating shrimp in rotation to paddy fields just for gain monetary benefits that comes from shrimp cultivation. Another big issue that occurs as a result of shrimp farming is the practice of land leasing. Most of the time, the leasers are also investors, and they provide small farmers leased acreage on which they can start shrimp farming with the help of local farm labor. As a consequence, the poor farmers who lease out their lands need to live upon the mercy of the *gher* owners without any option to bargain and negotiation. Most of the time, the owners of the lands feel anxious for fear of losing the possession of their lands once they are

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leased out to the outsiders. In addition, they permanently lose their right to grow any kind of vegetables to support their family. As per BBS data the percentage of landless people in rural areas is 67.63 (2018). According to this data, it is clear that the area under shrimp cultivation and its associated sectors are increasing rapidly since its commercial inception during 1980's. Environmental degradation due to shrimp cultivation has become a grave concern for the coastal community of the south-western region of Bangladesh. According to IUCN (2012) study, shrimp cultivation has created a grave natural issue in the seaside zone of Bangladesh. In a few spots, particularly in the Satkhira-Khulna regions, shrimp development is rehearsed very nearly about 80 km inland, initiating saltiness and kicking the bucket of vegetation and decimation of rice farming area. The development of shrimp requires the holding of no less than 8-9 months of dormant saline water each year. Many shrimp investors are taking advantages of sea side polders to ensure the flow of saline water has created severe contamination of land due to intrusion of saline water. Such polders are violently affecting the economy and natural ecology and biodiversity to a greater extent. The territories with a potential for salty water supply for shrimp *gher* are situated in the coastal zones, including polders adjoining tidal streams and waterways. The shrimp coastal industries being a noteworthy wellspring of abroad fare income for Bangladesh has brought about the regular immersion of huge fertile agricultural lands, particularly in the areas of paddy lands. It is evident that dry season bitter water shrimp development is reliable with wet season rice cultivation. This has aggregated the inflow of saline water. Along these lines, the horticultural land has been lost to shrimp lakes and wetlands with salinity. Wet season rice yields have drastically declined as saltiness and soil changes have incurred significant damage in coastal zone. The conservation of ecosystems and biodiversity are threatened to a greater extent due to shrimp cultivation.

From the above scenario, it is understandable that shrimp cultivation in coastal areas in Bangladesh is regarded as a serious threat to coastal ecology, environment and biodiversity sustainability. This research is an endeavor to focus on the dual role of the inception of shrimp cultivation 'economic contribution vis-à-vis threat to the sustainable physical and social environment. The broad objective of this study is to show how the trend of shrimp cultivation is degrading the sustainability of natural ecology, environment, and posing threat to the livelihoods of coastal zone. Moreover, it tries to find out the changing pattern of daily livelihood of local inhabitants besides focusing on the beneficiaries who are creating such threats and the ultimate loss of ecology, biodiversity and environment.

Literature Review

For quite some years now, shrimp aquaculture in brackish water has assumed importance in Bangladesh. Locally it has generated income and has contributed significantly to the export earnings of the country. Asaduzaman (1986) mentioned that in the late fifties, more than 100 paddy-cum-fish farms were reported in the greater Satkhira area. In 1982/83, some 51.8 thousand hectares of land were under brackish water shrimp farming. By 1984/85, the area rose



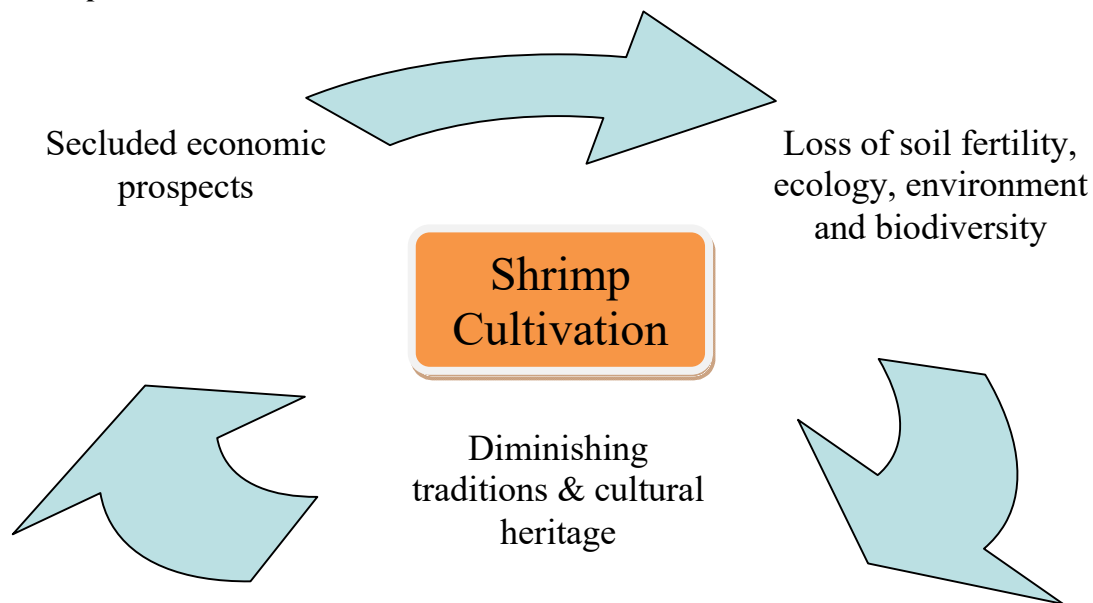
to an estimated 68.8 thousand acres or by about a third. The old districts of Khulna division alone accounts for some two-thirds of the shrimp farm acreage. At least 7 types of marine shrimps and two types of freshwater ones have potential for brackish water aquaculture. From them generally the larger areas are raised for export. In the south-western region, shrimp fries are stocked from December to June/July because of availability in the river, while harvesting begin from April and may continue up to October to insure salinity of water (in case of shrimp alone). Khulna-Satkhira farms are generally uniformly large compared to others elsewhere. Ferdousi et al. (2017) described that for the abundance of black tiger shrimp (*Penaeus monodon*), post larvae (PL) are targeted by the fry collectors and such practice forced the damage of different aquatic fauna during fry collection because of numerous aquatic species are being thrown away only for collecting shrimp fry. On an average, 6.3 million of *P. monodon* PL were collected annually from the studied area and around 0.16 million men per year were estimated to be involved in shrimp PL collection activities. It was found that about 412 other shrimp larvae, 391 fin fishes and 1696 other *macrozooplankton* were killed during the period of collection for only one PL of *P. monodon*. Deb (1998) mentioned that shocking but common tendency of quick money-making has drawn attention of national policy makers, international development agencies and private sector investors. Irrationally it is taking for granted that the economic gain through the proliferation of shrimp culture is very important for the national economy of Bangladesh. In this connection the concomitant environmental degradation and marginalization of the coastal residents as a result of deprivation from traditional coastal resource are becoming issues of growing concern. The rapid expansion of shrimp culture farms has been mostly imposing at the expense of large-scale destruction of valuable mangroves which caused coastal environmental degradation in the country. The multifarious impacts are believed to be major factors leading towards social and ecological marginalization among the coastal communities of Bangladesh. Hossain (2013) showed that the nature of rapid development of shrimp farming brings a series of negative environmental impacts like ecological imbalance, environmental pollution and disease outbreaks etc. Thus, shrimp farming is facing management-related difficulties which lead to greater concerns about its sustainability. Khan (1995) in his research observed a peculiar dilemma in the fisheries sector of Bangladesh. In one hand, this sector is seen as an opportunity that can provide to the poor people of Bangladesh at an affordable price and can generate new employment opportunities for the unemployed sector of Bangladesh resulting in poverty alleviation. It can also contribute to the economic development of the country by helping to earn foreign currency through export. In the other hand, this sector faces a continuous crisis. A huge number of fisheries, mostly in the coastal areas, estuarine and inland water sectors, are under a continuous threat as a result of overfishing, environmental degradation, habitat reduction, and uncontrolled use of different water bodies. Both the freshwater aquaculture and coastal brackish water aquaculture are nowadays facing different socio-economic, environmental and infrastructural constraints and challenges which restrict agricultural production to increase. The central focus of Khan's



research was on explaining the way of ensuring sustainability and profitability of this fisheries sector by increasing production and managing them efficiently. Bishnu (1998) described that the destruction arises violently due to mass shrimp cultivation when abrupt cultivation practices without considering the impact of saline intrusion to the surrounding habitats. Parvez (2015) mentioned that losses of shrimp growers and processors are piling up in the face of sluggish global demand for black tiger (*bagda shrimp*) of Bangladesh amid ample supply of the *vannamei* (White leg shrimp) variety and weak currencies of major export destinations against the dollar.

From the above studies, it is clear that though some experts are focusing on the quick financial outcome of shrimp cultivation, many of them showed their concern regarding the adverse effect of indiscriminate shrimp cultivation. This study focuses on the alarming effect of shrimp cultivation to the coastal sustainability. Moreover, this study also focuses on the niches in income disparity among the gher owners and workers vis-a-vis degrading environment, ecology and biodiversity.

Conceptual Framework



(Constructed on the basis of Field Study 2018)

The impact on the environment, ecology, biodiversity, tradition, and cultural legacy is depicted in the above conceptual cycle. Furthermore, the framework emphasizes the loss of overall agricultural production, ecological degradation, environmental damage, and the establishment of social and cultural vulnerability due to indiscriminate shrimp aquaculture in coastal areas.



Objectives of the Study

The broad objective of this study is to focus on assessing the adverse effects of shrimp cultivation to environmental sustainability. The specific objectives are –

- To identify the nature of income generation by introducing shrimp cultivation and its adverse effect on cash crops;
- To examine the negative effects of shrimp cultivation on vegetation;
- To indicate the nature of financial benefits at the cost of environment, ecology and biodiversity.

Methodology of the Study

The research has been conducted based on Key Informant Interview (KII) and participatory observation methods to collect the in-depth information. Moreover, for acquiring and generalizing relevant knowledge, we had to depend on secondary publications and various web sources. In addition, we have collected relevant primary data through survey interviews with various socio-economic groups (Residents 10, Government officials 2, N.G.O activists 2, Civil society members 2, Academicians 2, from October 2018 to December 2018). To ensure proportionate representations, this study has followed purposive sampling (snowball sampling technique) for interview. Besides, the researchers have revisited the study area for further validity of collected data and information.

Discussions and Findings

In the shrimp cultivated areas, a number of organizations work as part of development intervention. Mainly data were collected from different categories of ownership like – all types of *gher* owner; ice producers and so on. Here the fact is that all these stakeholders are very much conscious about their own benefit and quite unaware about negative impacts on local community. They even are not concern of the negative impacts of shrimp cultivation on local environment where they grew up from childhood. For their vested interest to be fulfilled, they have developed lot of vested infrastructure to live in, but they never think of the benefit of the work force, who are enabling the *gher* owners enjoying such pompous livelihood. Ferdousi (2017) showed that about 29,874 million of other shrimp species, fin fishes and *macrozooplankton* were destroyed annually by the shrimp seed harvesting process in Mongla river. Such ample destructions of natural species are very common in coastal regions of Bangladesh.

At the time of collecting information from Paikgacha Krishi Office, respondents informed that most of the crop varieties are going to extinct with the introduction of shrimp cultivation and the main factor is the severe negative impacts of saline water. In the past (During 1990's), Ropa Amon paddy was cultivated in about 27000 ha of land in this Upazila (Paikgacha Upazila Krishi Office, 2018). However, at present, the cultivated land has reduced to cultivate in 24000 hector of land and the production is gradually decreasing. HYV (High Yield Varieties) paddy is cultivated in 16000 hector land and on the contrary local rice is cultivated in 7400 hector land



but the production has sharply declined due to intrusion of saline water. In this Upazila, there are about 27000 hector cultivable lands and shrimp is cultivated in more than half of the areas (Paikgacha Upazila Krishi Office, 2018). However, by using intensive care method, it is possible to cultivate paddy to this land. But for the vested interest of the *gher* proprietors, it could not be happened. Due to the shrimp cultivations, most of the horticulture plantation is going to abolish. Any type of fruit tree will die within 3-5 years because of intrusion of saline water. In the past, saline water was well protected by constructing embankment but by introducing shrimp culture saline water was drained to the local cultivable land area. Mr. Dulal (Upazila Krishi Officer) said that he is working here for 14 years and during this period he has observed a vigorous change in the use of land pattern. He expects that if government takes proper initiative then it is possible to increase rice cultivation with other crops in this area.

From the above interview discussion, we can understand the diminishing scenario of paddy and agro cultivation is happening due to introduction of shrimp cultivation in the areas of Paikgacha Upazilla. It is noteworthy to mention here that illegal construction of polders for ensuring to get the saline water supply gradually becomes threat for local community's sustainable livelihood. The locality's vegetable yield is gradually degrading due to heavy saline water intrusion in the soil.

At the time of collecting data from Nigera Koree, Paikgacha Upazilla Branch, Mr. Bozlur Rahman stated that the shrimp cultivation is a business of vested group of people. He said that with the introduction of shrimp cultivation the ecological destructions happened such as loss of fish variety, loss of flora, loss of fauna etc. He further informed that shrimp cultivation creates conflicts, terrorism, exploitation of women, and even forced prostitution. He argues that shrimp cultivation is the only cause of intrusion of salinity in the locality. He thinks that it has impacted the biodiversity of Sundarban. He also said that it makes people dependent as they lose their traditional jobs. He said in Soladana Union people were self-sufficient in rice production before the introduction of shrimp cultivation. In a concluding remark, he mentioned that the *gher* owner started their activities since 1981 and they made tremendous progress in shrimp cultivation.

From the above remarks, it is clear that besides ecological destruction, shrimp cultivation also responsible for creating social unrest, social conflict, disrupted the social cohesion and harmony of the locality. Moreover, it is a great concern in shrimp cultivated areas as the local people are losing their traditional jobs, so they are becoming dependent on out sourcing to ensure their daily intake.

**Table 01:** Income status of the worker of *gher* per month

Category of job	Amount of Wages (per month)
Muhuree	7000
Cooker	3500
Goiman	3500
Labor	3000
Sideman	2500

(Field study 2018)

Table 01 shows the monthly income range of several categories of workers involved in shrimp cultivation. The income range of the workers clearly indicates their nature of subsistence wage and unhealthy socio-economic condition. On the contrary, owners of the *gher* are earning millions of takas from a medium size *gher*. One of the workers Jalil said that he is working there for the last 18 years. He came from Tala Upazilla and when he first came to this place, he found the area was surrounded by lot of trees herbs and agricultural corps. He complained that they do not get enough wages to meet their family needs and with the scanty income he even cannot afford to maintain and unable to stay with family by renting a home near the work place. From the interview results, it is clearly comprehensible that over the last 18 years, the area lost its diverse resources due to the shrimp cultivation.

Because saline water and land are better for shrimp production, most of the owners are unwilling to produce both shrimp and rice at the same time. However, for rice cultivation, they have to decrease the water level of the *gher* as a result of which top soil fertility decreasing. Mr. Somiron Shil who is a local inhabitant and seasonal worker described that before shrimp cultivation, local farmers allowed livestock to graze upon the paddy field where stubble left in the field. The post harvest fallow period has now been substituted by shrimp cultivation posing a grave problem to the supply of cattle feed. Cattle are of crucial importance as a source of draught power in agriculture. Due to the shrinkage of rice acreage with the expansion of shrimp acreage, there has arisen an acute shortage of paddy straws causing great sufferings to the poor farmer families in respect of cattle rearing, cooking etc. On the other hand, due to salinity, the banana leaves also become unsuitable as cattle feed. The interview findings show that the introduction of shrimp cultivation is destroying the natural grazing field of the local domestic animals. As a result, the numbers of domestic animals are also decreasing drastically.

Table 02: Changes in asset structure of Amol's family (before and after shrimp culture)

Assets	Before introducing shrimp (1980)	introducing culture	After introducing shrimp (1990)	introducing culture	Remarks
Agricultural land	10.5 ha		1.5 ha		Most of the land has gone under shrimp culture and the existing others have become barren.



Non-agricultural land around homestead	1.24 ha	.65 ha	Various crops were produced earlier but now there is none. Sweet water fish varieties have almost disappeared.
Pond	1.45 ha	1.45 ha	
Buffalo	25	08	Shortage of space and grass land.
Cows/ Bullocks	35	06	Lack of open place.
Ducks	80	0	Going to die.
Chickens	50	15	No fruits
Mango trees	32	07	--do--
Coconut trees	52	17	Lack of land and salinity intensity
Bettlenut trees	120	05	No vegetable
Banana, papaya, other trees	Many	0	
vegetables	Plenty	0	

(Source: Field re-visit 2018 here, “ha” stands for hectore)

The results from table 02 shows, how dramatically Mr. Amol lost his precious resources due to the massive introduction of shrimp cultivation whereas at previous days he was passing golden days due to his produced goods and services. The ground behind the devastation of his means of livelihood include from the unplanned massive shrimp cultivation which multiplied saline water intrusion to the locality, as a result soil fertility decreases, and they lost all their homestead garden vis-a-vis herding land for domestic animals.

Abdul Majid Sana started shrimp cultivation in 1980's. He started with a small area of *gher* but now he is the owner of a good number of big *ghers*. In 1980's he had 10 acres of land and most of them were related to agro farm and rice cultivation. From those sectors, he earned about 2, 00,000 tk. per year. Besides, all of his necessary daily intakes like rice, vegetables and fishes used to come from his own land. He had homestead garden from where he got all necessary fruits and earned some money by selling the surplus of it. However, after getting engaged in shrimp cultivation, he started using most of his rice cultivation land for shrimp farming. Within a few years, he got a lot of benefit and became an affluent person. After that, he got a verse area of land, as lease for shrimp cultivation and in that period of 1983 – 1990 he became a rich person. Gradually he got engaged with politics and now he is the chairman of Soladana union. At present, his income is above 50 lacks taka each year but he argues that he faces many problems in the locality after introducing shrimp culture that was not there before. He said that



with the increase of salinity of water, the growing capacity in lands is decreasing. This practice also decreased the crop varieties and natural greenery. He argued that rice (staple food) production is hampered a lot. For force taking of artificial food, people lose their strength and are becoming weaker. He himself suffers from various physical problems. For medical purpose, he needs to spend lacs of taka every year. He also argued that the solidarity among people is decreasing day by day as a result, many social problems are increasing. He mentioned that shrimp cultivation has brought a vital change in their cultural life. Finally, he argues that though it creates some problems, it has a great impact on the socio-economic changes in their life.

Mr. Majid's interview shows that workers in shrimp are deprived from the minimum amenities as a human being. They often do not get any financial support from the gher owners during festivals or if any emergency arises.

Conclusions and Recommendations

Shrimp cultivation, as an extension of a particular cash product, can be analyzed in the coastal areas. At present time, although having some devastating impacts, this cultivation of shrimp has been proved beneficial for a particular group of that community which has turned into a great concern for the rest of the particular local dwellers. This particular cultivation can be encouraged only if it can ensure the welfare of mass people. Encouragement to adopt semi-intensive shrimp cultivation should be provided to the small farmers and this farming pattern may lessen the destruction of agricultural lands as well as ecology. However, the catchers are mostly interested in P. Monodon fry. Several other species are also caught in the nets which are rarely thrown back into the water and it is a serious matter of concern. Focusing on ecological balance, it is important to consider these aquaculture wastes which occur during the collection of shrimp fry. Policy makers should consider this sector significantly impeding the short-term rice production and abolition of crop variety. Management practices are needed to be changed for ensuring the target production through a system of proper land usage. Reduction as well as extinction of rice varieties in this locality is also notable. Lastly, the economic returns from the shrimp fisheries should be achieved in such a manner that it doesn't create hurdle in the life of mass people. Following recommendations are made considering all the above-mentioned issues. First of all;

- The shrimp culture is nurtured in a scattered manner. The farms have been spread even at the homestead areas which cause hurdles in the everyday lives of the inhabitants. Therefore, they should be placed in a designated area of the coastal regions in order to safeguard the ecological balance and biodiversity.
 - Shrimp culture should not be allowed in any land where it may pose a threat to the existing coastal water bodies. Farm size should not exceed 0.5 ha to 1.0 hector of land.
- Secondly;



- Local variety of paddy and other agro production have to be nursed to ensure sustaining biodiversity.
- As soon as possible shrimp farmers should be encouraged to adopt semi-intensive and intensive shrimp culture in brackish water areas.
- The landless and small farmers should be encouraged to cultivate local agro products. Thirdly;
- Strong monitoring and evaluation system are also needed to be ensured in the circulation of water bodies. If possible, the government should make a policy to protect the natural flow of water bodies and protection of habitat.
- Coastal sustainability of ecology and environment become vulnerable due to the over expansion of shrimp cultivation. So, any further extension must have to be halted to secure the remaining natural and domestic habitat in the coastal areas.

Concluding Remarks

The relevant authority should immediately take up a positive and better management strategy coupled with an action program in order to overcoming the constraints faced by extensive shrimp cultivation.

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URBANIZATION AND ENVIRONMENTAL PROBLEMS AND CHALLENGES: A CASE STUDY OF BARISHAL CITY, BANGLADESH

Ashim Kumar Nandi*

Abstract

Urban environmental problems are considered as a serious concern in Bangladesh in earlier studies since millions of people are affected by it. The objective of this study is to examine the patterns, factors, and effects of environmental problems in Barishal city due to urbanization. Employing a quantitative research design and applying survey method, the study conducted face to face interview of 100 randomly selected samples in May 2019 in Barishal city corporation area. The study uses arguments from environmental realism to explore the three research questions. The present study found that water logging, water pollution, housing shortage, inadequate sanitation, lack of pure drinking water, air pollution, waste pollution, and poor waste disposal system are significant environmental problems. Some important factors of environmental problems have been found in the study such as poor drainage system, pollution of pond and canal by factory waste, pollution of pond and canal by open toilet, and insufficient government initiatives for the lower class of population. Moreover, the study found spreading of skin diseases, economic loss, poverty, and spreading of water borne diseases as the effects of environmental problems in Barishal city.

Keywords: Urbanization, Environmental problems, Environmental challenges, Barishal city, environmental realism

Introduction

Urban environmental problems are becoming a big concern especially for the global south since it poses challenges to the performance of urban areas (Cobbinah, Poku-Boansi, & Peprah, 2017). These problems may vary by regions (e.g., Bartone, 1991). For instance, pollution and inadequate sanitation are prevalent in less developed countries, while “congestion and over-development” are among the most significant environmental problems in the developing countries (Giddens, 2009, pp. 233-234). Giddens (2009), illustrating Mexico City, claimed that rapid migration to urban areas is an important reason for the environmental problems.

Moreover, Rahman, Kumar, Fazal, and Bhaskaran (2011) argued that increased urbanization is the “main culprit” for the environmental problems in cities. These problems are deteriorating if the economy of a country is underdeveloped or experiencing over-urbanization. Slums and the rapid growth of informal sectors are also contributing to urban environmental degradation. For instance, over crowdedness in slums, nature of works (e.g., most of the slum workers work in informal sector), poor environmental infrastructure and lack of basic amenities in slums are the causes of environmental problems (e.g., waste pollution, lack of drinking water etc.) in urban

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areas (Rahman et al., 2011). Dutta, Bardhan, and Bhaduri (2013) also claimed rapid urbanization due to economic development causes over-urbanization which is causing environmental problems (e.g., traffic congestion, environmental pollution etc.) in rapidly industrializing countries like India.

These earlier studies broadly indicated environmental problems are deteriorating mainly in big cities where rapid urbanization is a common event. In these cities, rapid urbanization makes urban amenities imbalance because more people enter these cities than its capacities, which is known as over-urbanization. Since these migrants are mainly poor people, they mainly take shelter in slums, work in informal sectors, which sites have already been in poor environmental conditions. In addition, capacity of city corporations and other urban service authorities are in most cases far lower than the additional needs, especially in less income countries. Thus, rapid urbanization deteriorates urban environmental problems. But what is still interesting to explore is the effect of urbanization in comparatively smaller cities¹, where the urbanization process is not so called 'rapid', rather slowly increasing and population size is also comparatively small. Due to steady urban growth urban service providers are likely to have scope of copying with additional needs. In addition to city size and urban growth rate, Barishal city is important as a coastal city which has potential to have environmental refugees² due to the effect of climate change. In the given context, this study aims to explore the impact of urbanization on environmental problems in Barishal city. Specific research questions for this study are: (1) What are the patterns of environmental problems in Barishal city? (2) What are the factors of these environmental problems in Barishal city? and (3) What are the effects of these environmental problems in Barishal city?

Literature Review

Why Do Environmental Problems Matter in Urban Bangladesh?

Environmental migration and unplanned urbanization

There is a lot of evidence of climate-induced migration and subsequent unplanned urbanization. Hasnat, Kabir, and Hossain (2018) explored major environmental problems of South Asia and argued that urbanization and industrialization are closely interconnected, while Kawsar (2012) linked development with urbanization and migration. In addition, Khan (2016) claimed that unplanned and uncontrolled urbanization, which is caused by rapid urbanization, became a major challenge for twenty-first century Bangladesh. According to a LGED [Local Government Engineering Department] (2017) report, rapid and unplanned urbanization especially after

¹Here, by bigger/smaller city, the study means Dhaka is a bigger city as it has a population of 10 million, while Barishal which has a population of less than a million is comparatively a smaller city.

²Environmental refugees are referred to by many different words. Broadly, people who are displaced due to the environment around them are called environmental refugees (Randall, 2021).



independence in 1971, causes many environmental problems such as poor housing and transport, lack of drainage and sewerage, industrial pollution, waste pollution and so on.

BBS (2010) claimed that climate change is playing a role of environmental push factor and enhancing migration rate. But local governments were not prepared for this rapid change. So, most of the urban migrants or urban poor are living in poor quality environments which is causing health risk (UN-HABITAT, 2003; Mitlin & Satterthwaite, 2013). New and various aspects of rapid urbanization posed a challenge to local government at management level (Reviet et al., 2014, p. 544). Moreover, it is important to note IPCC's warning regarding the effects of climate change, which assumed that a lot of climate refugees will be migrating to urban areas in Bangladesh in future due to climate change which might worsen the urban environmental degradation (Xinhu, 2012 cited in Muniruzzaman, 2013; see more Litchfield, 2012). The Bangladesh government's national climate change strategy calculated that more than 20 million people will be climate refugees in Bangladesh in future (Muniruzzaman, 2013). Climate change enhances climate refugees who are mostly migrated to cities and this rapid migration creates pressure on urban amenities and therefore on local governments, and consequently a lot of environmental problems are arising (e.g., Revi et al., 2014).

Ahsan, Karuppnanan, and Kellettstate notes that.

Within the last 30 years Bangladesh has been hit by more than 100 cyclones and about 60 flash floods along with other natural disasters including epidemics, drought, and heat waves. The coastal areas of Bangladesh are the home of almost 50 million people (1/3 of the total population) who are highly exposed to these natural disasters. Between 1980 and 2010 natural disasters have acted as direct push factors for internal migration to the extent that it has altered the urbanization pattern and become a challenge for the urban planning system (2011, p. 165).

Ahsan et al. (2011, p. 168) suggested, mentioning Bangladesh Government's (2009) report, that we need coordination among local, regional and national level agencies for planning and implementation of the development projects that will be taken for combatting the effect of climate change.

Bangladeshi cities' extreme vulnerability to climate change

So far, I have discussed how cities are facing the consequences of environmental migration. But it is also important to give additional focus on climate change since this event alone changed the whole stability of Bangladesh including the problems created in cities. In addition, Giddens (2009, pp. 177-78) described that combating the problems created by global warming is essential for a sustainable future and it is the most important environmental problem in the long run.

Bangladesh is one of the most vulnerable countries for severe weather events (1999-2018) (Eckstein, Vera, & Bhaduri, 2019) and climate change (Harmeling, 2010). The geographical location, flat low-lying deltaic topography (Thomalla et al., 2005), river deltas (IPCC [Intergovernmental Panel for Climate Change], 2001) and extreme poverty (World Bank, 2000;



ADB [Asian Development Bank], 1994) trigger the effects of climate change in Bangladesh. In addition, some reports, presenting statistical evidence, claimed that if sea-level rise 1.5 m more, this might create a lot of climate refugees, and therefore the refugees will migrate to cities and creates pressure on existing governance and amenities, which ultimately trigger the environmental degradation (e.g., UNEP&GRID-Arendal, 2000; IPCC, 2007; BBS, 2017).UN-HABITAT (2008/2009) described in a report on Dhaka city that adverse effects of climate change will possibly be experienced by urban poor who live in flood-prone and water-logged areas.

Alam and Rabbani (2007) identified some important issues for environmental problems such as air equality, water logging, transport congestion, spread of slums and so on. Tawhid (2004) presented, referring Dhaka's Water and Sewerage Authority (WASA), evidence of damages happening due to water-logging in Dhaka city. Moreover, Giddens (2009, p. 165) claimed that since global warming causes regular droughts and water supplies becoming privatized, people will face acute problems for the lack of required water in developing countries.

Although there is a considerable amount of literature that shows that climate change triggers urban environmental problems as I have discussed above, Piguet (2008) mentioned that the effect of climate change on urban systems is over sighted.

Slums deteriorating the situations

Many literatures showed that a majority of households in Dhaka city are considered as slums and a majority of everyday migrants usually comes to cities, who are mainly migrated for climate-change-related problems (e.g., Hanif & Hossian, 2010; UN Habitat, 2008; Saha, 2012). The lives of slum dwellers are 'inhuman'! Previous literature showed evidence of various problems in slums. For instance, if we summarize the results then it looks like: people live in a small room in a congested way with multigeneration. They do not have basic amenities such as gas, so they use mud-made stoves and burn wood that cause environmental pollution. No proper latrines, polluted air, polluted water, scattered waste elsewhere, poor waste disposal from the area, spreading of water-borne diseases like diarrhea, skin diseases, no proper treatment, scarcity of pure drinking water and no legal electricity are the common problems of slum-dwellers (e.g., Saha, 2012; UN-HABITAT, 2008/2009; BBS, 2015).

Theoretical Framework

This study used ideas from environmental realism (e.g., Bell, 2004), which is also known as critical realism, to explore the research questions. This perspective examines environmental issues from a scientific perspective, which incorporates ideas from both social and natural sciences in its analysis. This perspective analyzes mechanisms of different events and problems (Benton, 1994; Dickens, 1996, 2004; Martell, 1994), and covers both natural and environmental sciences in its explanations (Giddens, 2009, p. 161).In addition, this perspective focuses on environmental sociology to modify current sociological approaches to evaluate complex weaving of environment and society (Sutton, 2007). This perspective challenged 'solutionism' and offered an integrative approach to analyze closely associated relationships among human



culture, human biology, and the planet's ecological, geological, and atmospheric systems (Cockerill, Armstrong, Richter, & Okie, 2017). While advocates of 'solutionism' believe that biophysical world is within human beings' control and science can solve biophysical problems (e.g., flooding, earthquakes), environmental realists claims that solution of biophysical problems are not possible since we do not know what endpoint of this problems is. For example, unlike biophysical problems, a mathematical problem can have definite solutions since we know what its endpoint is. So, solutionists' solution solves one problem but creates another problem, and therefore generates a problem-solution-problem cycle. Moreover, environmental realists argue that environmental problems are 'wicked' problems which are "intractable and can never be solved" (Cockerill et al., 2017, p. 5). These environmental problems can be "re-solved" or "managed" rather than "solved" (Rittel & Webber, 1973).

Based on the above discussion, the present study expects that urbanization is a social event that should have a close relationship with biophysical problems (e.g., waste pollution). Urbanization can cause biophysical problems, which can be managed as environmental realists suggested. So, it is expected that Barishal city might have environmental problems which could be managed by Barishal City Corporation (BCC). For example, BCC can collect and dispose of waste more efficiently as a quick solution to waste pollution until people are aware of using waste bins properly in a public place. However, in this case, proper use of waste bins by people might not be the ultimate solution since disposing of plastic waste needs further solution. Thus, in the given socio-economic and technological (i.e., less advanced in plastic recycling, for example) context, environmental problems of the city can be managed, but there might be no final solution yet.

Methods and Data

The study employed quantitative research design. The study, at first, collected the list of wards in the study area. There was a total of 30 wards. Then, the study randomly selected 4 samples from each ward, but not more than one sample from a household. So, the total sample size was 120. All of the selected individuals were approached but 100 of them participated in the survey interview, so the response rate was 83.33%. To facilitate the interview, the study used a semi-structured interview questionnaire. To ensure reliability of the interview schedule, the study conducted a pre-test on five sampled individuals. After that, interviewers administered face to face interviews to 100 respondents, that means the pre-tested answers were not included in the final analysis. Interview duration was 20 minutes, on average. The interviews were conducted during May 2019. After the interview, interviewers checked the answered questionnaires to ensure clear and completeness of the answers. Later, the answers in the questionnaire were described and interpreted to answer the research questions. However, this study did not use any hypothesis and therefore there was no statistical test. The reason of not having hypothesis is that the study sample size was very small which can mislead any statistical inference. In addition, all the respondents are not climate refugees, although they are affected by climate change.



To ensure validity, the study defined the variables and concepts before using measurement for each concept, compared measurement with existing research measurement that has been done in the related issues, ensured external validity by generalization and so on. In addition, in the study, by environment, it is meant that “all of those non-human, natural surroundings within which human beings exist...” (Giddens, 2009, p. 158). By environmental problems, it is meant whether there is any water logging, water pollution, housing shortage, inadequate sanitation, lack of pure drinking water, air pollution, waste pollution, poor waste disposal systems.

One major limitation of the study was that it had insufficient funds. So, it could not include large samples and use a regression model in the aim of statistical inference.

Ethical issues were also considered from the beginning of the study. The study took approval from University of Barishal before starting this study as it was funded by the university. The study was determined to not disclose the identity of the respondents. The study findings were planned to inform the respondents and to publish the result for broader dissemination. Before the interview, the interviewers informed the respondents about the project including aims, funding and so on.

Barishal City Context

The study site – Barishal city mainly Barishal city corporation (BCC) area - has 4 thanas (police station), 30 wards, 230 mahallas and 72,709 households. Total population of BCC is 3,28,278, of which 169475 is male population and 158803 is female population (BBS [Bangladesh Bureau of Statistics], 2013). According to Slum Census 2014, Barishal has a total 137 slums and Barishal city has 9,629 households. In BCC, the highest numbers of slum households have been built on government land (5416), while slum households have been built on own land and private land are 4083 and 118 respectively (BBS, 2015, p. 24). According to BBS (2015, p. 38), the literacy rate of the slum population in BCC is 50.98% (where male=52.53%, female=49.43%, Hijra=30.30%). Their main source of drinking water is tube-well and 25.97% of slum population in city corporation areas have sanitary latrines (BBS, 2015, pp. 61-62).

Findings of the Study

Socio-Demographic Characteristics of the Respondents

The study shows that the highest number of respondents, 15%, came from the age cohort 21-25, 26-30 & 31-35. The second highest number of respondents, 11%, came from age cohort 41-45 and third highest numbers of respondents, 10%, came from 36-40, 46-50 & 51-55. The lowest 1% respondent covers age cohort 11-15. In addition, this study reports that that the highest numbers of respondents are Muslim (79%) and the second highest and lowest numbers of respondents are Hindu (15%) and Christian (6%) respectively. Moreover, among the respondents, 68% are male and 32% are female. Moreover, among the total one hundred respondents, the highest number of respondents (20%) passed Higher Secondary Certificate [HSC], while the second highest number of respondents are illiterate (16%). The third highest number of respondents passed masters [MA/equal degree] (12%). The fourth highest number of



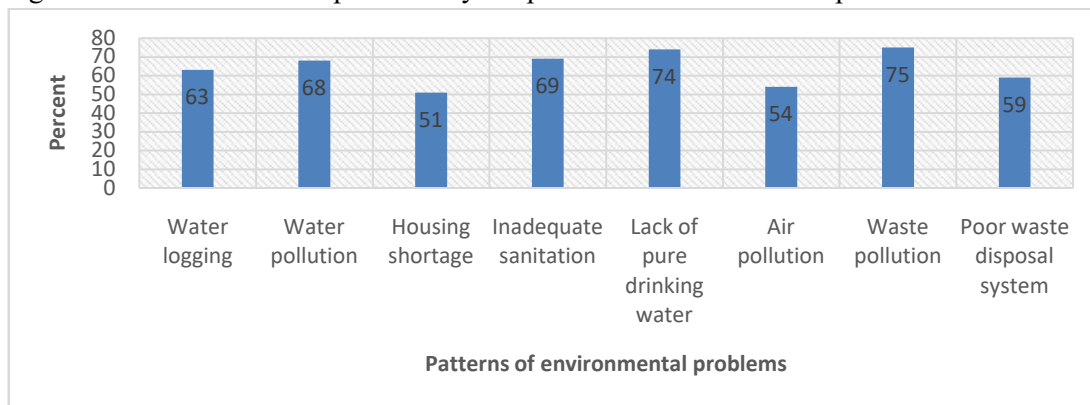
respondents passed bachelor [BA/equal degree] (10%) or studied BA (10%). 2% of the respondents are Master of Philosophy [M.Phil] or Doctoral degree [PhD] holders. It is also found that the largest portion of the father (24%) and mother (26%) of the respondents are illiterate, and the lowest portion of the father (2%) and mother (6%) completed BA and passed MA respectively. On the one hand, a considerable number of fathers passed SSC (20%), HSC (16%), while a significant portion of mother passed Secondary School Certificate [SSC] (17%), completed primary (14%), passed HSC (11%), and completed secondary (10%). Furthermore, the study shows that the largest portion of the respondents are informal sector workers (22%) and the second largest number of respondents are students (17%). The fourth and fifth largest number of respondents, businessmen (16%) and politicians (14%). The lowest numbers of respondents are writers (3%).

Among the total one hundred respondents, the highest number of respondents' fathers are farmers (31%), while mothers are housewives (71%). The second largest portion of the respondents' fathers are businessmen (22%) which are nearest to the portion of teachers (20%). However, the second largest portion of the respondents' mothers are both informal sector workers (10%) and teachers (10%). The lowest portion of the respondents' fathers are journalists (2%), while mothers are businessmen (2%).

Patterns of Environmental Problems

The following figure 1 depicts that there are various types of environmental problems in Barishal city. The survey data found that major environmental problems are water logging (63%), water pollution (68%), housing shortage (51%), inadequate sanitation (69%), lack of pure drinking water (74%), air pollution (54%), waste pollution (75%), and poor waste disposal system (59%). Individual, social and political causes have been found for environmental problems during interviews.

Figure 1: Distribution of respondents by the patterns of environmental problems



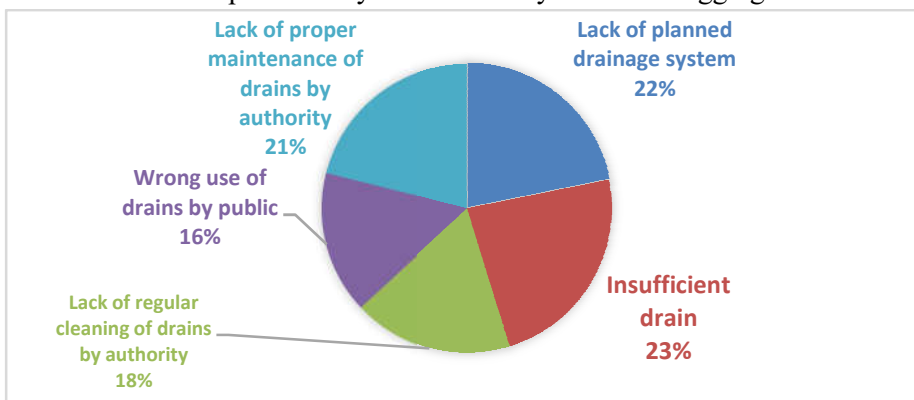
Note: Multiple responses data have been combined in a single table



Factors of Environmental Problems

The current study found (see figure 2) that there are five major factors of water logging. The significant factors of water logging are lack of planned drainage system (55%), insufficient drain (59%), lack of regular cleaning of drains by authority (45%), wrong use of drains by public (40%), and lack of proper maintenance of drains by authority (53%).

Figure 2: Distribution of respondents by the factors beyond water logging

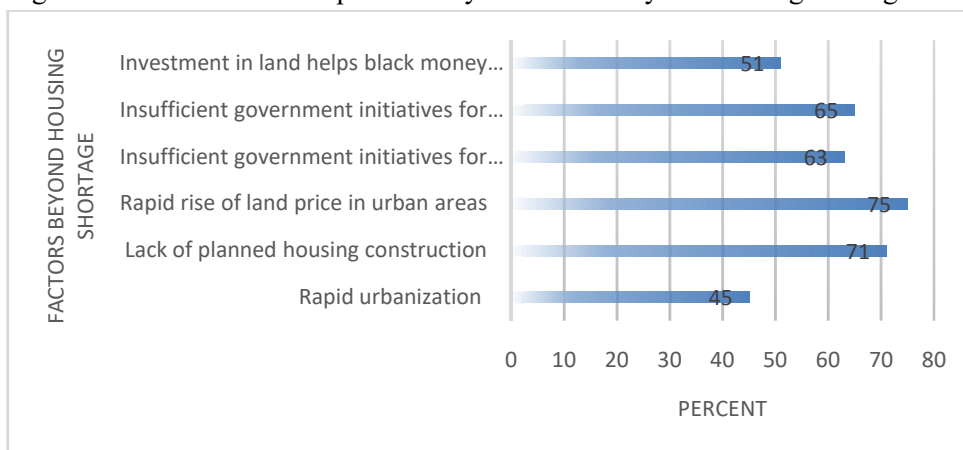


Note: Multiple response data have been combined in a single table

The present study also found that there are three factors beyond water pollution, i.e., poor drainage system (75%), pollution of pond and canal by factory waste (61%), and pollution of pond and canal by open toilet (49%).

The following figure 3 shows that there are many causes of housing shortages. Major causes are rapid urbanization (45%), lack of planned housing construction (71%), rapid rise of land price in urban areas (75%), insufficient government initiatives for middle class population (63%), insufficient government initiatives for lower class population (65%), and investment in land helps black money turns white (51%).

Figure 3: Distribution of respondents by the factors beyond housing shortage



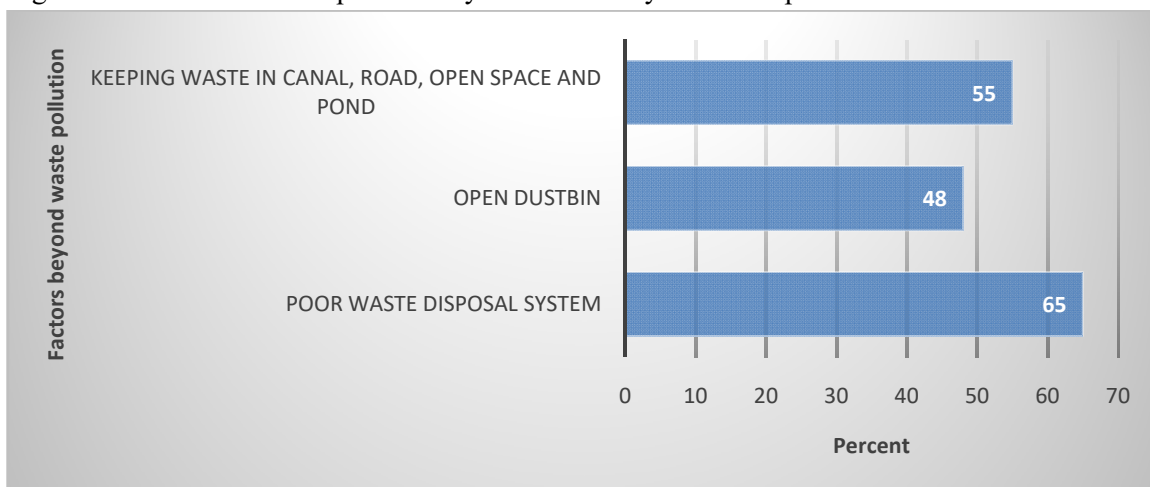
Note: Multiple response data have been combined in a single table



In addition, the study found that inadequate sanitation is a significant environmental problem. There are three important causes of inadequate sanitation. For example- poverty (66%), lack of awareness (57%), and lack of land (51%). This study also showed that the shortage of pure drinking water is also a significant environmental problem. There are four causes of lack of pure drinking water. High price of water purifying machines (49%), lack of awareness (71%), dishonest businessmen (30%), and poverty (49%) are considerable factors of lack of pure drinking water.

The following figure 4 shows that air pollution and waste pollution are substantial environmental problems. There are many reasons beyond these problems. For example, open dustbin (65%), poor waste disposal system (48%), factory smoke and waste (55%), and open toilet (67%) are main factors of air pollution, while poor waste disposal system (65%), open dustbin (48%), and keeping waste in canal, road, open space and pond (55%) are the reasons of waste pollution.

Figure 4: Distribution of respondents by the factors beyond waste pollution



Note: Multiple response data have been combined in a single table

The following figure 5 draws that a poor waste disposal system is a major environmental problem which has many reasons. For example, lack of government initiatives (51%), lack of abilities of respective government bodies (48%), lack of proper collection of waste from house (55%), lack of public awareness (70%), and reluctance/idleness to give waste properly to government waste collectors (65%).



Figure 5: Distribution of respondents by the factors beyond poor waste disposal system

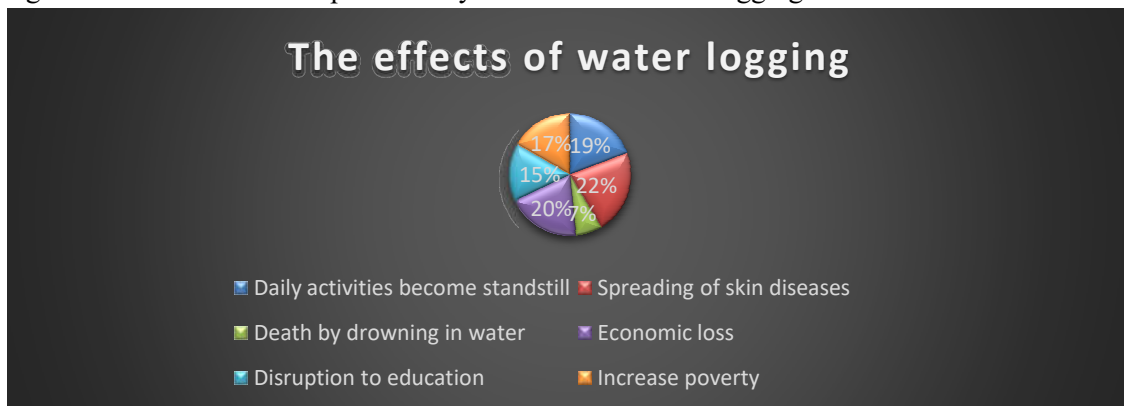


Note: Multiple response data have been combined in a single table

Effects of Environmental Problems

The effects of environmental problems are also significant for the development of our society. For this reason, the present study examined the effects of the environmental problems in society. The following figure 6 shows that there are six major effects of water logging. For example- daily activities become standstill (69%), spreading of skin diseases (80%), death by drowning in water (25%), economic loss (70%), disruption to education (55%), and increased poverty (60%).

Figure 6: Distribution of respondents by the effects of water logging



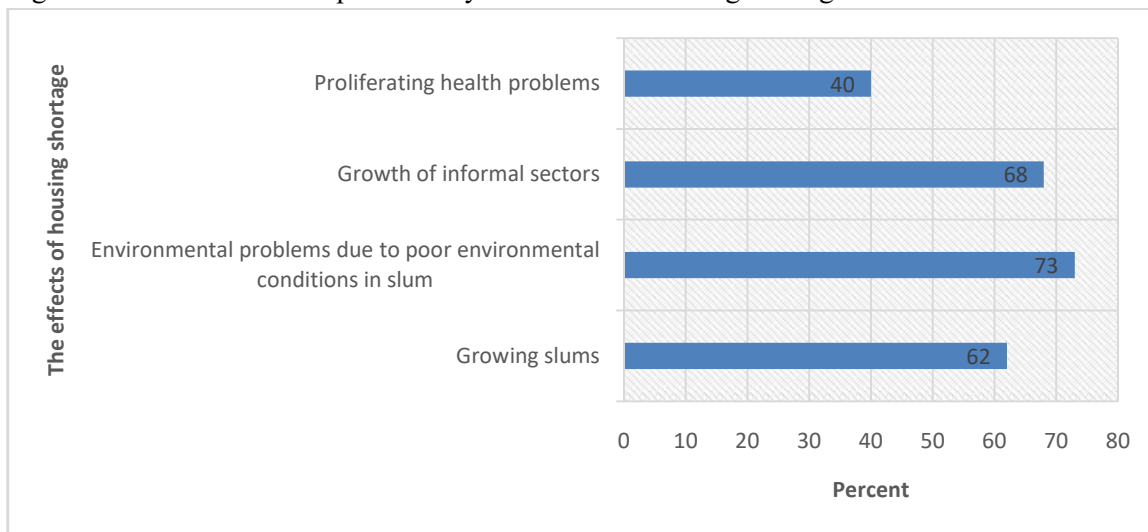
Note: Multiple response data have been combined in a single table

The following figure 7 demonstrates that the effects of water pollution, housing shortage, inadequate sanitation are significant. Spreading of skin disease (59%) and spreading of other water-borne diseases (66%) are the result of water pollution. However, growing slums (62%), environmental problems due to poor environmental conditions in slums (73%), growth of informal sectors (68%), and proliferating health problems (40%) are the major outcome of



housing shortage. Nevertheless, water pollution (59%), spreading of water borne diseases (80%), and air pollution (52%) are the considerable results of inadequate sanitation.

Figure 7: Distribution of respondents by the effects of housing shortage



Note: Multiple response data have been combined in a single table

This study also found that lack of pure drinking water, air pollution, waste pollution, and a poor waste disposal system are significant environmental problems. These problems result in many social, health, economic and environmental problems. For example- spreading of water-borne diseases (65%) and enhancing poverty (71%) are the effects of lack of pure drinking water. On the other hand, growing health problems (48%) and enhancing poverty (63%) are important outcomes of air pollution. However, growing health problems (71%) and enhancing poverty (68%) are important outcomes of waste pollution. Poor waste disposal system also has substantial effects. For instance- increasing waste pollution (55%), growing health problems (72%), increasing air pollution (51%), and increasing water pollution (69%).

Moreover, the study found the majority (74%) of respondents think that informal sector workers are affected by environmental degradation. Moreover, the majority (68%) of the respondents think that environmental infrastructure deteriorates the overall quality of the city. However, 70% of the respondents are migrants. They came from different districts of Barishal division. A significant number of them came from Bhola (11.9%) and Patuakhali (10.5%), Barishal (9.8%) and Barguana (9.1%). The rest of the respondents came from other districts of Barishal division and Bagherhat.

The present study found that a considerable portion of them migrated to the city due to river-bank erosion (15.4%), flood (9.8%) and lack of income (8.4%). These causes are the result of climate change. Therefore, we assume that climate change is the reason for internal migration in the region. People are migrating to the city and creating and facing environmental problems. Furthermore, the study result shows that the majority of the migrants have been living in the



urban areas for the past 1-3 years and the second largest portion of them have been living for 3-9 years. The third largest number of migrants has been living 9-12 years. 4.2% of the migrants have been living for more than 15 years.

Discussion

Identifying the patterns, factors, and effects of environmental problems are key objectives of the present study. This study found a significant number of environmental problems. Both individual and collective failures are responsible for the enhancement of these environmental problems.

Although Barishal city is a comparatively old city, it has not been urbanized rapidly like Dhaka city- a capital of Bangladesh. But recently the city has experienced a quick urbanization especially for the past 10-15 years. Among the migrants a considerable portion migrated to the city due to the problems created by climate change. A large number of people also migrate to Dhaka and Chattagram city.

As Rahman et al. (2011) claimed that environmental problems such as poor environmental infrastructure and poor drainage systems can trigger the urban environmental degradation, this study also found that the above-mentioned services are weak in Barishal city that deteriorates environmental problems.

The current study found that the respondents think that lack of planned drainage system (55%), insufficient drain (59%), and lack of regular cleaning of drains by authority (45%) are the key reasons for water logging in the city. Local government has a great deal of doing to solve this problem. Recently, the local government has taken some initiatives to recover the canals that were illegally occupied. For example, Barishal district administration recovered 'Jail Canal' in 2016 (Barisal: No longer, 2016). Alam and Rabbani (2007) stated that the reconstruction projects were not successfully completed in the past years and the canals are yet to be recovered from illegal ownership since these canals help to improve the natural drainage system of the area. Moreover, this poor drainage system can cause water logging". Tawhid (2004) showed evidence of economic and educational losses in Dhaka city for water logging.

This study found that waste pollution correlates with health problems (71%). This waste pollution also causes other types of pollution such as air pollution (51%) and water pollution (69%). However, after the change of the leadership in local government, the situation has improved in recent times.

As mentioned by previous research, rapid urban growth causes many new problems such as lack of drinking water, poor housing, lack of drainage, industrial pollution, a reduction in groundwater, surface water contamination and so on (LGED, 2017; Alam & Rabbani, 2007). In addition, climate refugees create extra pressure on local government which causes insufficiency in basic amenities (BBS, 2017). Similarly, this study also found that Barishal city has the environmental problems of water logging (63%), water pollution (68%), housing shortage (51%), inadequate sanitation (69%), lack of pure drinking water (74%), air pollution (54%), waste pollution (75%), and poor waste disposal system (59%).



Like the view of environmental realism (see *theoretical framework*), the study also found that no environmental problems in the city were solved. However, the problems could be managed more efficiently since the urban growth in the city is slow, which could be managed by proper planning and action.

Consequently, due to the effects of climate change and rapid urbanization in Bangladesh, urban areas are becoming important from the point of view of environmental problems. In addition, since the urban poor are mostly affected by these environmental problems, these areas of study have implications from an inequality perspective and deserve extra attention from researchers and policy makers.

Conclusion

The study concludes that there are many environmental problems in Barishal city. Water logging, water pollution, housing shortage, inadequate sanitation, lack of pure drinking water, air pollution, waste pollution, and poor waste disposal system are common environmental problems in the city. In addition, the study observed that environmental problems not only originated based on individual causes but also based on socio-political causes.

The current study examined each environmental problem described above separately to find out the factors and effects of the environmental problems. The factors of water logging are lack of planned drainage system, insufficient drain, and lack of regular cleaning of drains by authority.

Moreover, the study found some particular effects of the environmental problems. For instance, growing slums, environmental problems due to poor environmental conditions in slums, growth of informal sectors, and proliferating health problems are the major effects of housing shortage.

The study found that most of the respondents migrated mainly from different districts of Barishal division to Barishal city due to the causes related to climate change. Thus, it was observed that climate change forced people to migrate to other places especially cities and this process caused rapid urbanization, and therefore deteriorated environmental problems. This study also observed that not only large industrial cities, but also comparatively smaller less industrialized cities are affected by climate induced migration and unplanned urbanization.

Finally, this study recommends that future research should investigate the ways of resilience to urban environmental problems caused by climate change in less-industrialized-comparatively-smaller coastal cities (e.g., Barishal city)?

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ASSESSMENT OF AUTO-RICKSHAW OPERATION AS A STRATEGY TO ADDRESS CLIMATE-INDUCED MIGRATION IN COASTAL URBAN REGION OF BANGLADESH

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Abstract

The research evaluates auto-rickshaw (battery and diesel operated) operations to deal with climate-induced migration in Khulna and Barishal metropolitan cities of Bangladesh. Multi-stage random sampling has been used to select the study area, and a total of 835 auto-rickshaw drivers have been chosen by using a convenience sampling technique. A set of statistical tools, such as descriptive statistics, chi-square tests, and logit models, has been used to fulfill the research objective. Results from descriptive statistics show that the respondents' household income has been significantly increased after starting an auto-rickshaw operation. Besides, most of the respondents are satisfied with their current job and willing to continue this occupation. Some factors, such as an increase in age, ownership, driving license, and experience, are negatively associated with the probability of leaving the current job, which is statistically significant. There also exist some constraints in getting a license and loan, the prevalence of overtaking, and street accidents.

Keywords: Auto-rickshaw, Climate-induced Migration, Coastal Cities, Logit Model

Introduction

The modern transport system has been a crucial part of urban dwellers in most emerging cities worldwide. A thriving modern city must ensure a high level of accessibility and quality of life (Mingardo, 2008). Day by day, demand for passenger vehicles has been growing in urban areas with rapid urbanization, increasing standard of living, and the fastest infrastructure construction (Yan & Crookes, 2009). There have been many economic and environmental concerns about the private transport sector's growth and emergence in urban areas (Tsekeris & Geroliminis, 2013). However, this sector provides many employment opportunities. In recent times, the emission of green house gases (GHGs) particularly CO₂ from fossil fuel energy has been increased with the rise in transport-based economic activities (Ramachandra, 2009).

In recent decades, many urban cities in South Asian countries, including Bangladesh, have experienced a rapid change in urban transport in the event of fast urbanization and accelerated economic development (Barter, 2000). Over recent years, the trend of using motorized and non-motorized vehicles in urban areas is more than in the whole of Bangladesh (Siddique, Iffat, & Islam, 2012). The country's popular road transport modes are bus, train, truck, car, automobile, taxi, rickshaw, auto-rickshaw, and bicycle (Basri et al., 2014; Mannan & Karim, 2001). Rickshaw, one of the oldest and frequently used modes of urban transport providing

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employment opportunities to the low population (Begum & Sen, 2005), has been competing with the newly introduced transportation modes of the auto-rickshaw and electronic rickshaw. Auto-rickshaws are different from the traditional form of a rickshaw because it is automated and run on a motor and engine powered by rechargeable batteries and diesel oil (Arefin, Mallik, & Asfaquzzaman, 2018). Almost all major cities of Bangladesh are occupied by battery and diesel-operated auto-rickshaw due to low travel costs, comfort, and safety to the passenger (Rana et al., 2013).

Bangladesh has been severely affected by the growing number of climate-induced migrations in recent years (Islam et al., 2014). For some reason, either voluntarily or involuntarily, people are forced to migrate from their place of origin. The increase in climate-induced disasters including, cyclones, floods, droughts etc. caused massive damage to the life and livelihood of the climate-vulnerable people and led them to migrate to nearby urban areas (Chen & Mueller, 2018; Islam & Shamsuddoha, 2017). For instance, after the significant cyclones, Sidr (2007) and Aila (2009), thousands of cyclone-affected people took shelter in Khulna and Barishal cities with the hope of employment and settlement opportunities there (Ahsan, Kellett, & Karuppanan, 2014; Islam & Hasan, 2016). However, the reality is not always in favor of the new migrants. In most cases, they find accommodation in slums which are sub-standard, over crowded, and unhealthy. Besides, job opportunities are also scarce and competitive. Most of them have no other choice but to accept low-grade and informal jobs such as hawker, day-labor, small business, driving rickshaw, auto-rickshaw, and home service, among others (Uddin, 2018). A study conducted by Roy & Basu (2019) on Khulna city identified that more than fifty percent of the climate-induced migrants are engaged in operating auto-rickshaw along with day labor and small local business. Findings of another study conducted on Dhaka city stated that climate-induced migrants are more socio-economically vulnerable than non-climate-induced migrants, with thirty percent engaged in rickshaw pulling (Adri & Simon, 2018).

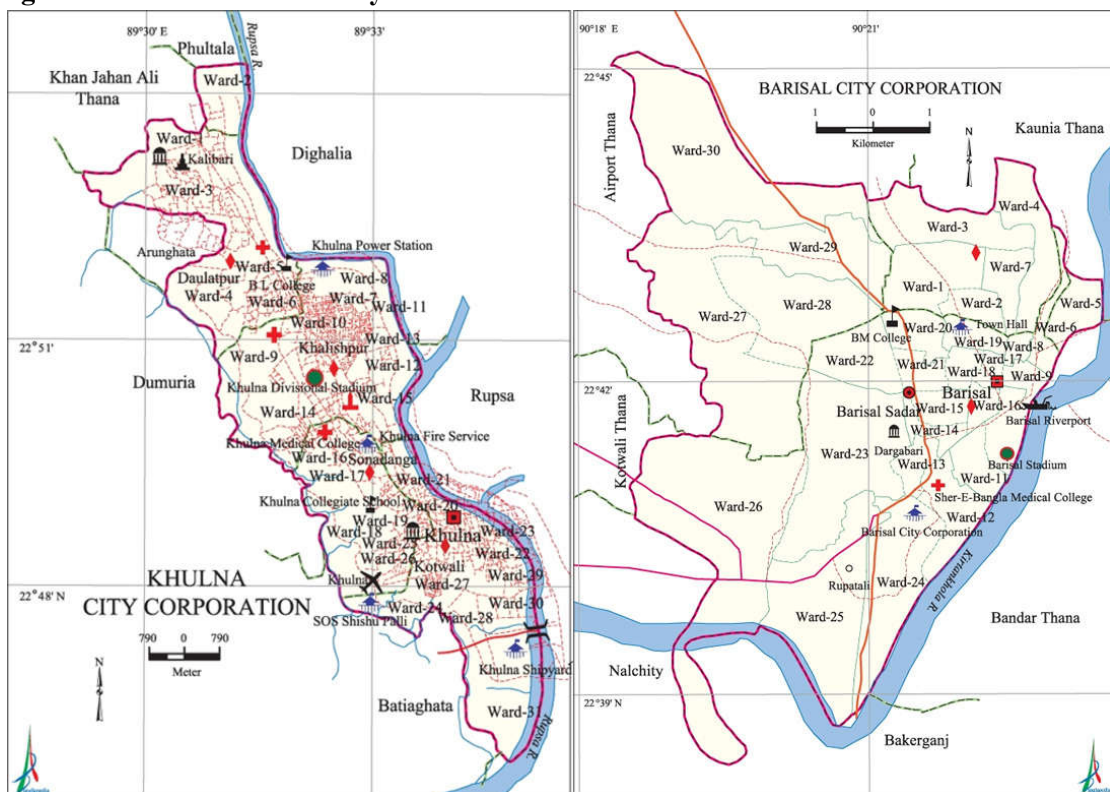
One of the significant problems for climate-induced migrants is finding an excellent job for maintaining the family. In most cases, it is highly challenging to get one (Rana, 2011). However, the situation has started to change after introducing auto-rickshaws in the country after 2008. After that, this vehicle mode became popular and provided employment opportunities in rural and urban areas (Roy & Ahmed, 2017). As a result, it becomes a significant income source for the climate-induced migrants in urban areas (Roy & Basu, 2019). However, current literature lacks the economic assessment of auto-rickshaw operation to maintain the climate-induced migrants' livelihood style in Bangladesh's coastal cities. This research aims to fulfill the gap and provide insight into the evaluation of auto-rickshaw operation as a strategy to deal with climate-induced migration in coastal towns of Bangladesh.

Methods

Study area selection

The study was conducted over two large metropolitan cities, namely Khulna city and Barishal city, in the southern region of Bangladesh (Figure 1). The size of the Khulna City Corporation (KCC) area is 40.79 square kilometers, which is located between 24°45' and 24°54' north latitudes and in between 89°28' and 89°35' east longitudes. On the other, the size of the Barishal City Corporation (BCC) area is 24.91 square kilometers, and it is located between 22°38' and 22°45' north latitudes and in between 90°18' and 90°23' east longitudes (Palit, 2014 and Palit, 2015).

Figure 1. Location of the Study Area



Source: Authors' compilation based on www.banglapedia.org.

Over the past years, Bangladesh's coastal region has experienced several major natural disasters such as cyclone Sidr in 2007, cyclone Aila in 2009, and cyclone Bulbul in 2019 (Haque et al., 2019). These disasters created destruction in the impacted region, forcing the affected people to take shelter in nearby cities. Being situated in the coastal areas, both Khulna and Barishal Cities became the primary destination for those vulnerable households termed as climate-induced migrants (Saha, 2017).

**Sample selection**

Climate-induced migrants engaged in either battery-run auto-rickshaw or diesel-run auto-rickshaw operations have been considered as a sample of the study. Here, climate-induced migrants are those forced to move to the Khulna or Barishal city from climate-vulnerable coastal rural areas after disasters before 2017. Respondents were asked what motivated them to come to the town to distinguish between climate-induced and non-induced samples. Based on the response, they were interviewed; otherwise, they were not counted as a sample. Among them, those who operate outside the city area were also excluded from the interview. A brief description of the battery-run and diesel-run auto-rickshaw is given in the research of Rana et al., (2013). A total of 835 respondents have been finally selected for data collection (Table 1). Data were collected using a face-to-face interview using a pre-tested questionnaire. Primary data were collected between September and October of 2017.

Table 1: Selection of Sample

Study Area	Category of Auto-rickshaw	Sample Size
Khulna City Corporation (KCC)	Battery-operated	300
	Diesel-operated	300
	Sub-total	600
Barisal City Corporation (BCC)	Battery-operated	135
	Diesel-operated	100
	Sub-total	235
Total		835

Source: Authors' compilation.

Data Analysis**Descriptive statistics**

The differences between two groups of climate-induced migrants, battery-run auto-rickshaw drivers, and diesel-run auto-rickshaw drivers, have been assessed using independent samples t-test and Chi-square (χ^2) test. The independent sample t-test is used to identify statistically significant differences between the two groups regarding socio-economic conditions. Quantitative variables such as age, education, experience, income, expenditure, etc., have been used in the t-test to determine differences across the groups. On the other hand, for qualitative variables such as choosing this occupation, license and its getting problem, the prevalence of overtaking, and street accidents, Chi-square (χ^2) tests have been applied to measure the statistical distinction between the groups. Statistical software STATA₁₄ has been used to calculate descriptive statistics.

Logit Model

A study conducted by Roy and Basu (2019) on climate-induced migrants in Khulna City of Bangladesh shows that more than fifty percent of migrants engaged themselves in auto-rickshaw operation as their primary profession. This study intends to investigate the underlying factors influencing climate-induced migrants' occupation in Khulna and Barishal City. The



decision to adopt auto-rickshaw driving is estimated using the logistic regression model (e.g., Logit model). The dependent variable is captured binary response, e.g., 0 and 1. In this case, the perception to continue auto-rickshaw operation equals 1, where the opposite answer is equal to 0. Parameters in the logit regression model are calculated using the maximum likelihood estimation (MLE) approach. In this study, the probability of continuing driving operation can be specified as the following Equation (1) (Islam et al., 2021):

$$P_i = F(a + \beta_{x_i}) = \frac{1}{1 + e^{-(B_1 + B_2 x_i)}} \dots (1)$$

P_i is the probability of staying on driving occupation subject to x_i , where x_i is the independent vector variables, and e is the exponential logarithm.

A total of six logit regression models have been specified to determine the factors influencing the adoption of auto-rickshaw operation between cities and auto-rickshaw types (Equation 2-7).

$$\text{Model 1: } \left[\text{Ln} \left[\frac{P_i}{1-P_i} \right] \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i \dots (2)$$

$$\text{Model 2: } \left[\text{Ln} \left[\frac{P_i}{1-P_i} \right] \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i \dots (3)$$

$$\text{Model 3: } \left[\text{Ln} \left[\frac{P_i}{1-P_i} \right] \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i \dots (4)$$

$$\text{Model 4: } \left[\text{Ln} \left[\frac{P_i}{1-P_i} \right] \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i \dots (5)$$

$$\text{Model 5: } \left[\text{Ln} \left[\frac{P_i}{1-P_i} \right] \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i \dots (6)$$

$$\text{Model 6: } \left[\text{Ln} \left[\frac{P_i}{1-P_i} \right] \right] = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon_i \dots (7)$$

P_i refers to the probability of continuing and leaving the auto-rickshaw operation; more specifically, if $P_i=1$ indicates the job's continuation, and $P_i=0$ means non-continuation of the job. Model 1 at Equation (2) captures the factors affecting the decision of Battery-run auto-rickshaw operation at Khulna City Corporation (KCC). In contrast, Model 2 at Equation (3) covers Barishal City Corporation (BCC) of the same occupational group. Similarly, Model 3 and Model 4 at Equation (4) and Equation (5) estimate the decision on diesel-run auto-rickshaw operation at KCC and BCC, respectively. On the other hand, Model 5 at Equation (6) records the factors affecting battery-run auto-rickshaw driving covering both KCC and BCC. Similarly, Model 6 at Equation (7) identifies factors that jointly affect diesel-run auto-rickshaw drivers at KCC and BCC jointly.

Here, X_1 is the age of the respondent (in years); X_2 is the education level (years of schooling); X_3 is the ownership status of the auto-rickshaw (owner = 1, 0 = otherwise); X_4 is holding a driving license (yes = 1, 0 = otherwise); X_5 is the driving experience (in years); X_6 is the monthly income (in BDT); β_0 is the intercept and β_1 to β_6 are coefficients, and ε_i is the error term.



Results and Discussion

Summary statistics of the respondents

Table 2 summarizes the personal profile of the respondents. It has been seen that the mean age of diesel-run auto-rickshaw drivers is higher than battery-run auto-rickshaw drivers, and it is statistically significant at a 1 percent level. In terms of regional effect, it has been found that, on average, respondents at KCC have a higher level of age than their counterparts in BCC. It is also statistically significant at the 1 percent level. Although education level between battery-run and diesel-run auto-rickshaw drivers does not vary statistically, region-level estimates show a statistically significant difference in education level between KCC and BCC.

[Insert Table 2 and Table 3 here]

The results presented in Table 2 state that the average number of the battery-run auto-rickshaw owner is higher than diesel-run auto-rickshaw drivers, which is statistically significant at a 1 percent level. On the other, the average number of auto-rickshaw owners is higher in BCC compared to KCC. However, on average, diesel-run auto-rickshaw drivers hold more driving licenses than battery-run auto-rickshaw drivers, which is statistically significant at a 1 percent level. On the other hand, drivers in KCC have more driving licenses than in BCC on average. In the case of driving experience, battery-run auto-rickshaw drivers have higher experience than diesel-run auto-rickshaw drivers. However, on average, drivers in KCC possess more years of driving experience than their counterparts in BCC, and it is statistically significant at a 1 percent level.

Reason for choosing auto-rickshaw driving as the main occupation

After coming to the city area, climate-induced migrants adopt various occupations to maintain their livelihood. They have been asked to reveal why they chose auto-rickshaw driving as their primary occupation. Their response is summarized in Table 3 by using the Chi-square test. It has been found from Table 3 that respondents have broadly mentioned three reasons to choose this occupation. Most of them identified auto-rickshaw driving as a source of high income compared with other available jobs such as rickshaw-puller and day-laborer (Mazumder & Roy, 2018). Different responses are marked as easy to maintain this work and the job's safety compared to other positions (Rahim et al., 2013). Notably, test statistics of Chi-square is found to be insignificant. It supports the view that choosing this occupation across the region or auto-rickshaw category shows no statistical difference among the respondents. Whether in KCC or BCC, the motivation for choosing the profession does not vary, and it is the same for both types of auto-rickshaws.

Economic analysis of the auto-rickshaw operation

Another part of the study focuses on measuring the changes in some economic variables of the respondents. The estimated results have been presented in Table 4. It has been seen that from the previous job, battery-operated auto-rickshaw drivers earned less than diesel-operated auto-rickshaw drivers. However, after taking the current position, there has been no significant



income difference among these groups. The average income earned per month is higher in BCC than KCC in previous and current jobs.

[Insert Table 4 here]

On the other hand, living cost is higher in BCC than in KCC. From Table 4, on average, a BCC respondent spends BDT 12,000.00 per month, where it is only BDT 10,000 in KCC, which is significant at a 1 percent level. Moreover, the monthly household expenditure of diesel-operated auto-rickshaw drivers is significantly higher than battery-operated auto-rickshaw drivers. Overall, the respondents' monthly income-expenditure and savings have been increased after taking this occupation. Rahim et al. (2013) found similar results among the auto-rickshaw drivers in Rajshahi city, Bangladesh. To keep auto-rickshaw running smoothly, on average, the repair cost of diesel-operated auto-rickshaw is considerably higher than battery-run auto-rickshaw (Newaz et al., 2014), which is also higher in BCC compared to KCC.

Factor affecting the occupational choice of auto-rickshaw operation

One of the study's vital goals is to estimate the auto-rickshaw operation's role in the respondents' livelihood style. The respondents have also been asked if they want to continue the occupation or leave it. It is evident that if they earn enough money from the profession, they would like to keep continuing this; otherwise, quit. The probability of staying or leaving the job is captured using the logit model presented in Table 5. A total of six models have been formulated to estimate the factors affecting the decision of the respondents. Estimated results from model 1 provide factors determining the decision of battery-operated auto-rickshaw drivers operating in KCC only. It has been found that an increase in the age of the battery-operated auto-rickshaw drivers decreases the probability of quitting the driving occupation, and it is significant at the 10 percent level. Having increased driving experience reduces the likelihood of leaving the current job, which is statistically significant at the 10 percent level. On the other hand, it increases the probability of leaving the job and is statistically significant at a 1 percent level. In the case of diesel-operated auto-rickshaw (Model 2), it has been estimated that an increase in age and education decreases the probability of leaving the job in the same area, and the estimates are statistically significant at 5 and 1 percent level respectively.

[Insert Table 5 here]

Similar results have been observed for battery-operated auto-rickshaw drivers operating in BCC (Model 3). For instance, estimated results indicate that increase in education reduces the probability of continuing the job among the respondents. On the other hand, respondents who have a driving license and long experience driving auto-rickshaw are less likely to leave the job. Besides, an increase in income tends to reduce the probability of switching positions. Estimates for diesel-operated auto-rickshaw drivers show similar results (Model 4). It has been estimated that having ownership and driving license reduces the probability of leaving the occupation among the respondents, leaving other factors constant in the same area. This result is consistent with the findings of Mazumder & Roy (2018).



After controlling the auto-rickshaw type, an effort has been made to estimate the factors affecting the decision of the responses in KCC and BCC separately (Model 5 and 6), respectively. Results from Model 5 indicate that increase in age decreases the probability of auto-rickshaw (both battery-operated and diesel-operated) driving in KCC while having one more year of education increases the likelihood of living the current job. Also, having more years of driving experience reduces the probability of quitting the job for both auto-rickshaw operators. A similar result has been observed in the case of auto-rickshaw drivers in BCC (Model 6). Aggregately, the probability of leaving the profession is negatively associated with an increase in age, ownership, driving license, and driving experience. On the other, as expected, an increase in education and income increases the probability of leaving the driving occupation accordingly.

Barriers to auto-rickshaw operation

Although auto-rickshaw operation appears lucrative to the climate-induced migrants to earn money, they experience several problems. This section examines the issues accruing to the type of auto-rickshaw and area of operation. It has been found that getting a license for a battery-operated auto-rickshaw is much more manageable than a diesel-operated auto-rickshaw in KCC, which is statistically significant ($p < 0.00$). This problem is badly faced by battery-operated auto-rickshaw operation in BCC ($p < 0.00$). Most diesel-operated auto-rickshaw drivers experienced much more hustle in getting loans than their counterparts ($p < 0.00$) in KCC.

[Insert Table 6 here]

The same problem is highly confronted by the battery-operated auto-rickshaw drivers in BCC ($p < 0.01$). The overtaking situation is highly faced by diesel-operated drivers than battery-operated auto-rickshaw drivers in KCC ($p < 0.00$) and BCC ($p < 0.03$), respectively. However, diesel-operated auto-rickshaw drivers face a higher number of the accidental event than battery-operated auto-rickshaw in KCC ($p < 0.02$); both operators equally meet this in BCC ($p < 0.01$). The findings are consistent with the conclusions presented by Rana et al. (2013) and Ahmed & Karmaker (2019).

Concluding Remarks

The study presents an auto-rickshaw operation assessment to cope with climate-induced migration's adverse impact in Bangladesh's coastal cities. After migrating to the urban area, climate-induced migrants have few choices regarding job opportunities. Recently, auto-rickshaws (both battery and diesel-operated) have rendered a unique, economically feasible, and viable option for these migrants to earn their livelihood. It has been found that the income and consumption level of the migrants have been increased compared with the previous job after engaging in auto-rickshaws operations. The statistical analysis provides significant evidence that unless education increases, these migrants prefer to stick to the job as long as their age and driving experience increase and they have ownership status and driving license of the auto-rickshaws. However, there are problems with getting loans and licenses, overtaking, and road accidents. Although day by day, the increase in the number of auto-rickshaws is putting



pressure on road congestion in the area, this mode of transportation can be used to tackle the unemployment problems faced by climate-induced migration in coastal cities of Bangladesh.

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**Appendix****Table 2: Summary Statistics**

Variables	Category	Obs.	Mean	Std. Dev.	Mean difference	t-value
Age	KCC	600	34.96	9.00	3.50	4.86*
	BCC	235	31.46	10.23		
	Diesel-Operated	400	36.26	8.87	4.38	6.84*
	Battery-Operated	435	31.88	9.57		
Education	KCC	600	6.70	2.28	0.72	3.20*
	BCC	235	5.97	3.14		
	Diesel-Operated	400	6.60	2.87	0.209	1.02
	Battery-Operated	435	6.39	3.01		
Ownership	KCC	600	0.24	0.42	-0.17	-5.20*
	BCC	235	0.42	0.49		
	Diesel-Operated	400	0.20	0.40	-0.17	5.56*
	Battery-Operated	435	0.37	0.48		
Driving license	KCC	600	0.51	0.50	0.07	2.03**
	BCC	235	0.43	0.49		
	Diesel-Operated	400	0.75	0.42	0.50	16.85*
	Battery-Operated	435	0.25	0.43		
Driving experience	KCC	600	3.45	2.34	0.483	2.71*
	BCC	235	2.96	2.23		
	Diesel-Operated	400	3.16	2.19	-0.28	-1.79**
	Battery-Operated	435	3.45	2.43		

[Note: Obs. = Observation, Std. Err. = Standard Error, Std. Dev. = Standard Deviation, * = significant at 1 percent level, ** = significant at 5 percent level]

Source: Authors' compilation.



Table 3: Reason to Choose Auto-rickshaw

Category	High income (%)	Easy job (%)	Safe job (%)	Test Statistics (P-value)
<u>For Battery-run Auto-rickshaw</u>	(n=302)	(n=78)	(n=55)	
KCC	68.87	69.23	69.09	$\chi^2 = 0.0041$
BCC	31.13	30.77	30.91	($p = 0.99$)
<u>For Diesel-run Auto-rickshaw</u>	(n=260)	(n=75)	(n=65)	
KCC	76.15	72.00	73.85	$\chi^2 = 0.5908$
BCC	23.85	28.00	26.15	($p = 0.74$)
<u>For KCC</u>	(n=406)	(n=108)	(n=86)	
Battery-run Auto-rickshaw	51.23	50.00	44.19	$\chi^2 = 1.4091$
Diesel-run Auto-rickshaw	48.77	50.00	55.81	($p = 0.49$)
<u>For BCC</u>	(n=156)	(n=45)	(n=34)	
Battery-run Auto-rickshaw	60.26	53.33	50.00	$\chi^2 = 1.5865$
Diesel-run Auto-rickshaw	39.74	46.67	50.00	($p = 0.45$)

Note: Statistical results are provided from the Chi-square test, n = number of observations.

Source: Authors' compilation.

Table 4: Changes in Income, Consumption, and Other Variables in BDT (Month)

Variables	Auto-rickshaw Category	Obs.	Mean	Std. Dev.	Mean difference	t-value
Income from the Previous Job	KCC	600	6,672.58	3,815.53	2,983.16	8.37*
	BCC	235	9,655.74	6,244.92		
	Diesel-Operated	400	9,027.5	3,975.23	2,908.76	9.13*
	Battery-Operated	435	6,118.73	5,098.25		
Income from Current Job	KCC	600	17,890	8,781.57	3,651.27	3.13*
	BCC	235	21,541.28	17,012.97		
	Diesel-Operated	400	18,837.5	6,846.77	-153.76	-0.14
	Battery-Operated	435	18,991.26	20,078.32		



Household Expenditure	KCC	600	10,549.17	3,430.39	2,214.66	7.19*
	BCC	235	12,763.83	5,186.74		
	Diesel-Operated	400	11,472.5	4,066.24	575.94	2.02**
	Battery-Operated	435	10,896.55	4,158.67		
Repair Cost	KCC	600	1,896	1,226.10	1,272.72	11.24*
	BCC	235	3,168.72	1,961.51		
	Diesel-Operated	400	2,793	1,861.64	1,034.26	10.01*
	Battery-Operated	435	1,758.73	1,039.12		

[Note: Obs. = Observation, Std. Dev. = Standard Deviation, * = significant at 1 percent level, ** = significant at 5 percent level]

Source: Authors' compilation.

Table 5: Determinants of the Occupational Choice of Auto-rickshaw Operation

Variables	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6	
	Coef.	Dy/dx	Coef.	Dy/dx	Coef.	Dy/dx	Coef.	Dy/dx	Coef.	Dy/dx	Coef.	Dy/dx
Age (X ₁)	-0.067 (0.03) [0.07]	-0.01*** [0.06]	-0.055 (0.03) [0.05]	-0.01** [0.04]	-0.033 (0.02) [0.12]	-0.01 [0.11]	-0.004 (0.02) [0.88]	-0.0008 [0.88]	-0.062 (0.02) [0.00]	-0.01* [0.00]	-0.051 (0.02) [0.00]	-0.01* [0.00]
Education (X ₂)	0.253 (0.34) [0.00]	0.03* [0.00]	0.078 (0.09) [0.41]	0.01 [0.41]	0.221 (0.05) [0.00]	0.03* [0.00]	0.045 (0.15) [0.76]	0.008 [0.76]	0.111 (0.24) [0.02]	0.02** [0.02]	0.150 (0.29) [0.00]	0.02** [0.02]
Ownership (X ₃)	0.135 (0.34) [0.69]	0.02 [0.69]	-0.586 (.45) [0.19]	-0.10 [0.21]	-0.21 (0.43) [0.63]	-0.03 [0.62]	-1.46 (0.51) [0.00]	-0.28* [0.00]	0.204 (0.41) [0.41]	-0.03 [0.41]	-0.496 (0.29) [0.09]	-0.08* [0.08]
Driving License (X ₄)	-0.379 (0.36) [0.29]	-0.05 [0.27]	-0.831 (0.52) [0.11]	-0.15 [0.13]	-0.955 (0.37) [0.01]	-1.15** [0.02]	-2.08 (0.63) [0.00]	-0.42* [0.00]	-0.442 (0.28) [0.12]	-0.07 [0.11]	-1.16 (0.28) [0.00]	-0.23* [0.00]
Driving Experience (X ₅)	-0.210 (0.11) [0.07]	-0.03*** [0.07]	-0.400 (0.12) [0.00]	-0.07* [0.00]	-0.238 (.09) [0.01]	-0.03** [0.01]	-0.043 (0.10) [0.69]	-0.008 [0.69]	-0.292 (0.07) [0.00]	-0.05* [0.00]	-0.124 (0.07) [0.06]	-0.02*** [0.06]
Income (X ₆)	0.006 0.008 [0.44]	0.001 [0.44]	0.003 0.02 [0.21]	0.006 [0.21]	-0.058 0.03 [0.09]	-0.008*** [0.09]	0.018 0.03 [0.51]	-0.003 [0.51]	0.007 0.02 [0.60]	-0.001 [0.60]	0.039 (0.02) [0.06]	0.006** [0.05]
Constant	-0.522 (1.08) [0.63]	-	2.71 (1.22) [0.02]	-	0.836 (1.15) [0.47]	-	1.58 (1.35) [0.24]	-	1.28 (0.74) [0.08]	-	0.539 (0.84) [0.52]	-
Log pseudolikelihood	-126.59		-68.67		-138.14		-55.74		-229.63		-211.21	
Wald chi square	35.30		32.78		47.36		23.14		54.87		54.45	
Prob > chi2	0.00		0.00		0.00		0.00		0.00		0.00	
Observation	300		135		300		100		435		400	

[Note: Values in the 1st parentheses show the standard error, and in 3rd parentheses show p-value. Coef. = Coefficient, Dy/dx = Marginal effect.

* = significant at 1 percent level, ** = significant at 5 percent level, *** = significant at 10 percent level]

Source: Authors' compilation.



Table 6: Constraints Both KCC and BCC

Category	Very Low (%)	Low (%)	Average (%)	High (%)	Very High (%)	Test Statistics (P-value)
License Getting Problem						
<u>For KCC</u>	(n=1)	(n=0)	(n=15)	(n=182)	(n=402)	
Battery-run Auto-rickshaw	100	0	93.33	64.84	41.54	$\chi^2 = 39.79^*$ ($p = 0.00$)
Diesel-run Auto-rickshaw	0.00	0.00	6.67	35.16	58.46	
<u>For BCC</u>	(n=2)	(n=16)	(n=44)	(n=77)	(n=96)	
Battery-run Auto-rickshaw	0.00	62.50	54.55	42.86	70.83	$\chi^2 = 16.76^*$ ($p = 0.00$)
Diesel-run Auto-rickshaw	100	37.50	45.45	57.14	29.17	
Loan Getting Problem						
<u>For KCC</u>	(n=2)	(n=2)	(n=31)	(n=242)	(n=323)	
Battery-run Auto-rickshaw	0.00	50	80.65	47.93	48.92	$\chi^2 = 14.21^*$ ($p = 0.00$)
Diesel-run Auto-rickshaw	100	50	19.35	52.07	51.08	
<u>For BCC</u>	(n=2)	(n=27)	(n=81)	(n=79)	(n=46)	
Battery-run Auto-rickshaw	50	74.07	62.96	41.77	65.22	$\chi^2 = 13.18^{**}$ ($p = 0.01$)
Diesel-run Auto-rickshaw	50	25.93	37.04	58.23	34.78	
Overtaking Problem						
<u>For KCC</u>	(n=4)	(n=164)	(n=172)	(n=193)	(n=67)	
Battery-run Auto-rickshaw	100	23.17	29.65	59.07	34.33	$\chi^2 = 92.63^*$ ($p = 0.00$)
Diesel-run Auto-rickshaw	0.00	76.83	70.35	40.93	65.67	
<u>For BCC</u>	(n=13)	(n=39)	(n=125)	(n=53)	(n=5)	
Battery-run Auto-rickshaw	61.54	74.36	58.40	41.51	40.00	$\chi^2 = 10.21^{**}$ ($p = 0.03$)
Diesel-run Auto-rickshaw	38.46	25.64	41.60	58.49	60.00	
Accident Problem						
<u>For KCC</u>	(n=94)	(n=226)	(n=181)	(n=91)	(n=8)	
Battery-run Auto-rickshaw	57.45	50.88	53.04	35.16	37.50	$\chi^2 = 11.33^{**}$ ($p = 0.02$)
Diesel-run Auto-rickshaw	42.55	49.12	46.96	64.84	62.50	
<u>For BCC</u>	(n=31)	(n=102)	(n=83)	(n=15)	(n=4)	
Battery-run Auto-rickshaw	74.19	45.10	65.06	66.67	50.00	$\chi^2 = 12.49^{**}$ ($p = 0.01$)
Diesel-run Auto-rickshaw	25.81	54.90	34.94	33.33	50.00	

[Note: * = significant at 1 percent level, ** = significant at 5 percent level. Statistical results are provided from Chi-square test]

Source: Authors' compilation.



LIVELIHOOD ASSETS AND VULNERABILITY OF LIVING OF URBAN SLUM DWELLERS: A SOCIOLOGICAL STUDY IN BARISAL CITY

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Abstract

The aim of this study is to understand the livelihood assets and vulnerability of urban slum dwellers where livelihood is a means for constructing the living, and which organizes people's capabilities, assets, and knowledge to assure the requirements of life. Therefore, livelihood becomes vulnerable when it fails to adapt with or regain from stresses and shocks where vulnerability can be identified as the incapability to withstand the effects of livelihood security. Moreover, the vulnerability of a slum can be measured on uncountable scales like the status of housing, unemployment rate, access to social, physical, human, natural, and financial assets. Thus, to understand the livelihood assets and vulnerability of urban slum dwellers, this paper considers 'the assets pentagon framework' a part of DFID's 'sustainable livelihood framework' as the theoretical framework. In addition, a methodological triangulation has been followed to fulfil the objectives of this study where a total of 120 respondents were interviewed face to face for acquiring quantitative data and six case studies were conducted to gather qualitative data from the study area (KDC slum). Actually, the KDC slum was purposively selected as the study area which is located in the central position of Barishal Metropolitan City. The findings of the study refer that educational insufficiency, poor social contract, unemployment, dirty and unhealthy sanitation, and density of population are the major reasons behind KDC slum dweller's vulnerable livelihood because all of these assets are in poor conditions. This study also reveals numerous complications like- political collision, lack of security, less social settlement, etc. are occurring due to the lacking of livelihood assets.

Keywords: Livelihood, Asset, Slum, Vulnerability.

Introduction

Bangladesh is one of the world's poorest nations where almost one-third of its population is living under extreme poverty. The number of urban populations in Bangladesh is about 4,19,43,532 or almost 28% of its total population (United Nations Development Programme [UNDP], 2011; United Nations Population Fund [UNFPA], 2011). Even, in South Asia, Bangladesh ranked third in the section of the largest population after India and Pakistan (Bangladesh Bureau of Statistics [BBS], 2013). In Bangladesh, a total number of 13,938 slums are coating all city corporations, municipalities, sub-district though the number of slums was only 2,991 in 1997. Even the number of slum populations has increased by 214% to 2,227,754 people in 2014 as compared to 709,675 people in 1997 (BBS, 2015). Approximately, 4 million people have no access to safe water where 2.2 million of them are staying in slums through the total population is 160 million (Latif, Irin, & Ferdous, 2016). Here, the definitions of slums may differ across or even within cities. But any community can be considered as a slum if it fulfills

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four of five basic conditions: a) poor shelter conditions, b) density of population where around 300 people per acre and predominantly, c) lack of sanitation and adequate water facilities, d) majority's income will be below the poverty line, e) lack of security in land and tenure sectors (Angeles et al., 2009). The growing urban slum population is the consequence of rural-urban migrations (Rahman, Hossain, & Singha, 2016). Annually, 300,000- 400,000 poor rural migrants arrive in cities (Water and Sanitation for the Urban Poor [WSUP], 2007) due to numerous 'push' factors like- natural calamities, limited access on land, rural unemployment and underemployment, and 'pull' factors like- income opportunity, better-living facilities (UN-Habitat, 2008; World Bank, 2007). The cash-based economies are the major characteristics of urban centres where even the extremely poor have to fulfill their basic needs by buying in cash from the market (Ahmed et al., 2007; Amendah, Buigut, & Mohamed, 2009). Alongside the megacity of Dhaka, Barishal is a major city that lies on the bank of the Kirtankhola river in south-central Bangladesh (Barisal city corporation [BCC], 2014). The number of populations under the jurisdiction of the Barisal city corporation stands around 328,278 (BBS, 2013). The male population and female population cover 51.63 percent and 48.37 percent of the total populations respectively (BCC, 2014). In 2014, the number of slums in Barishal is almost 351 which covers 0.98% of the total number of slums in Bangladesh and Barishal slum dwellers own only 4545 households (HH) though the total number of slums HH is 12,132 under Barishal Division (BBS, 2015). The living conditions of the poor urban-slum dwellers are very pathetic. Likewise, the health conditions in third-world cities are very alarming and among the poor communities, thousands of children are still dying due to inadequate water and sanitation-related disease (Bartlett, 2001). Moreover, the scenario in the slums of Barisal City Corporation is not different where the accessibility and affordability of legal connection are out of reach of the slum dwellers (Rahman et al., 2016). Even, among urban slum dwellers, the level of education is very poor and the rates of high school drop-out are sorrowful. The lion portion of migrants in slums never attended schools (Bayes, 2018). Though people migrate to urban for better livelihood they can't prosper financially due to the lack of capital for investment in the urban labour market (Opel, 2000). Even they are facing jobs related insecurity for the absence of formal contracts and agreements (Banks, Roy, & Hulme, 2011). Additionally, another cause for being vulnerable is limited working sectors, poor wages, lack of security, lack of professional skills (Maligalig, Cuevas, & Rosario, 2009). Though rickshaw pulling is an individual profession with flexibility about their working hours and income, most rickshaw pullers have to face numerous health-related vulnerabilities due to the lack of proper nutrition (Begum & Sen, 2005). Food insecurity is another form of vulnerability where two-thirds of slum dwellers in Barishal were consuming less than 2,122 kcal/capita/day. Additionally, slum householders invest almost 60% of their expenditures towards food who are staying at the slums in Barishal and Sirajganj (BBS, 2013). Eventually, the threat of eviction is another vulnerability of the slum dwellers because they are compelled to live in an environment of crime, violence, and anarchy conducted by the 'Mastaans' (Gangster, a member of a group of violent criminals).



Even, the level of social bonding is very insufficient between urban slum dwellers and their village-based ancestors (Shafi & Payne, 2007). They have very limited adaptation mechanisms for coping with urban society and as a result, those individually vulnerable households are also collectively more vulnerable (Hutton & Haque, 2004). According to Angeles et al. (2009), a declaration about the basic conditions to be a slum, the research area (KDC baste) is easily fit on it because, (a) its housing conditions are very congested and most of them are constructed Kacha/Tin-Shed, Semi Pucca, Pucca, etc. (b) the density of population is approximately 1,325 persons per acre (BBS, 2015), (c) Mainly, 97.25% slum dwellers in BCC including KDC peoples are depending on tube-well water and only 2.39% people use the tap water from BCC because the cost of the supply water is very high, (d) slum dwellers have to face land-related pressures by legal and illegal organizations (BCC, 2016).

Additionally, the respondents of the study area (KDC slum) also claimed huge deficiency in livelihood assets like- lack of financial help from the government and non-government organizations, lack of a permanent job, unemployment, debt crisis, illiteracy, lack of professional skills, scarcity of individual water line, scarcity of personal vehicle, communication gap with rural ancestors and govt. organizations are common in their urban-slum-based life. Besides, the selected community has pointed out not only on capital's crisis but also vulnerabilities such as- criminal tendency, frustrations, school drop-out, shock due to price-hike, and child labour tendency, where all these things are happening due to the absences of livelihood assets. So, this paper has been developed to discover the crisis of livelihood assets and relevant vulnerabilities among urban slum dwellers.

Operational definition

Livelihood refers to a means for ensuring the vital necessities (i.e. water, resources, food, medicine, etc.) of a person's or group of person's life.

The asset is an item of property that is owned by an individual or group of individuals, company and has monetary value to meet the individual's, necessities, debt, or legacies.

Vulnerability refers to the possibility to be harmed or attacked, either physically or emotionally by the hostile environment or man-made hazards or any external event and inability to adapt with, anticipate, resist and recover from that situation.

Slum is a cluster of dense settlement of five or more families which usually arise illegally, unconstitutionally, and indiscriminately on government and private vacant land and have risks to hostile environmental hazards, political collusions, economic and social exposures.

Research Questions

The study aims to understand the following questions:

- What are the root causes behind living in the urban slum?
- What types of livelihood asset crisis do the slum people have?
- What vulnerabilities are they bearing due to the lack of livelihood assets?



Theoretical Framework

The Livelihood Assets Pentagon Framework: Sustainable livelihoods framework (SLF) idea was first proposed by the Brundtland Commission on Environment and Development and then this thought was elaborated by the United Nations Conference on Environment and Development in 1992 (Krantz, 2001). The fundamental assumption in SLF is that people investigate the different shapes of livelihood outcomes with the length of livelihood assets by using numerous variations of livelihood strategies (Farrington, Carney, Ashley, & Turton, 1999). Additionally, the main aim of this framework is to eradicate poverty (Krantz, 2001). But here, the assets pentagons framework ((i.e. human, natural, social, physical, and financial capitals) was applied as a theoretical framework to understand the complicated livelihood patterns of slum dwellers. The asset pentagon framework is a part of SLF (Steimann, 2005) and remains at the Centre of the SL framework which is related to vulnerability topics (Department for International Development [DFID], 1999). Additionally, it looks at people and their livelihoods centralizing issues on what people have (livelihood assets) (Steimann, 2005). Simultaneously, it is important to have a proper and empirical presume and consciousness of an individual's capital to gain positive livelihood outcomes because people are chiefly at the center of the livelihood approaches (Bebbington, 1999). The combination of assets has a great impact on livelihoods. So, it is important to find out people's access to different types of assets and their capability to use these for productive purposes (Carney, 1998). *Human capital* illustrates the alliance of expertness and knowledge, the capability to work, and good health and enables people to achieve their livelihood objectives, by undertaking different livelihood strategies (DFID, 1999). *Physical capital* means those things which contribute to production such as buildings, plants, tools, production equipment, shelter (DFID, 2001). Physical capital is the composition of manufactured goods and primary infrastructure which are necessary for supporting livelihoods like; adequate water and sanitation, transportation, secure houses for a living, clean and affordable force, and access to information (Bajwa, 2015). The stocks of water, air, biodiversity, land, forest, erosion protection, etc. constitute *natural capital*. These types of natural assets are very essential for livelihoods and vital for those people who are directly depending on natural resources to attain all or part of their livelihoods. (DFID, 2001). *Social capital* is the combination of mutual trust and bonding within communities upon which people draw in the realization of their livelihood objectives and make them stronger (DFID, 1999; Bebbington, 1999). Indeed, social capital refers to the social resources such as networking, connectedness, and any form of associations of more formal groups and their method of rules, norms, and sanctions which help them to seek their livelihood outcomes and enhance their trust and ability to cooperate (Bajwa, 2015). *Financial capital* helps people to achieve their livelihood objectives (DFID, 1999). But among other capitals, financial capital is truly difficult to access and this capital has a much stronger impact on acquiring livelihood goals. Additionally, the lack of financial capital can be a sign of vulnerability and insecurity in terms of livelihoods where the availability of cash can build people capable to adopt different

livelihood strategies (Davies et al., 2013). Material things like- regular remittances or pensions, savings, supplies of credit are the illustration of financial capital (Carney, 1998).

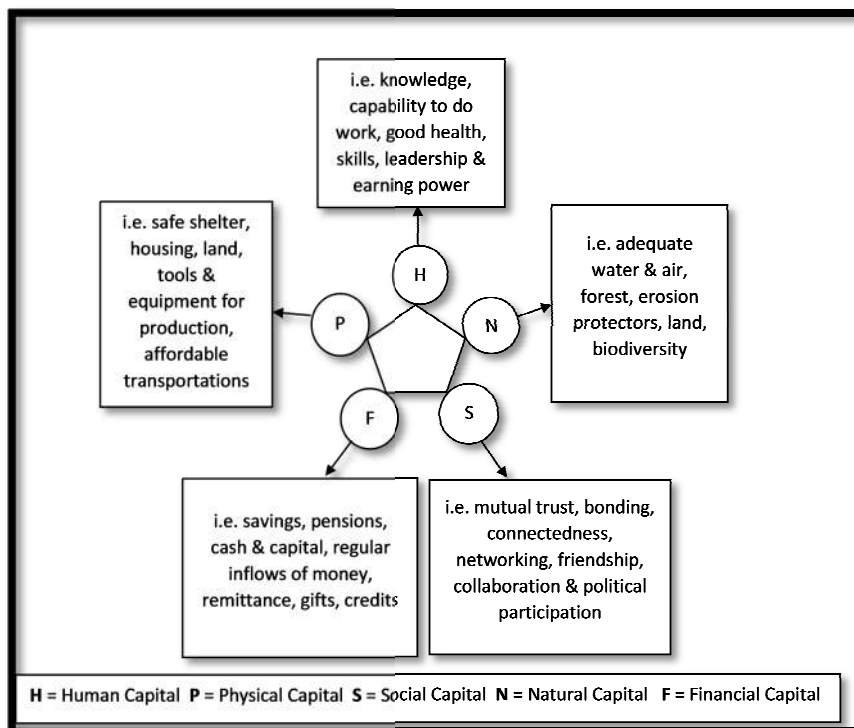


Figure 1: Combination of Livelihood Assets Pentagon Framework by DFID

The combination of assets is important for people to acquire their self-defined aims because only one capital is not capable to provide the desired outcomes. Even the empirical study is also needed to understand the people's status as -will those people come out from vulnerability with their existing capital or will they make another combination of assets to be shiftable towards another livelihood settings. Assets are the prime factors to minimize vulnerability (i.e. poverty, shocks, floods, unemployment, lack of living space) and help to acquire values within society, institutions, and economic sectors (Bajwa, 2015). But, in the study area, poor people migrated to urban slums from different rural places hoping to improve their living standards, though the real scenario was quite opposite due to the considerable deficiency in social, physical, human, natural, and financial capitals which ultimately increase their different form of vulnerabilities.

Literature Review

Bangladesh is ranked the 7th most populated country in the world with around 150 million people living in an area of 147,570 square kilometers (BBS, 2013; UNFPA, 2011). Therefore, the average population density is 1,000 per square kilometer that means, around 1,000 persons live per square kilometer which is one of the highest population densities in the world context (UNDP, 2011; UNFPA, 2011). Moreover, the urban population growth rate has been increasing since the liberation war in 1971 and the growth rate is 2.96% annually at present (BBS, 2013).



Additionally, the number of slums has been rapidly booming in the urban centers of developing countries due to various reasons including limited access to employment opportunities and income, migration, inadequate and insecure housing, and services. In the developing countries generally, and in Bangladesh specifically, migration from rural to urban has become a pressing matter over the last years (Rahman et al., 2016). According to earlier studies, especially during the 1990s, economic reasons, such as river erosion, local-level conflicts are responsible for migration, whereas later studies emphasized additional factors, for instance, economic shocks and natural disasters, searching for employment, etc. (Bayes, 2018). Actually, migration often happens from the rural area to urban slums as a strategy for avoiding debt after any disaster, for example- flood. Besides, migration also takes place due to the inability to manage labor market disruptions, price fluctuations, and consumption deficiencies in the village after the crisis. Additionally, a combination of rural push factors, for instance, poverty, family influence, and urban pull factors, such as better economic opportunities, job availability, and presence of migrant relatives cause urban-rural migration (Rayhan & Grote, 2007). Like any other third-world country, slums and squatters have not been sufficiently emphasized in public health policy, whereas mortality and morbidity have been extensively focused on (Papa, Kontodimopoulos, Angelos, Papadopoulos, & Niakas, 2009). However, the relationship between socio-economic status and health is linear which means, the lower the socio-economic status the poorer the health (Singh, Fazal, Azam, & Rahman, 1996; Papa et al., 2009). Additionally, in slums, work options are mainly characterized by low payment, excessive physical labor, and irregularity of work which have an impact on cash income as income is needed to fulfil a household's primary necessities (Banks, 2012). In Bangladesh, who wants to migrate voluntarily tend to go to Dhaka or similar type of large urban centers (Barishal, Khulna, Chittagong, etc.), involuntary migrants due to natural disasters like to stay in relatively smaller towns which are close to their rural origin (Hutton & Haque, 2004). Although there are nine other large cities besides Dhaka which are denominated as city corporations and governed by their municipal authorities and Barishal City is one of them. Besides, around 305 smaller municipalities or Pourashavas are also classified as urban areas (Islam, Shafi, & Nazam, 2007) (Table-1). Additionally, Barishal is the largest city and act as the administrative headquarter of both Barishal district and Barishal division (Palit, 2012). This city with a population of approximately 328,278 according to the 2011 national census, has been divided into 30 wards and 50 mahallas (BCC, 2014). In 2014, the number of slums in Barishal is almost 351 which covers 0.98% of the total number of slums in Bangladesh and the Barisal slum dwellers own only 4545 households (HH) though the total number of slums HH is 12,132 under Barishal Division (BBS, 2015).

**Table 1: Basic characteristics and number of slums in Bangladesh**

City Corporation	City population (estimate)	Slum population (people)	Slum population (% of total population)	Number of slums	Slum population density (Person per km ²)	Non-slum density (Persons per km ²)
Dhaka	9,136,182	3,420,521	37.4	4,9666	220,246	19,677
Chittagong	4,133,014	1,465,028	35.4	1,814	255,100	15,543
Khulna	966,837	188,442	19.5	520	132,988	16,884
Rajshahi	489,514	156,793	32.0	641	67,236	6,796
Barisal	365,059	109,705	30.1	351	133,730	5,084
Sylhet	356,440	97,676	27.4	756	154,741	9,630

Source: Angeles et al., 2009

Though in Barishal division, the total number of slum households is 12,132 but only 1438 households received help/relief from the government (36.58%), private sectors (4.10%), NGO (9.01%), others (50.30) by division till 2014 (BBS, 2015). Furthermore, residents of slums in Bangladesh experience different layers of vulnerability as these slums are the intersection of different types of vulnerabilities, namely, physical, social, economic, and political vulnerabilities (Banks, 2012).

Moreover, numerous studies show that livelihood assets are critical to the displaced people as they may help them to rebuild or maintain their livelihoods (Burra, 2005; Mitlin, 2003; Moser, 2006). Generally, an asset is defined as a “stock of financial, human, natural or social resources that can be acquired, developed, improved and transferred across generations” (Moser, 1998). Besides, the condition of basic public infrastructure is fragile including the lack of clean water, sanitation, and drainage, frequent flooding, and water-logging. Therefore, all these factors along with high densities and inadequate healthcare increase health risks for slum dwellers, as well as pose risks for the wider urban community through affecting their livelihoods (Ahmed, 2014). A clear disparity has been manifested between slum dwellers and other people in terms of getting supply water which needs to be addressed in no time by the concerned authority (Ahmed et al., 2007; Amendah et al., 2009). The main water sources for slum dwellers are river water, canal, pond water, and tube well although the numbers of the latter are limited. Moreover, like others, a large number of slum people don't get a single drop of water from Barisal City Corporation (BCC) as it does not supply water on a quantity basis (Ahmed, 2014). Among 12132, only 4.32% of dwellers have tapped for water supply in the Barisal division though nationally, 44% have tap-based water supply facilities. As Barisal City Corporation have 9,629 slum households where the number of a tube-well user is 9,364 though the tap-based facilities are available for only 230 HH (BBS, 2015). Furthermore, the fact which hindrance the accessibility of these slum dwellers to the supply of water is its high cost, approximately 7,000 BDT at a time and



200 BDT (0.75-inch pipe diameter) per month. However, natural calamities, for instance, floods, cyclones endanger these slum dwellers in various ways including damaging flimsy houses made of sub-standard materials, polluting water sources, damaging sanitation systems, spreading contagious diseases, therefore disrupts their overall livelihood (Khan, 2010). Although there has been significant economic growth (Deb, Hoque, Khaled, & Bairagi, 2008), indicated by a GDP growth of 53% from the mid-1990s to the mid-2000s in Bangladesh, income inequality had been increased by 10% at the same time (Mahbub ul Haq Human Development Centre, 2011). Moreover, financial capital, for instance, access to income is crucial for the well-being, food, and nutrition security of the urban poor household. Furthermore, recent studies of household expenditures in urban poor settings reveal that urban poor people who earn less than \$1 per day, have to spend more than half of their earnings on food (Ahmed et al., 2007; Amendah et al., 2009). As one in three household heads are unskilled, they are mainly rickshaw-puller and construction day labor (Banks, 2010). But financial capitals have a multi-purposed role than above-mentioned assets because it can be easily altered into other types of capital or it can be applied to acquire livelihood outcomes directly (i.e. to pay for better treatment to increase human capital or to buy a house as for secure shelter) (Kollmair & Juli, 2002). Furthermore, householder income decreases too when businesses struggle as most businessmen of these slums have lack management capacities, thus cannot separate business from household cash flows. Additionally, since most customers are from low-income groups, the goods and services they sell are price-sophisticated, responding actively to changes in demand causing by income shocks and seasonal fluctuations (Banks, 2012). But the reality is that poor people (i.e. slum dwellers) have the least amount of financial capital to cover up the limitations of others capital which make their life more vulnerable (Kollmair & Juli, 2002). Financial assets are the most crucial entry point for gaining other assets (Cook, 2006). Therefore, seeking livelihoods through unskilled labor is a common phenomenon across large and secondary cities among low-income urban workers (Garrett & Downen, 2001). Remarkably a high level of informality had been revealed in the 2005-LFS study which further had indicated that about 88% of all urban poor workers had been employed informally across the country, thus face vulnerabilities, including low wages, minimal benefits, and high levels of job insecurity (Maligalig et al., 2009). Although rickshaw-pullers can work flexibly regularly as per their will and abilities, excess physical labor reduces their long-term opportunities for mobility in a context of poverty and malnutrition. Moreover, these rickshaw-pullers experience multiple health shocks including a decrease of economic and social indicators with age and the length of time in the occupation (Begum & Sen, 2005). Additionally, accommodations and other related physical capitals are crucial for livelihood asset accumulation (Moser, 2006). Moreover, for the last seven years, the scenario of food security in the urban slums had not been improved considerably. However, four factors enhance food insecurity in urban areas, namely 1. an overdependence on purchased food commodities 2. absence of sufficient livelihoods 3. increasing reduction in peripheral agricultural land, and 4. negative impacts of climate change



(Galal, Corroon, & Tirado, 2010). Besides, decreasing food intake by up to 50 percent has an excessively negative impact on health and nutrition which gradually reduces the working ability of those dependent on physical labor (Goudet, Faiz, Bogin, & Griffiths, 2011). Despite the attempts of the government by enforcing policies to provide the basic infrastructure and services and to protect the basic rights of slum dwellers, these slums are being managed and controlled by the local 'mafia' thugs (mastaans). Acting as informal landlords, these mastaans collect rents and exorbitant fees for basic services (Ahmed, 2014). Although, in few slums where poor households have legal landownership, their rights are barely protected, hence they have to live with the constant fear of losing property due to pressure from real estate developers and complications in land administration as well. Consequently, they feel demotivated to invest in housing improvements (Shafi & Payne, 2007). Social connections with peers, neighbours, and belongingness with different groups and institutions act as an important social safety net for poor people. However, a significant number of slum households have been experiencing a disruption in their social network. Therefore, some households have been separated from their extended families and peers in the resettlement area (Rahman et al., 2016). Slum-dwellers confront with numerous challenges, including agency related challenges, such as obstacles to better employment, low skills, lack of qualifications and experience, limited capital, poor health, and structural challenges as well, for instance, hostile labor market, oversaturated markets, intense competition, low wage rates, difficult and unhealthy working conditions, work irregularity, and the mediation of the labor market by intermediaries, to their entrance into the labor market. Consequently, both of these challenges enhance different types of vulnerabilities of people living in slums (Wood & Salway, 2000; Opel, 2000; Garrett, 2004; Hossain, 2005; Banks, 2012). Although being unemployed is considered an uncommon phenomenon in slums as surviving here is quite impossible without work, this fact hides the gruesome problems of underemployment and seasonal fluctuations. Additionally, one of the most common adaptation mechanisms is allowing young members to work to increase income which leads to a rise of child labor at least three times more than that of the national average, along with higher rates of drop-out from schools which makes this adaptation mechanism a negative strategy according to the human capital perspective (Bayes, 2018). However, access to the labor market is not distributed by education or experience but maintained through social networks. Thus, strong social connections ensure formal contracts including high salary or wage, job security, and other benefits (Opel, 2000; Garrett, 2004; Banks, 2012). Moreover, these forced involuntary migrants feel uncertainty about complexities at large urban areas and always nourish a beam of hope in their minds to return to their origin eventually. Also, they do not want to take any risk to hamper their existing social networks (Hutton & Haque, 2004), as these low-income workers have very limited agency to expand their social assets outside of these close social circles (Banks, 2012). Slums have been the most recent planning issue in developing countries. Although the resettlement programs were implemented globally to improve the condition of the environment,



there has been a substantive lack of focus on the other livelihood assets (Boonyabancha, 2005; Rakodi, 2002).

Methodology

To get an insight into the livelihood assets and vulnerable way of living of slum dwellers and to cover up the objectives of the study, a methodological triangulation has been followed where both quantitative and qualitative approaches get an equal emphasis. The field survey of this study was conducted at KDC (Balur math) slum which is situated in the Band Road at word no10 under Kotwali thana in Barisal City Corporation zone, Barisal, Bangladesh. The area of the study had been selected purposively as it is the largest slum under Barishal City Corporation in terms of overcrowded and impoverished settlements to understand the actual scenarios of urban-based slum people's livelihood. In KDC, the number of total households is 1050 and the household population is 5500 which covers around 4.15 acres of land in Barisal city corporation (BBS, 2015). The sampling method of this foregoing research was not random rather selective based to ensure the representativeness of the different professional groups within the target population. Though the target population is larger than a total number of 120 respondents has been selected purposively within (16-60) age groups due to the lack of time and budget. Therefore, among them 50 respondents were female and 70 respondents were male. For quantitative approaches, a semi-structured questionnaire has been used as a tool for taking the face-to-face interview, and besides, four case studies have been conducted purposively as a technique of qualitative method to find out the in-depth scenarios of urban slum-based communities. The gathered quantitative data were analyzed through Statistical Program for Social Science (SPSS) version 22.0 and the qualitative data were analyzed by following axial coding analysis techniques.

Result and Discussions

Socio-economic and demographic characteristics of the respondents

The study had been conducted at KDC slums where the number of male and female respondents were 67% and 33% respectively. The largest portion (26%) of the respondents were from the age group of 16-30 years whereas 49% and 25% of the respondents were from the age groups of 31-45 years and 46-60 years respectively. The respondents of the study area were involved with multidimensional occupations and sometimes the respondents had to adapt multiple professions to earn their livelihoods as their jobs were not permanent. There were several types of professions including small Business (46.7%), temporary service (20.2%), helping hand/maid (18.3%), rickshaw/van puller (15.8%), housewife (4.3 %), unemployed/disabled (4.2%), kuli/day labor (6.2%), transport worker (3.3%), hotel worker (3.3%), street hawker (3.1%), construction worker (1.7%) and student (1.7%) (Table 2).

**Table 2: Occupations of the respondents (multiple responses)**

Occupations	No. of respondents N=120	Percentage (%)
Housewife	5	4.3
Rickshaw/Van Puller	19	15.8
Transport worker	4	3.3
Construction worker	2	1.7
Student	2	1.7
Small Business	56	46.7
Temporary Service	24	20.0
Street Hawker	4	3.1
Agriculture labour	5	4.2
Hotel worker	4	3.3
Helping hand/maid	22	18.3
Kuli/Day labour	8	6.7
Unemployed/disabled	5	4.2

Source: Field Survey, 2019

In the study area, respondents earned a very limited amount to fulfill their daily necessities where a large number (35.8%) of the respondents earned only BDT 4100- 8000 per month. Additionally, 25% and 22% of the respondents in the study area earned BDT 8100- 12000 and BDT 12100 – 160000 in a month respectively whereas only 9% of the respondents earned BDT 16100+ in a month (Table 2).

Though they earned a very small amount they had to expend a lot to survive in urban slums and it was very difficult for them to do savings as most of the time they had to borrow from others (i.e. neighbours, landowner, NGOs). The study shows that a significant number of respondents (36%) had to expend about BDT 16100+ in a month and it became very difficult to maintain their treatment cost with that short amount. Eventually, 30% and 17% of the respondents spend BDT 12100 – 160000 and BDT 8100- 12000 respectively where the largest portion of income had to spend on accommodation and food.

Causes behind coming in slum

Here, most of the respondents (77.5%) mentioned that they had to come to urban slums for seeking a job. About 66.7% of respondents said that due to poverty, they migrated to the rural-urban slum. On the other hand, 30.0% of the respondents mention that river erosion is the main reason for coming to the slum. Additionally, 8.3% of the respondents claimed natural hazards like-flood, landslides, drought, etc. were responsible causes behind their shifting in urban slums.

**Table 3: Causes behind living in the urban slum (multiple responses)**

Causes for living slum	No. of respondents N=120	Percentage (%)
River erosion	36	30.0
Seeking job	93	77.5
Divorced/separated	4	3.3
Poverty	80	66.7
Natural hazard	10	8.3
Social Insecurity	8	6.7
Children's education	4	3.3
Conflicts	8	6.7

Source: Field Survey, 2019

Moreover, the highest causes behind coming into the slum are insecurity (i.e. harassments, political, social, and land dispute related threats) and conflicts (with neighbours, family, peer groups, etc.) were pointed out by 6.7% and 6.7% of respondents as responsible causes behind living in slums. But only a very small number of respondents (3.3%) came to urban slums for educational purposes (table 3).

Human Assets Crisis

Human capital represents the combination of good health, knowledge, and normative skills in a household which ultimately increases the ability to fight against negativity and vulnerability.

Table 4: Human assets crisis in urban-slum dwellers (multiple responses)

Human assets Crisis	No. of respondents N=120	Percentage (%)
No Sanitation related knowledge	25	20.8
Illiteracy	42	35.0
Lack of awareness about early marriage and parenting	27	22.5
Lack of knowledge about nutrition	35	29.1
No consciousness to live in a congested community	64	53.3
Knowledge of basic health issues	46	38.3
Inappropriate knowledge on family planning	59	49.2
Deficiency of training to develop professional skills	104	86.7
Lack of ICT knowledge	110	91.7
No job experience	110	91.7

Source: Field Survey, 2019

Moreover, the absences of human capital expenses associated with ill health affect other capitals and drag people into poverty (Cook, 2006). The following table shows the human assets crisis



of the respondents. Among the respondents, 91.7% and 91.7% had no ICT knowledge and job experience respectively. Additionally, among the respondents, the number of human assets was very low including lack of training to improve professional skills (86.7%), insufficient knowledge about life in a congested community (53.3%), illiteracy (35.0%), lack of knowledge about nutrition (29.1%) and sanitation (20.8 %), no idea about the negative effects of early marriage and early parenting (22.1%) (Table 4).

Insufficient financial assets of urban slum dwellers

Table-5 illustrates the causes behind the financial crisis among the slum dwellers though most of the respondents were involved in various types of professions at a time but earned very limited. In the study area, 91.7 % of the respondents drive rented auto rickshaw/easy bike and earned a very little amount after giving the largest share to vehicle owners.

Table 5: Financial assets crisis in slum dwellers (multiple responses)

Financial assets crisis	No. of respondents N=120	Percentage (%)
Unemployment	16	13.3
No monthly savings	75	62.5
Irregular wages	37	30.8
No financial help from NGO	96	80.0
Lack of financial help from GO	83	69.2
Debt crisis	87	72.5
No investment	108	90.0
Lack of dual-earner	62	51.7
Lack of permanent job	62	51.7
Unsecured part-time job	67	55.8
Rented auto rickshaw/easy bike	110	91.7
Instalments for pulling rickshaw/Van	102	85.0
Lack of modern push cart	106	88.3
Lack of variations in vendor items	104	86.7

Source: Field Survey, 2019

In that case, they could not accumulate some financial assets as they had to spend their life from hand to mouth. About 90.7% of the respondents were not able to invest in any institutional or organizational sectors to increase their financial assets due to the lack of capital. Additionally, 88.3% of the respondents run pushcart to survive in urban slums through their carts were in traditional form. Moreover, in the study area, 86.7% and 85.0% of the respondents were small vendors and pulled rickshaw/van respectively to minimize their economic deficiency. Besides, 80.0% and 69.2% of the respondents reported that as were passing through a financial crisis but they didn't get any financial help from NGOs (non-government organization) and GO (a government organization) respectively. Additionally, 72.5% percent of respondents mentioned



that they had a debt crisis so that there was no chance to save money or having financial assets. Consequently, they were facing vulnerable situations from various sides.

Furthermore, 62.5% of respondents said that they have no monthly savings because their income was not fixed. Afterward, 55.8% percent of respondents had unsecured part-time jobs. Again, 51.7% of the respondents had no dual-earner in their family and 51.6% of the respondents claimed the lack of a permanent job was responsible for their financial insecurity. Finally, 13.3% of people reported that due to unemployment, they are having a financial assets crisis.

Physical capital crisis in urban slums

Physical assets mean the accumulations of infrastructures, tools, and equipment within a given community and which plays an active role in productivity to increase other capital. Eventually, the lack of physical capital can create huge vulnerabilities among community members to decrease their productive behaviors. Physical capital may perform as the best where the availability of electricity, water supply, and drainage can also be strong check boards of physical capital. Even, the human resources like- good health, knowledge, and educational levels within the community are also ordained by the entrance of electricity, water supply, and drainage, condition of water supply, and organized drainage systems (Rahman et al., 2016).

Table 6: Physical Capital Crisis (multiple responses)

Physical capital	No. of respondents N=120	Percentage (%)
Lack of private stove	68	56.7
No refrigerator	97	80.83
Lack of permanent shelter	90	75.0
Scarcity of individual water line	108	90.0
No electricity line	6	5.0
Absence of personal sanitary toilet	96	80.0
Living in a tin-roofed house	112	93.3
Staying in a thatched hut	8	6.7
Scarcity of personal vehicle	112	93.3
No sewing machine for extra earning	106	88.3

Source: Field Survey, 2019

Here table-(6), reveals the crisis of physical capital where scarcity of personal vehicle and scarcity of individual water line (i.e. tube-well, electric motor) was pointed out by 93.3% and 90.0% of the respondents respectively including the absence of personal sanitary toilet (80.0%), no sewing machine for extra earning (88.3%) as the evidence of a physical crisis. Additionally, the lack of a refrigerator and private stove was claimed by 80.83% and 56.7% of the respondents respectively and 30.0% of the respondents believed the absence of television as a deficiency of physical capitals. Even, 5% of the respondents had a scarcity of electricity line.



Absences of social capital in slums

Mutual understanding, social bonding, dependency, trust, cooperation, etc. are examples of social capital within a community. But, the absence of transparent relationships between community people and relevant organizations can produce vulnerable situations. Additionally, the following table (7) demonstrates the crisis of social capital in the study area (KDC slum). Among the respondents, 98.3% had no relationship with law enforcement agencies (i.e. Bangladesh police, special security force, river police). Moreover, 96.7% and 91.7% of the respondents claimed that they had no capable person who could represent their crisis and had a very fragile relationship with government organizations (Govt. banks, city corporations, WASA, govt. electrification board) respectively which were responsible causes behind social assets vulnerability in urban slums. Moreover, lack of communications with rural ancestors (90.0%), political influence over them (90.0%), mistrust among community members (78.3%) was pointed out by the respondents as responsible reasons for the deficiency of social assets in urban slums.

Table 7: Social Capital crisis in slum dwellers (multiple responses)

Social capital	No. of respondents N=120	Percentage (%)
Political influence over them	108	90.0
Mistrust among community members	94	78.3
Communication gap with rural ancestors	108	90.0
Fragile relationship with government agencies	110	91.7
No relationship among law enforcement agencies	118	98.3
Lack of capable person to represent them	116	96.7

Source: Field Survey, 2019

Communication gap and mistrust had been reflected by a respondent as follows:

'Before shifting to an urban slum, I used to cultivate our agricultural lands with my brothers with equal rights. But after shifting to urban slums, it becomes very difficult for me to maintain those types of relationships with my rural ancestors as I had to do work from morning till night. So, now my words don't get that much importance in any land and property-related matters due to the communication gap and the level of trust is gone....(deep breath)' (vegetable vendors, male 42).

Lack of natural capital in urban slums

The flows and services of natural resources which are useful for livelihoods are considered *natural capital*. Moreover, access to the ownership of land is also one of the natural capitals which slum dwellers lack due to insufficient legal support (Rahman et al., 2016). Householders can preserve their natural capital and increase their human capital by sharing ideas, knowledge and maintaining good relationships within the community (Bebbington, 1999). Additionally, doing alter of natural resources into economic goods and services can enhance human welfare



and make new forms of capital, including human, physical, and financial stocks of wealth (Rahman & Khan, 2018). But continuous natural disasters like fires, floods, landslides, etc. hamper natural capital and are a demolishing shock to the livelihoods of the poor (Kollmair & Juli, 2002). Additionally, in the study area, 79.2% and 74.2% of the respondents mentioned that they had no ownership of lands and availability of natural resources (i.e. sunlight, air).

Table 8: Natural Capital deficiency (multiple responses)

Natural capital	No. of respondents N=120	Percentage (%)
No landowner	95	79.2
Absence of livestock	82	68.3
Lack of natural resources	89	74.2
Lack of safe water	73	60.8
Lack of space for plantations	55	45.8
Victim of pollutions	61	50.8

Source: Field Survey, 2019

On the other hand, the absence of livestock (i.e. cow, hens, duck, goats), scarcity of safe water, and effects of pollution (i.e. water, soil, sounds) were mentioned by 68.3%, 60.8%, and 50.8% of the respondents respectively (table 8). Improper functioning between community people and natural capital increases poverty and vulnerability.

Vulnerable way of living due to the lack of livelihood capitals

Capitals are important to living a healthy life and the nature of capitals may differ from one community to another but their (capitals) roles are almost the same, to improve the living conditions of the peoples. But the absence of one capital can create lots of impacts over others because all of these five capitals are interconnected to each other.

Table 9: Slum dwellers vulnerabilities due to deficiency of livelihood assets (multiple responses)

Vulnerabilities	No. of respondents N=120	Percentage (%)
Loss of property due to unemployment	55	45.8
Food insecurity	92	76.7
High school drop-out	68	56.7
Lack of job opportunity	62	51.7
Failures in business due to capital	47	39.2
Damage to furniture	58	48.3
Illness	85	70.8
Lack of treatment	73	60.8
Early marriages	42	35.0



Shock due to price-hike	107	89.2
Child labor tendency	26	21.7
Criminal tendency	16	13.3
Drug addiction	14	11.7
Frustrations	106	88.3
Malnutrition	64	53.3
Quarrel among neighbour	59	49.2

Source: Field Survey, 2019

Additionally, human capitals help to improve physical and financial capitals where the absence of financial capital can force to decrease the human and natural capital and social capitals are also interdependent with the other four capitals. Besides, in-migration from the rural area to urban slums often causes losing previous occupation which in turn affects slum dwellers' productivity and income, thus, in the long run, their capitals have been facing vulnerabilities (Rahman et al., 2016). According to the SL framework, peoples are handling the association of vulnerability (DFID, 2001). There is a close connection between livelihood and vulnerability because people's livelihood is depending on the availability of livelihood assets (Bajwa, 2015). The following table (9) illustrates the vulnerabilities among slum dwellers due to lacking livelihood assets. Here, 89.2% and 88.3% of the respondents reported that they had to face shocks due to price-hike and became frustrated respectively because they had to live in very limited capitals.

Additionally, one of the respondents claimed that

'Due to the increasing rate of essential goods such as salt, oil, rice, onions, bills, house rent, me and my family is passing a miserable life as we live in from hand to mouth. Even we compelled to send our older son to do work and leave his education though he is only 14 years older. Even I can't bear my treatment cost due to financial crisis and expect help from our rural relatives because of the communication gap (Rickshaw puller, male 39).'

Moreover, 76.7% of the respondents reported that they had to face food insecurity including lack of treatment (60.8%), high school drop-out (56.7%), malnutrition (53.3%), lack of job opportunity (51.7%), quarrel among neighbor (49.2%), damage to furniture (48.3%), loss of property due to unemployment (45.8%), business failures (39.2%), early marriages (35.0%), child labor tendency (21.7%), the criminal tendency (13.3%) and lastly drug addiction (11.7%) related vulnerabilities due to the lack of livelihood assets.

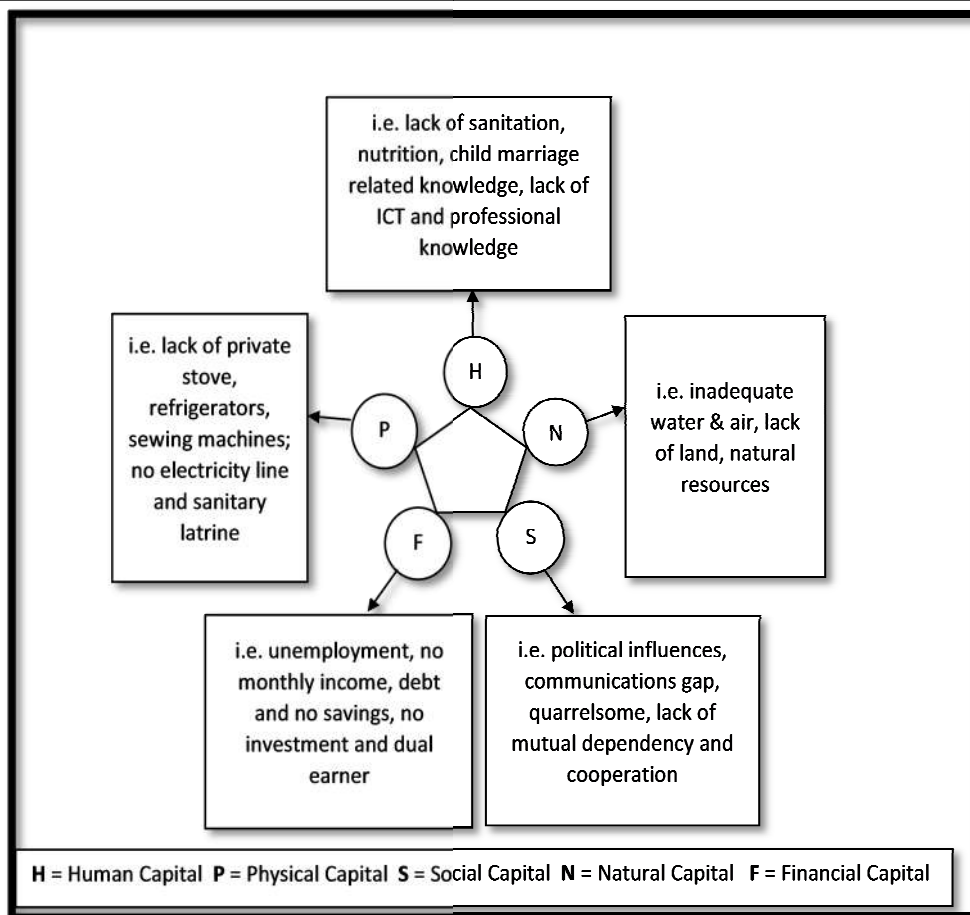


Figure 2: Application of Livelihood Assets Pentagon Framework on KDC Slum People Based on Field Survey 2019

Conclusion

Whenever one society has inappropriate capital then this society has to face livelihood-related vulnerabilities as KDC slum dwellers are already facing due to the lacking of proper social, physical, natural, financial, and human capitals. Moreover, livelihood assets are important to lead a healthy life and every person has to drive their survival based on available resources. The nature of capitals may differ from one place to another, but its main task is to improve the living standards of that specific community. Basically, in the study area, poor rural people had migrated to urban slums to remove their scarcity like unemployment, resources scarcity, insecurity, etc., and to improve their existing conditions. But the reality was quite different where slum dwellers had to face capital-related deficiency and according to livelihood assets pentagon framework, one capital is interconnected with others. Human capital could increase financial assets with the help of knowledge, skill, and good health where social capital like-bonding, cooperation, etc. could enhance their natural capital. Moreover, slum dwellers in the



study area mentioned that, they had to suffer from long-term illness as they could not able to bear their treatment cost and most of them had no dual-earner. Even, 88% of the respondents claimed that they had a frustration issue due to the absence of earning opportunities. Mistrust, collision, food insecurity, drug addiction, malnutrition, etc. was the common examples of vulnerability among the slum dwellers due to the lack of appropriate capitals.

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THE WAGE HIKE AND ITS IMPACT ON THE REAL BENEFIT ON THE ECONOMY OF BANGLADESH: IMPLICATION OF PAY SCALE IN 2015

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Abstract

Bangladesh is one of the fast-growing nations in South Asia. Such type of remarkable growth path is achieved by the mutual commitment of public and private partnership. To ensure sustainable economic development, the Government of the People's Republic of Bangladesh tries to adjust the salary of government employees, which can enhance their real benefits by increasing consumption, investment, happiness, and status. Such type of salary adjustment occurred eight times since the independence of Bangladesh from the year 1971. But from all of those, the 8th pay scale isolated from others because in this pay scale, minimum salary increased nearly twice than previous pay scale. The objectives of the 8th pay scale to ensure the productivity of government employees so that they can play a potential role to achieve the vision 2021. It is frequent phenomenon that wage increase in a developing nation like Bangladesh may increase inflationary pressure because output not response according to increase in wage. In this paper, time series analysis is used to investigate the relationship between wage hike and inflation on the economy of Bangladesh. To investigate the real impact of wage hike on the real benefit on the economy of Bangladesh a qualitative approach has been used through a sample survey. From the analysis it is clear that wage hike in Bangladesh in year 2015 do not creates any inflationary pressure as well as statistical analysis of sample survey indicate new wage structure increase real welfare of the economy of Bangladesh by increasing consumption, saving and asset accumulation. It is also suggested that government should design attractive investment policy to attract individual to invest in institutional sectors and also design an efficient tax structure to collect the tax revenue in such way which ensure equal marginal sacrifice.

Keywords: real benefit, Inflation, Unit Root, ARDL, t-test.

JEL Codes: C12, C13, E20

Introduction

Bangladesh is one of the fast growing developing nations in South Asia (International Labour Organization, 2013). From the last decades, its miracle growth fascinates most of the nations around the world (Wikipedia, 2020). The key factor behind such type of development is to utilize underutilize resources (Schumpeter & Keynes, 1936). The main objective of Bangladesh government is to ensure integrated and inclusive growth strategies for all decision making agents in this country. The precondition of sustainable and stable economic development is nothing but a considerable synchronous between the public and private sectors and ensuring good governance. The People's Republic of Bangladesh has a glorious history of public service since independence, 1971. Working infrastructure is the necessary factor for the country's rapid development. The most important development works are planned and implemented by the public officer of Bangladesh (Alauddin, 2005). Public service can be defined as the service

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provided by the government. The development process and activities of the developing nations are conducted through the close supervision of public sectors.

The People's Republic of Bangladesh has potential public service sectors of more than 2.1 million members (Ferdousi & Qiu, 2013). Those sectors are divided by local government sectors, health sectors, education sectors, economic and planning sectors, water sectors, department of defiance and justices, department of home and foreign affairs, department of communication and transportation, etc (Pan Suk Kim et al., 2013). The public service commission is the authority that recruitment most of the government officers in this country. The economic and political stability of a country depends on the smooth relationship between the public and private sectors. The outcome of such type of relationship is reflected through the growth of the output of a country. It has been considered that the productivity of a country depends on the productivity of the employees in the public and private sectors. The productivity of a worker is a direct function of the nominal wage, inflation rate, benefit after retirement, and other non-salary benefits. From the beginning of the independence of Bangladesh, the discrimination of salary is isolated between the private sectors and the government sectors. Another important factor is inflation which reduces the real benefit of nominal salary in every year. After the election of 2008, when this government came to power try to ensure a happy and prosperous Bangladesh under the objectives of vision 2021 (Ferdousi & Qiu, 2013). This is the political manifesto of the Bangladesh Awami League party which is declared before the national election of 2009. This vision includes the political vision as well as an economical vision which this country will want to achieve in the year 2021, the golden jubilee of Independence in this nation.

To implement the vision 2021 government needs efficient and productive public servants. This government wants to build a society where there is no social inequality and injustice. To do so the government of the People's Republic of Bangladesh takes an initiative to make a historical change in the government pay structure to the public servants in this country. The 8th national pay scale is considered the most influential and efficient pay structure after the independence of Bangladesh. The government tries to address all kinds of dispute which involve the salary structure on the existing 7th pay scale. By almost doubling their salaries and other financial benefits, the Bangladesh government issued a gazette notification on the new 8th pay scale about 2.1 million public servants with retrospective effect from July 2015. In this new pay scale, there is no provision for time scale and selection grade. Every year a 5% increment will be added to the previous year's basic salary. Though this new pay scale declares in December 2015 it was effected on 1st July 2015 (National-Pay-Scale, 2015). The govt. officers would get their arrears. Due to the implementation of the new pay scale govt. expenditure was increased by 150 billion taka or \$1.87 billion. A new allowance which is known as "Bangla Noboborsho Vata" introduced in the new pay structure. This allowance is 20% of the basic salary. In this new pay scale, 20% of dearness allowance was abolished. A comparative analysis of salary enhancement is given table 1 (**Appendix A**).



This paper is focused on the impact of salary hike on the real benefit (welfare) of the economy of Bangladesh. It is so much challenging to calculate the real benefit due to increased wages in an economy. But by using time series and primary data analysis it has been tried to isolate the impact of the wage increase on society. An intensive time-series investigation has been conducted to identify the impact of inflation on GDP growth and the growth of money supply (narrow money). For this analysis, 33-year time series data (from 1986-2018) has been considered. An Autoregressive Distribution Lag model (ARDL) has been used to establish a short-run and long-run relationship among the variables consumer price index (CPI), GDP growth (real GDP), and the growth of money supply. From the estimation of the long-run model, it has been found that there is an insignificant relationship exists between inflation and money supply but the impact of economic growth on the consumer price index is positive. From that result, it is easy to say that the impact of the wage hike on inflation is likely to be zero. So, the wage hike can't reduce the welfare of the country through the increase in the price level. It is always not applicable to take decision under the observation of time series analysis. Because human perception and expectation is highly unlikely to predict and to internalize through some scientific models especially those cases where it is dealing with human welfare. The time series analysis can make a partial portrait about the welfare impact, but if anyone can realize such type of welfare analysis they should go through the primary data analysis collected through the questioner method by following all kinds of protocols. In this paper, an intensive sample survey (**Appendix B**) has been conducted through some selective questioner method by which it is possible to study the real impact of wage hike on the real benefit (welfare) on the economy of Bangladesh.

In this paper, Section 2 discusses the available literature review that relevant to this topic, Section 3 design in such a way that explains the research objectives. In Section 4 observation methodology of this paper has been discussed. The result and analysis have been discussed in Section 5 and Section 6 is designed for policy-making and conclusion.

Literature Review

There is causality between the wage increment and inflation in economy. The policymakers and financial authorities always want to increase the real benefit by increasing wage, which is very conflating with the inflation rate. The most common macroeconomic phenomenon is that it is very comprehensive to increase of wage rate increase the price level (consumer price index) in an economy. According to Keynes (1936), a wage increase always enhances cost-push inflation in society. From the view of orthodox economists, there is an inverse relationship between the augmentations of wage rate and unemployment rate. According to Phillips, there is a tradeoff relationship that exist between the inflation and unemployment rate if inflation is increased it is also increased unemployment rate in an economy and vice-versa. The growth of wages is inversely related to the unemployment rate. The impact of increased wage is always boosting the production cost of an economy, which ultimate payoff is the increase in the average price level of an economy (Jonsson & Palmqvist, 2011). From that focal point, the argument is very



clear that an increase of wage rate can reduce the real benefit of an economy through reducing the rate of employment which also converse other macroeconomic consequence over time.

From the study of Friedman, it has been identified that, if the central bank wants to reduce the unemployment rate from the economy, they may increase the money supply which ultimately impacts on the reduction of interest rate in the financial market. The businessmen fell more profitable to invest more in future rather than the past. The increase of new aggregate demand also increases the price level in the economy so that the producer will increase the price of goods. After a few periods, the labour will able to realize the acceleration of the overall price level in the society and they will adjust the additional increase in price level by increasing their regular wage. Such type of adjustment will increase the rate of unemployment and the economy will return her previous situation. From the study of Schmitt (2013), in the Philippines inflation does cause wage growth in the society rather than wage does cause inflation. The scenario is very common in most of the cases in the economy.

From the study of Rashid, (1993) it had been found that the wage increased more than the increase in the price level. So, that it has been evident that the expansion of wage may be increased the real income of service-holder. The growth of the economy is analogous with the increase of wage of a country. The sustainability of the long-run growth on real wage can be ensured if and only if it can be accompanied by the growth of economic productivity.

Minimum wage can enhance productivity of the employment in an economy (Meer & West, 2016). From the study of Cavallo (2005), it is found that due to the increase of wage no one loss his or her job. Sometimes the increase in wage influences the marginal workers to increase the working hour in the labour market. According to Mărginean & Chenic, (2013), though minimum wage has little impact or no impact on the labour force, it has the impact of other markets in the economy.

In business, most of the expenditure depends on the expenditure on labour and it is very common to understand like that the wage of labour plays a potential role to determine the price level of an economy. But the reality is that only the information of increasing wage cannot able to forecast the real scenario of the inflation rate of a country. If one infer about the inflation based on wage data, most of the time it will provide misleading outcome (Ghani, 2016).

Reich et al. (2016), shows that for various measures, the correlation between wage and price information is moderate at all leads and lags and appear to have weakened in recent decades. Similarly, Strauss & Wohar, (2004) and Sbordone (2002) find some evidence that rising prices precede growth in unit labour cost. This is consistent with the idea that business can't easily change prices and therefore do so only infrequently so that when they do, they must account for expected future costs.

From the study of Hu & Toussaint-Comeau in the year 2010, it had found that there is no granger cause wage to price. From the study of Carr et al., (2000), Nickell & Saleheen (2015) explained that price level influences the wage growth of a country.



A panel study of G-7 countries carried out by Narayan & Smyth (2008) from the year 1960 to 2004 on the time series data of inflation, real wage and productivity and they found that 1% increase in real wage generates a 0.6% increase in productivity, but the contradictory is that the effect of increasing inflation on the growth of productivity is insignificant.

From the study on the economy of Nigeria, Muhammad et al.,(2018) explained that the relationship between wage and inflation is was insignificant. The high rate of unemployment can create social vice in a country and such type of vice reduce productivity in the economy. By considering wage and price in the economy the income policy has been determined.

It is the very common that the ultimate impact of increasing wage is to increase inflation rate of a nation if the nation does not enhance its production. The outlook of this paper is to investigate the real impact of wage hike of Bangladesh after implementation of pay scale in year 2015.

Objectives of Study

The primary objective of the paper is given below

- i. To measure the impact of the new pay scale on the real benefit on the economy of Bangladesh.

The specific objectives are to,

- ii. Assess the impact of wage increment on the inflation rate and GDP growth of Bangladesh.
- iii. Impact of wage increment on the economic welfare of Bangladesh.
- iv. To calculate the gross happiness in Bangladesh.

Observation and Methodology

The methodology of this paper is complex than the other research paper. The basic objective of this paper is to measure the impact of wage hikes on the real benefit in Bangladesh. But in developing nations like Bangladesh, it is the common practice that people do not want to express their real economic situation like income, investment, asset holding, and personal status of happiness level. There are two sections of this paper one is based on secondary time series data and another is based on primary data.

Time series data is the most important and comprehensive way to explain the economic outcomes in an economy. Such type of data set is widely used to explain economic trends around the world. In this paper, an intensive time series analysis was conducted. Data has been taken from the year 1986 to 2018. In this analysis consumer price index (CPI), growth of gross domestic product (GDPG), and growth of broad (M2) money supply (MSG) has been considered to find out the facts of wage hike and real benefit on the economy of Bangladesh.

In this paper, a structural questioner is used to collect information about wage increments on the economic welfare of Bangladesh. The layout of the questioner has been given in the table 2 (Appendix B).



The basic problem is that what should be the optimal number of sample size of this study? It is very difficult and challenging to select the appropriate number of sample sizes with a given number of levels of significance (for example 5%, 10% or 15%). Random sampling procedure is used in this study. The total number of population is 3 million. Each household considered as the member of the population. There are a number of factors like level of precision, confidence level, and degree of variability considered to select the optimal number of samples for the particular study. From the study of Israer (1992), the optimal number of samples is 400 based on the population in the research area of Barishal division (**Appendix C**). There are six districts in this division. To make the sample survey participatory, in this study sample are collected from every district on the basis of population size in each district. The largest sample collected from the Barishal district which is near about 25% and 20% sample are collected from the Patuakhali and Pirojpur district each. In Bhola district 15% sample are collected where as 10% sample are collected from Barguna and Jhalokati district each.

Methodology

Quantitative Analysis

In this paper, a set of advanced and unavoidable econometrical tools are used to identify the impact of new pay structure on the economic welfare of Bangladesh. The components of the research methodology of this paper are explained below

Normality Test

The assumption of normality is most essential and has great importance for the time series analysis (Gujarati & Porter, 2015). This test is conducted by the residual of OLS estimation in where skewness and kurtosis of residuals are used to estimate the normal distribution of residual (Jarque & Bera, 1987). The test statistics of the normality test is,

$$JB = n \left[\frac{S^2}{6} + \frac{(K - 3)^2}{24} \right] \quad \text{Eq: 1}$$

In here,

n = Sample size, S = skewness coefficient, K = Kurtosis.

The hypothesis statement of this test is,

$H_0 = T e$ Series Is Normally Distributed.

$H_a = T e$ Series Is Not Not Normally Distributed.

Unit Root Test

Unit root test is the window of time series analysis, because on the basis of this test the researchers take the decision which econometrics model they should apply. Unit root test is the popular test to determine a series is stationary or non-stationary (Greene, 2018). If a series called $\{Y_t\}$ is AR(1) process, then the series has the validity to apply unit root test (Pantula et al., 1994). If the series $\{Y_t\}$ has a unit root, then the following model is bring used,



$$Y_t = Y_{t-1} + u_t \quad \text{Eq: 2}$$

$$d(Y_t) = Y_t - Y_{t-1} + u_t \quad \text{Eq: 3}$$

Now following equation should be consider,

$$d(Y_t) = \delta Y_{t-1} + u_t \quad \text{Eq: 4}$$

Now the hypothesis is,

$$H_0: \delta = 1, \text{ as unit root.}$$

$$H_a: \delta \neq 1, \text{ as not unit root.}$$

The basic equation of this paper for unit root is,

$$d(Y_t) = \beta_1 Y_{t-1} + \beta_2 + \beta_3 \text{Trend} + u_t \quad \text{Eq: 5}$$

Lag Length Criteria

In this paper Autoregressive Distributed Lag Model (ARDL) is used to establish the short run and long run relationship among the variables. In this situation to identify the optimal number of lag is necessary to find out the appropriate relationship in the econometrical analysis of the model. In this paper Sequential modified LR test statistics, Final Prediction Error, Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion are used to determine the optimal number of lags of our analysis.

Autoregressive Distributed Lag (ARDL) Approach

By using Autoregressive Distributed Lag approach, long run relationship among the time series data has been identified in the case on non-stationary and stationary data series. This approach is developed by Granger,(1981) and Engle & Granger (1987), Hashem Pesaran et al., (1995). This approach is a combination of long-run and short-run coefficients. The basic model of ARDL is

$$Y_t = \beta_0 + \sum_{i=1}^n \beta_i Y_{t-1} + \sum_{i=1}^n \delta_i X_{t-i} + \gamma_1 Y_{t-1} + \gamma_2 X_{t-1} + u_t \quad \text{Eq: 6}$$

From the up ARDL core equation β_i & δ_i represent the short-run dynamic of the model and γ_1 & γ_2 measure the long run impact of the model. The error term of the model is white noise e.i $u_t \sim IIND(0, \sigma^2)$ Eq: 7

The ARDL model with error-correction term is developed from long run equation which is given below

$$Y_t = \beta_0 + \beta_1 X_t + u_t \quad \text{Eq: 8}$$

From the up equation the error term of the model has been developed like that

$$Z_{t-1} = Y_{t-1} - \beta_0 - \beta_1 X_{t-1} \quad \text{Eq: 9}$$

Now the ARDL model along with ECT or Error Correction Term is on below

$$Y_t = \beta_0 + \sum_{i=1}^n \beta_i Y_{t-1} + \sum_{i=1}^n \delta_i X_{t-i} + \vartheta Z_{t-1} + u_t \quad \text{Eq: 10}$$

In equation 9, ϑ is the ETC coefficient and Z_{t-1} is ECT term which also measures the speed towards equilibrium in long-run from the disequilibrium in short run dynamic.

**Qualitative Analysis***T test*

A t-test approach is a common statistical tool by which it has been comparing means of two groups. It one of the most extensively used statistical hypotheses tests in the field of data analysis. The T-test is one of the parametric test procedure and precondition of using the test procedure when the data series satisfy the conditions of normality, equal variance, and independence. If one can define the probability distribution of any observation it refers to the parametric method and if it is impossible to identify the probability distribution of any observation it will be referred to as non-parametric distribution. T-test has been classified into two ways one is an independent t-test and paired t-test. Independent t-test has been defined as when the two groups are independent of each other and a t-test is called paired when they are dependent on each other. If it is possible to divide the data set into two independent groups (groups A and B) and can be necessary to compare common features then an independent t-test is used. In this research paper, t-test statistics are used to compare the pair wise mean of two individual groups.

The test statistics of independent sample t-test is,

$$t = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{s_{1+2} \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \sim t(n_1 + n_2 - 2) \quad \text{Eq: 11}$$

$$S_{1+2}^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2} \quad \text{Eq: 12}$$

If the population variance is not equal, the t statistics of t test would be

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}} \quad \text{Eq: 13}$$

Result and Analysis*General Statistical Information*

This paper is based on the intensive time-series investigation from the year 1986 to 2018. To measure the impact of inflation on GDP growth consumer price index and growth of money supply (narrow money, m1) have been considered in this report. The general inflation of the time series data has been demonstrated in the table below,

Table 3: General Statistical Properties.

Name of Variables →			
Statistics ↓	CPI	GDPG	MSG
Mean	6.351613	5.264194	16.08645
Median	6.220000	5.240000	14.89000
Maximum	10.70000	7.240000	43.00000
Minimum	2.010000	2.420000	9.740000

(Source: Author's Estimation)



Within the period, the average value of CPI, GDPG, and MSG are respectively 6.35, 5.26, and 16.08 percentages. The maximum and minimum value of the consumer price index (CPI) is 10.70 and 2.01 respectively. On the other hand, the maximum value of GDPG in Bangladesh is 7.24 where the minimum is 2.24. In the case of money supply growth, the minimum growth of m1 is 9.74% where the maximum growth is 43%.

Normality Analysis

The normality statement is the common and frequent used statistical tools by which stability of time series data and the average distribution with random variation over the mean value can be observed. From the table, it has been identified that the series CPI and GDPG are normally distributed around the mean value because the p-value for both series is greater than 5% level of significance. But the growth of the money supply is not normally distributed around the mean value.

Table 4: Normality Statistics.

Name of Variables →	CPI	GDPG	MSG
Skewness	-0.166461	-0.375950	3.099850
Kurtosis	2.550987	2.542983	15.11405
Jarque-Bera	0.403581	1.000033	239.1992
Probability	0.817266	0.606521	0.000000

(Source: Author's Estimation)

Unit Root Analysis

According to the Augmented Dicky Fuller test and Phellips- Parron test the time series variable GDPG is non-stationary on the level and the other two series are stationary at level. From this characteristic of time series data, it is considered to apply the Autoregressive Distribution Lag model (ARDL) model to find out the short-run and long-run dynamic investigation among the variables.

Table 5: Unit Root Statistics.

Name of Test →	ADF		PP		Decision
Name of Variable ↓	t- value	p-value	t-value	p-value	
GDPG	-2.306121	0.1766	-2.011958	0.2804	I(1)
MSG	-4.631348	0.0009	-4.613728	0.0009	I(0)
CPI	-4.16	0.003	-4.179759	0.0028	I(0)

(Source: Author's Estimation)

Lag Selection Analysis

The Optimal number of lags is precondition to build up an optimal time series model. According to the LR, FPE, AIC, SC and HQ criteria the optimal number of lag number is 2 for ARDL model.



Table 6: Lag Order Determination.

Name of Criteria →						
Order of Lag ↓	LogL	LR	FPE	AIC	SC	HQ
0	-67.02	NA	8.70	5.00	5.14	5.04
1	-65.65	2.32	8.49	4.97	5.16	5.03
2	-61.49	6.84*	6.79*	4.75*	4.98*	4.82*

(Source: Author’s Estimation)

Estimation of Unrestricted ARDL Model

The basic model is,

$$cpi_t = c_1 + c_2 cpi_{t-1} + c_3 cpi_{t-2} + c_4 gdp_{t-1} + c_5 gdp_{t-2} + c_6 msg_{t-1} + c_7 msg_{t-2} + c_8 cpi_{t-1} + c_9 gdp_{t-1} + c_{10} msg_{t-1} + u_t \quad Eq: 14$$

Table 7: Estimation of Unrestricted Coefficient.

Name of Coefficient	Coefficient Value	t-value	P-value
c_1	0.668606	0.201305	0.8427
c_2	0.052848	0.191636	0.8502
c_3	-0.285504	-1.329001	0.2004
c_4	-0.595994	-1.015588	0.3233
c_5	-0.388076	-0.744587	0.4661
c_6	-0.074411	-0.711613	0.4858
c_7	-0.097364	-1.286262	0.2147
c_8	-0.776889	-2.167790	0.0438
c_9	0.690259	1.210389	0.2418
c_{10}	0.034854	0.273694	0.7874

(Source: Author’s Estimation)

From the estimation of the short-run model it is clear that most of the coefficient of the ARDL model is insignificant to influence the consumer price index (CPI) in short-run. It implies that there is no causality of GDP growth and money supply growth on the inflation in Bangladesh.

Long run model

The equation of long run model is,

$$cpi_t = \beta_0 + \beta_1 gdp_t + \beta_2 msg_t + u_t \quad Eq: 15$$

The estimated equation,

$$cpi_t = 5.53 + 0.42 gdp_t - 0.08 msg_t \quad Eq: 16$$

From the estimation of the long run equation it has been robustly established that there is a negative relationship between money supply growths and consumer price index (inflation). This indicates that, the implication of new pay scale has no impact on price level in Bangladesh because money supply which is increased due to new pay structure does not increase the inflation of Bangladesh.



The short-run restricted ARDL model (ECT)

The main feature of the ARDL model is that the Error Correction Term should be negative and statistically significant. If a short-run model can able to achieve such type of pre-requisite then anyone considers that the long-run equilibrium must be convergence to the equilibrium and if any divergence observes in the short-run it will again restore the equilibrium point over time according to the estimated correction rate.

$$cpi_t = c_1 + c_2 cpi_{t-1} + c_3 cpi_{t-2} + c_4 gdp_{t-1} + c_5 gdp_{t-2} + c_6 msg_{t-1} + c_7 msg_{t-2} + c_8 ect_{t-1} + u_t \quad Eq: 17$$

Table 8: Estimation of restricted Coefficient.

Name of Coefficient	Coefficient Value	t-value	P-value
c₁	-0.047689	-0.105006	0.9174
c₂	0.029012	0.109878	0.9136
c₃	-0.293279	-1.388450	0.1803
c₄	-0.482023	-0.988628	0.3347
c₅	-0.340321	-0.712067	0.4846
c₆	-0.007015	-0.103905	0.9183
c₇	-0.056443	-0.903724	0.3769
c₈	-0.715072	-2.120789	0.0466

(Source: Author’s Estimation)

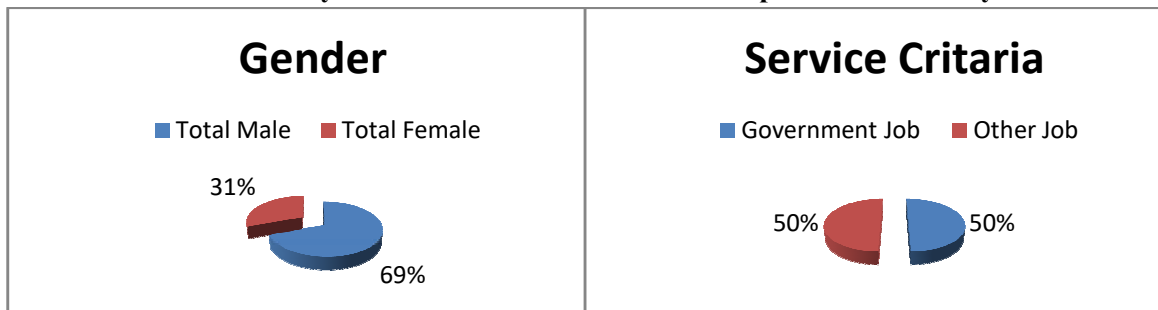
From the above table, it has been seen that the error correction coefficient value is negative and also statistically significant because the p-value is less than 5%. Any diversion from the long-run equilibrium will be convergence through the short-run correction.

General Information f sample survey

In this research study, 69.3% of respondents are male and 30.8% are female. To make a comparative analysis the impact of wage change on society, in this paper 50% of respondents have government jobs and the remaining 50% of respondents are involved in other jobs. From the pie chart given beneath it has been explored the up statement:

Figure A: Statistics of Gender Participant in survey.

Figure B: Statistics of Service of respondents in survey.



(source: Sample Survey 2018)



The average age of respondents is 42 years and their average year of schooling is 13 years. Individual respondent has 16 years of job experience on an average and the typical household size is 4.86. The average income level and consumption expenditure of households are 37989 Tk and 25538 Tk respectively. The summary of the research survey on six Likert variables are represented by the pie chart below

Figure C: Percentage of Response.

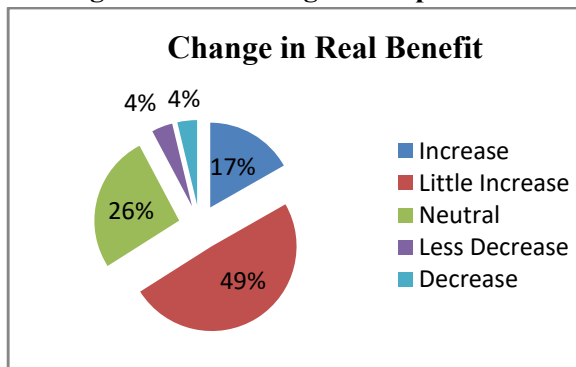


Figure D: Percentage of Response.

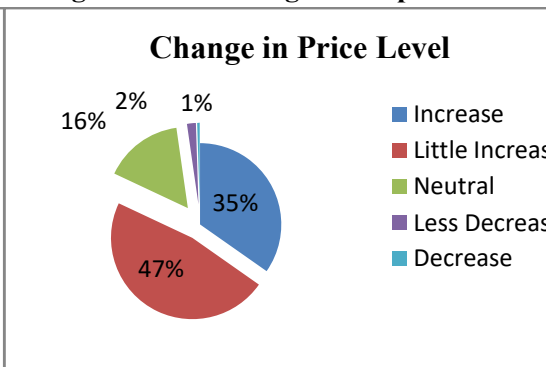


Figure E: Percentage of Response.

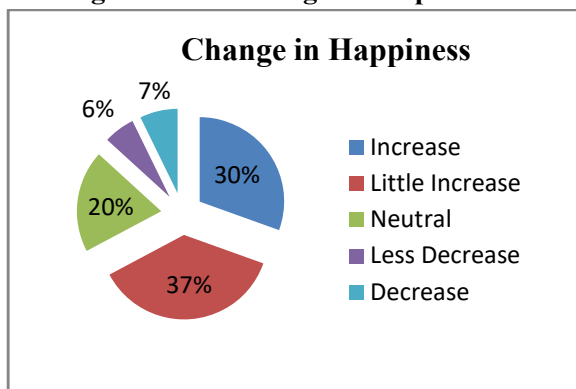


Figure F: Percentage of Response.

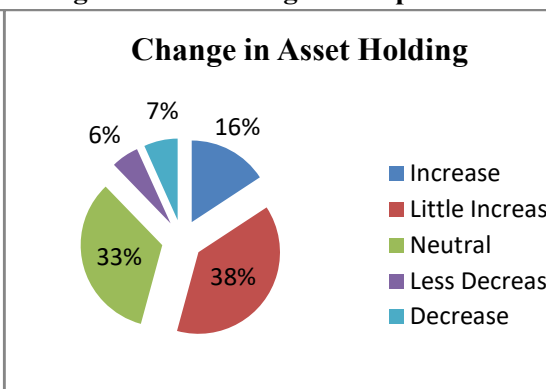


Figure G: Percentage of Response.

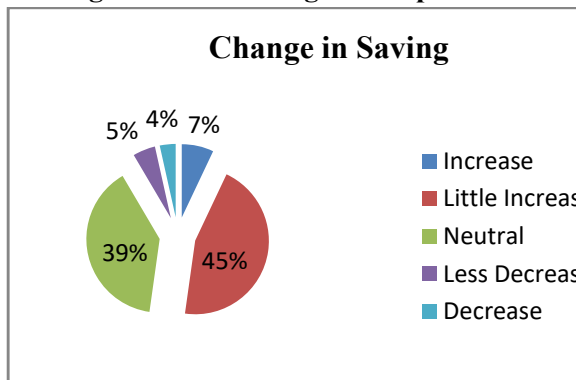
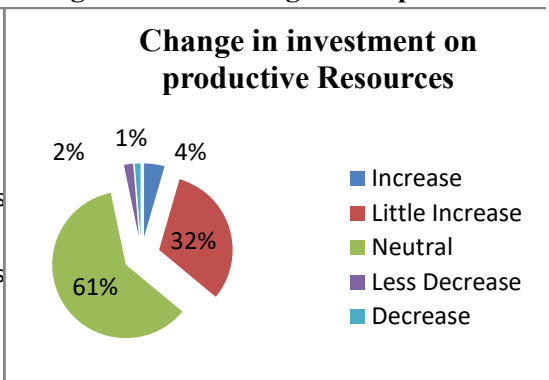


Figure H: Percentage of Response.



(Source: Sample Survey 2018)



Group wise General Introduction

The main objective of this paper is to analyze the impact of the wage increase on government service holders and people who are involving other services. This paper is related to the analysis of behaviors both psychological and financial after the implementation of the new pay scale in the year 2015. In this paper, the isolation of two groups of individuals has been explained through the explanatory process and statistical process. The general information on government service holders and other service holders are demonstrated in the table,

Table 9: Group wise general information.

Properties		Government Service Holder	Other Working Class
Gender	Male	127	150
	Female	73	50
Age (Year)		42	43
Size of Household		5	6
Year of Schooling		14	12
Year of Job Experience		15	17
Income		35659 (Tk)	40231 (Tk)
Expenditure		26899 (Tk)	24143 (Tk)

(source: Sample Survey 2018)

Group Wise “T” Test:

In this part, it has been investigated to identify the mean difference between government and non-government workers due to implement of new pay scale on the government sectors. The general test statistics of different test variables is given below:

Table 10: Summary of T-test.

Name of Test Variables	Service Criteria	Mean	P-Value	Outcome
Change in Real Benefit	Government	2.01	0.00	Isolate
	nongovernment	2.57		
Change in Price Level	Government	1.85	0.70	Not Isolate
	nongovernment	1.88		
Change in Happiness	Government	1.89	0.00	Isolate
	nongovernment	2.57		
Change in Asset Holding	Government	2.38	0.043	Isolate
	nongovernment	2.60		
Change in Saving	Government	2.39	0.001	Isolate
	nongovernment	2.67		
Chang in Investment on Productive Resource	Government	2.65	0.88	Not Isolate
	nongovernment	2.64		
Change in Income	Government	35658.75	0.34	Not Isolate
	nongovernment	40319.91		



Change in Expenditure	Government	26899.27	0.07	Not Isolate
	nongovernment	24177.00		
Household Size	Government	4.78	0.31	Not Isolate
	nongovernment	4.96		

(Source: Sample Survey 2018)

Most of the test variables mean value is positive. This implies that increase of wage increase the welfare (real benefit) both of the government and non-government workers. In the case of change in price level, Change in Investment on Productive Resource, Change in Income, Change in Expenditure and household size is statistically similar for both groups of workers. But in the case of real benefit non-government workers gain more benefit than government workers.

Policy Recommendations and Conclusion

The main objective of this research is to investigate the impact of the implementation of pay scale on the economy of Bangladesh in 2015. By using Autoregressive Distributed lag mode on the data from year 1986 to 2018 it has been found that increasing wage dose not the cause of the inflation of Bangladesh rather than there is a positive annex between the GDP growth of Bangladesh and consumer price index. This implies that the pay scale can increase the real benefit of the economy of Bangladesh. In this paper, 400 samples are randomly selected to realize the real impact of wage hike in the economy of Bangladesh. The survey questioner is based on the general information and Likert scale data series. The main objective of this sample survey is to analyze the impact of the wage increase on government service holders and people who are involving other services except for the government. In this paper group-wise, “t-test” is used to find out the mean difference between two groups (government services holder and non-government service holder). The real benefit of both groups of people is unchanged implies that both groups of people have the same real benefit after the increment of the salary of the government service holder. It is also the same in the case of happiness, asset holding, and saving. In the case of the price level, investment, income, and expenditure these two groups of the population are isolated. But all those results indicate that it increases the welfare of the economy by increasing the financial and non-financial well-being of the commons in the economy of Bangladesh.

The important finding is that the increase in wages in the government sector is increased personal saving. The government should ensure an efficient investment policy as a why the commons can invest their extra saving. Stock markets and the financial market are the main sources of investment. An efficient and organized stock and financial market ensure rapid the invest formation in society. It is unfortunate but true that the stock market of Bangladesh is not efficient. Last few years the scams in this market reduce the trust and stability of the investor. On the other hand lack of diversity in the financial market unable to attract individuals to invest in this market. The government must ensure that, the increasing wage does not increase income inequality. In Bangladesh, the main source of government revenue is the indirect tax say VAT



(value-added tax), because due to the lack of a proper and efficient institution system the revenue collected through the direct tax is not addressable or not full-fill the government needs according to the government expenditure. The middle class, lower middle class, and poor class suffer more. In the case of Bangladesh people in marginal class has a high level of MPC (marginal propensity to consume). In this situation their marginal sacrifice due to tax (may be direct or indirect) is absolute. On the other hand, the progressive tax system is not subject to strong monitoring by the government. To reduce this problem government should redesign her tax structure according to ensure the principles of the equal marginal sacrifice of all income class levels in the society.

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**Appendices**

Appendix A

Table 1: Comparative statistics of salary increment			
Grade	7th National Pay Scale	8th National Pay Scale	Percentage of Salary increment
Grade 1	40,000	78,000	95%
Grade 2	33,500	66,000	97%
Grade 3	29,000	56,000	93%
Grade 4	25,750	50,000	94%
Grade 5	22,250	43,000	93%
Grade 6	18,500	35,500	91%
Grade 7	15,000	29,000	93%
Grade 8	12,000	23,000	91%
Grade 9	11,000	22,000	100%
Grade 10	8,000	16,000	100%
Grade 11	6,400	12,000	87%
Grade 12	5,900	11,300	91%
Grade 13	5,500	11,000	100%
Grade 14	5,200	10,200	96%
Grade 15	4,900	9,700	97%
Grade 16	4,700	9,300	97%
Grade 17	4,500	9,000	100%
Grade 18	4,400	8,800	100%
Grade 19	4,250	8,500	100%
Grade 20	4,100	8,250	101%

(Source: Gazette order December 2015)



Appendix B

Table 2: Questioner Format

Sample Survey

Id No:

1. Location:
2. Gender:
3. Age (in year):
4. Education (year of schooling):
5. Mode of Service: a) Govt. b) Private c) Business d) Others (please specify):
6. Job experience (in year):
7. Does Pay Scale increase the real benefit?

More Increase		Little increase		Neutral		Less decrease		Decreased	
---------------	--	-----------------	--	---------	--	---------------	--	-----------	--

8. Does new pay scale increase the price level?

More Increase		Little increase		Neutral		Less decrease		Decreased	
---------------	--	-----------------	--	---------	--	---------------	--	-----------	--

9. Are people happy with new pay scale?

Happier		Little happy		Neutral		Less happy		Unhappy	
---------	--	--------------	--	---------	--	------------	--	---------	--

10. *Expectation of new asset holding*

More expectation		Little expectation		Neutral		Less expectation		No expectation	
------------------	--	--------------------	--	---------	--	------------------	--	----------------	--

11. Perception: Impact of new pay scale on your saving

More Increase		Little increase		Neutral		Less decrease		Decreased	
---------------	--	-----------------	--	---------	--	---------------	--	-----------	--

12. Perception: Impact of new pay scale on your productive assets

More Increase		Little increase		Neutral		Less decrease		Decreased	
---------------	--	-----------------	--	---------	--	---------------	--	-----------	--

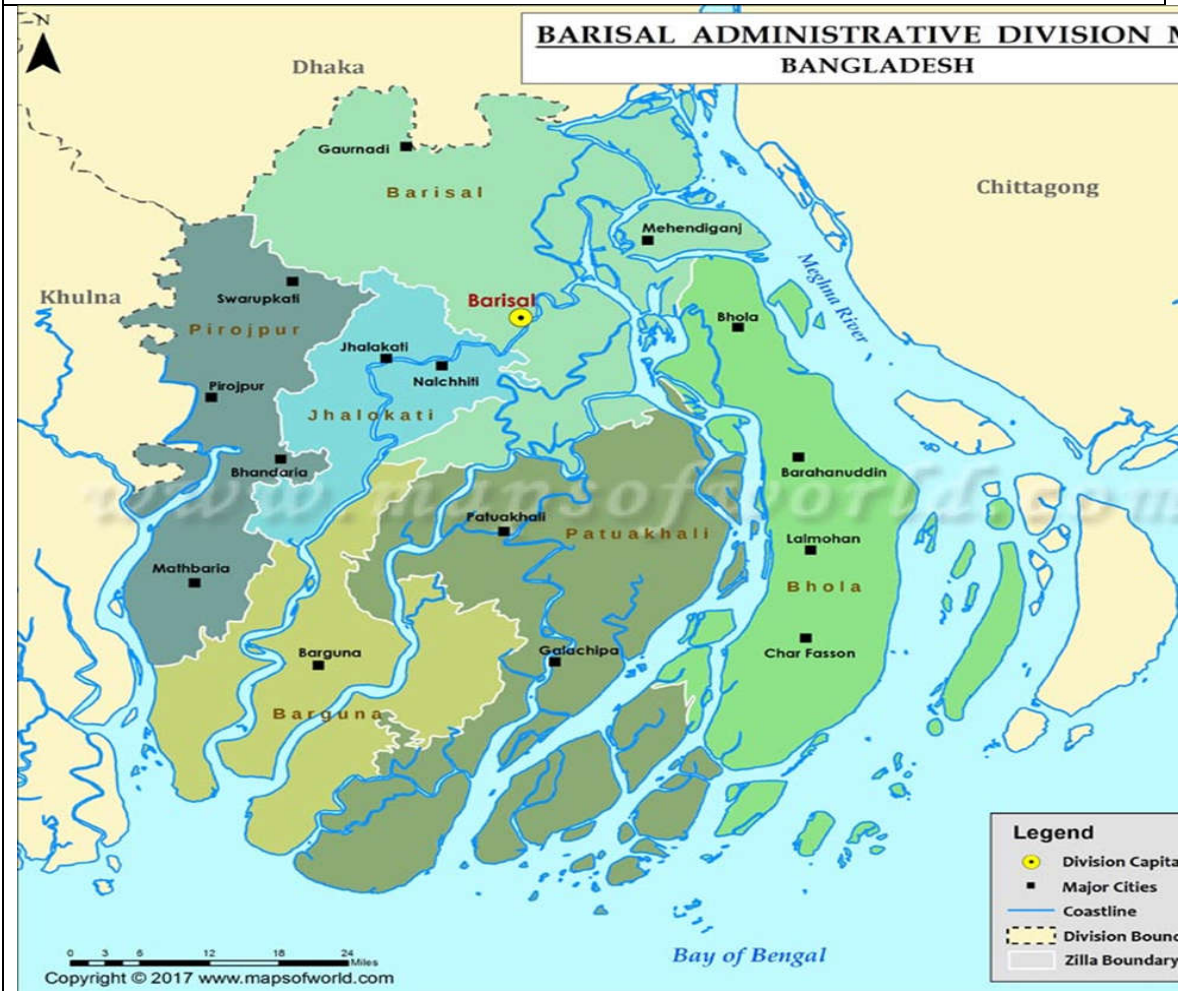
SL	Items	In BDT
0	Income per month	
1	Total expenditure per month	
2	Income from wage	
3	Income from Assets	
4	Income from capital gain	
5	Income from investment	

(Source: Author's Creation.)



Appendix C

Figure A: Map of Barisal Administrative Division



(Source: Govt. of People's Republic of Bangladesh)



ELECTORAL POLITICS OF MINOR POLITICAL PARTIES IN BANGLADESH: AN ANALYSIS ON VOTING REPRESENTATION OF POST 1990 PARLIAMENTARY ELECTIONS

Md. Sunbin Islam*

Abstract

The electoral democracy has transformed power-based politics which is accomplished into two primary electoral alliance led by the two parties, the AL and the BNP. But the centralized two-system played different political syndrome for the minor parties in the electoral politics of Bangladesh. The minor parties are marginalized consecutively in every election after the establishment of the parliamentary system which helps to bring up the authoritarian electoral system. The state-orientated electoral system drives the two-party political structures by surrendering the political individuality of minor parties. This paper figures out the degree of decreasing the voting delegacy of minor parties in the parliament. The ideology, depth of that party, organizational structure, etc. weakened considerably of these parties. The number of votes, the percentage of votes, and the number of seats in the parliament showed the party acceptability, effectiveness, and representation under the two-party political development in Bangladesh that presents the diminishing in the strength of minor parties.

Keywords: *Electoral Politics, Minor Political Parties, Voting Representation, Electoral Democracy, Electoral Alliance*

Introduction

Political parties in Bangladesh played significant role in the political movements in the 1950s, 1960s, 1970s, and 1990s but they never performed the decisive role in fostering democracy after the emergence of Bangladesh. The emersion of new political parties was clamped down in the establishment of ‘electoral authoritarianism’ (Levitsky & Way, 2002). In 1991, after the reclamation of democracy, the power through electoral politics was distributed between the two main political parties, but electoral democracy did not yet standardized. So the other parties allied with them to survive where the political system is being centralized by the ‘winner-take-all’ policy. Since 1991 the party structures and partisan identification of major two parties have spread, but that does not mean it has the organizational strength (Jahan, 2014). The main focus here is that apart from the major parties, the strength, position in grassroots and urban level, structures, and aspiration towards people of minor parties has been decreased day by day which has been noticed in the election result especially from 1991 to 2008 parliamentary election. Even the voting representation of those parties cut back eminently in the general election. “Democratic institutions were not nurtured either by the ruling or the opposition parties” (Jahan,

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2014) whether even the minor parties did not follow the democratic leadership practice in the party politics. “Under the existing election system, when parties join an alliance led by a party having the relatively stronger political base there is a tendency that smaller ones gradually lose their own identity and become a part of the leading party” (Quader, 2018). In Bangladesh that most of the minor parties in both the alliances are increasingly using the election symbol of the leading alliance member for immediate survival and thereby surrendering their political individuality. It seems the country is eventually moving towards two-party political structures with leading parties of both liberals' and conservatives' alliance (Quader, 2018).

Historically, Bangladesh has a tradition of a two-party system from the beginning of parliamentary democracy in the 1990s. The Awami League, based on secular principles, is headed by Sheikh Hasina who is the daughter of Sheikh Mujibur Rahman, father of the nation of Bangladesh, from the 1980s. The other major party, far-right leaning, is led by Khaleda Zia who is heir after the Ziaur Rahman. The socialist political parties like the Bangladesh Workers Party, the Jatiyo Samajtantrik Dal (JSD), and other socialist forces advocate revolutionary changes that are in the left position ideologically. Bangladesh Jamaat-e-Islami (JI) as well as the Muslim League are considered the ultra-right-wing parties in Bangladesh. “In Bangladesh, Islamic parties' policy influence is very high, and electoral success is very low” (Jahan & Shahan, 2013). So, all of the forces from minor political parties in Bangladesh are getting cluster around the principles, and policies of key political forces. Undemocratic practices have been carried over from autocratic to the democratic era (The Centre for Policy Dialogue, 2014, as cited in Jahan, 2015). “After 1991, there was the regular rotation of power through election between two mainstream parties, AL and BNP. Minor parties became marginalized and moved towards two electoral alliances led by AL and BNP” (The Centre for Policy Dialogue, 2014, as cited in Jahan, 2015).

This article is organized into seventh sections. After the introduction, chapter two discusses the rationale, objective, and scope of this paper where the basic principles are my argument behind the selection of this area of interest. The third section will point out the methodology of this research paper. The fourth section reflects the political party history of Bangladesh with the narrative of some minor parties. The fifth section deals with parliamentary election results of all parties from the 1991 election to the 2008 election, where the focus on the cabalistic friction of election results between major and minor parties. By disclosing this election figure, this paper reveals why some parties are called minor parties. The six-section talks over the comparison of election results of 1991, 1996, 2001, and 2008 elections of the selected minor parties one by one. Figure, tables, and chart illustrate the election result of every minor party. It visualized the representation of minor parties in the Parliament and how it got down in every election after the establishment of the parliamentary system. The seventh section is the conclusion summarizing key findings and critical issues about the debate of the dominant two-party system where the minor parties are nothing else in the parliamentary democracy in Bangladesh.



Rationale and Objective of the Study

The preliminary aim of the paper is to interpret the electoral voting politics of minor political parties in Bangladesh regarding voting representation in the parliamentary election from 1991 to 2008 in Bangladesh where I have figured out/frame the discussions and arguments based on data of election results. “There are two basic ways of tracking a party’s performance in electoral politics - according to votes cast and seats won” (Gerring, 2005). “Major parties are defined as the two parties gaining the most seats in the lower house in a given election” (Gerring, 2005). So, other stakeholders in politics are considered as minor parties. “The term minor party or third party thus includes formally ‘independent’ candidacies. Minor party performance refers to all seats gained by non-major party candidates as a percentage of total seats in the lower (or unicameral) house” (Gerring, 2005). The minor parties in Bangladesh means those parties which are apart from two mainstream political parties – AL and BNP. Categorically, among the minor political parties, the researcher specified some minor political parties such as Jatiya Party (JP), Jamat-e-Islam Bangladesh, Bangladesh Workers Party, Bangladesher Communist party, Jatiya Samajtantrik Dal (JSD-All front), Bangladesh Islami Front, Islami Oikya Jote, Bangladesh Khilafat Andolon, National Awami Party (NAP) led by Bhasani, National Awami Party (NAP) led by Muzaffar). The researcher has chosen these parties based on the ideology of that party wherein Bangladesh Workers Party, Bangladesh Communist Party, Jatiya Samajtantrik Dal (JSD-All front), National Awami Party (NAP-Muzaffar) are the leftist parties, Bangladesh Islami Front, Islami Oikya Jote, Bangladesh Khilafat Andolon, Jamat-e-Islam Bangladesh are the right-wing political parties and Jatiya party and National Awami Party (NAP-Bhasani) is ideologically in both ends on a political basis in the context of political interest. The table presents the figure of voting representation, and the chart displays the declining streak per election from the 1991 election.

This paper is divided into two formulas by defining the data of election results and their impact on the democratic aspiration in parliament. The theoretical interest of the article focuses on three political-institutional factors such as voting representation, party acceptance, and coalition in the election. The paper has focused on the representation of minor parties in Parliament and its constructive figure from election results. “As the freely elected body, the parliament is the institution through which the will of the people is expressed and through which popular self-government is realized” (Beetham, 2006, p. 45, as cited in the Centre for Policy Dialogue, 2014). One study argues that “the representative function is the primary *raison d’être* (the most important reason or the purpose for someone or something's existence) of any popular assembly. It is the constant unbroken thread which traces the evolution of the parliament system from its origin to the present day.” (Laundy, 1995, p. 42, as cited in the Centre for Policy Dialogue, 2014)

Interestingly, the number of votes, the percentage of the vote, and the number of constituencies of these minor parties were decreased from 1991 to the 2008 general election. That’s why the electoral politics of Bangladesh is being centralized between the Awami League and



Bangladesh Nationalist Party. From that point different united front/alliances are organized in the election period, and sometimes the candidates of small political parties are elected by carrying on the symbol of the major two parties. When these parties are being united with the major two parties, then the voting figure of the minor political parties is being incremented, and at that time they can play a role in the democratic practice of parliament with the help of two parties. In some settings, every year the number of the total voter is increasing in Bangladesh, but the vote of minor political parties is decreasing significantly. But when these parties are united with the alliance, they get political representation in parliament which is a small portion in most cases.

Methodology & Data Sources

The study is based on a review of existing secondary data (books, articles, documents, newspapers, etc.). This data has been collected from the website of the Bangladesh Election Commission (BEC). The summary of proceedings of election results of the 6th, 7th, 8th, and 9th elections was used to collate data and prepare tables and charts on the representation of all parties and distinctively minor parties with the comparison of the vote in these four elections. This study presents an analysis of specific patterns and trends of data in the evolution of the representation of minor parties. The analysis and presentation of data indicate the understanding of the dynamics of the political system, political acceptance, and political base of the minor parties in Bangladesh. Data from different sources especially the Bangladesh Election Commission (BEC) website was to prepare tables and charts on the figure of representation of minor parties. The researcher here recognizes the methodological constraint that the objectivity and impartiality of secondary data may be questionable and that reports and even academic works may have limited coverage and bias. Overall, however, the literature review methods-perusal of secondary material and statistics- so, the researcher is reasonably confident that the findings are valid, despite the constraints of time and resources.

Post-1990 Parliamentary Elections History in Bangladesh

The political party system in Bangladesh gained momentum after the emergence although significant changes happened over the years in the 1960s, 1980s, and 1990s. Scott Schneider stated that “modern democracy is unthinkable save regarding political parties” (1942, p. 1). Started with the democratic path, military establishment outset their position through the ruling in the political system and setting up political parties in the military barrack. In the 1990s the parliamentary form started with the multi-party system where alliance politics is the main instrument to gain electoral field in the election. Intra-party fraction and splitting among the parties changed the dynamics of the party politics, but still, there is a two-party system in the political game in Bangladesh. Under Western liberal democracies, one theory involving party development is that the two-party system would usher political stability with right-wing, left-wing, and both ends. “But in Bangladesh, a dominant two-party system has resulted in a highly confrontational style of politics” (Jahan, 2015, p. 7).



After the 1991 parliamentary elections in Bangladesh, these two dominant parties ruled rotationally with electoral alliances. Surprisingly, winning in 1991 election by BNP, in the meantime party fragmentation, party-building through state-sponsored and rehabilitation of Islamist parties changed the political ground in Bangladesh. All of the minor parties were split from major parties though JI and JP (Ershad) were in the influential position in the voting figure. But after the establishment of the parliamentary system in 1991 these parties in most cases created the alliance with significant parties that electorally benefited them in voting politics in Bangladesh. The party system was more stable than in the last two decades since restoring the parliamentary system in 1991 in Bangladesh. There are 40 registered political parties (The Daily Star, 2018). The following figures are given due to comparing the voting difference with major parties that would create understanding to analyze the voting representation such as voting percentage, number of vote and number of seats among the political parties. Among all elections understudy, minor parties received less than 10 percent of the legislative seats in the Parliament house in most cases (Gerring, 2005).

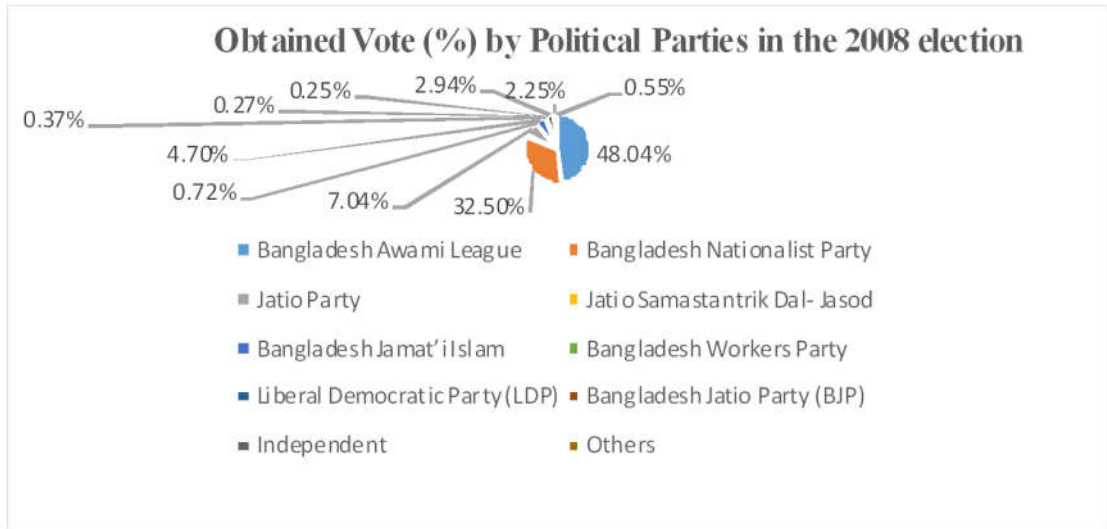
Table 1: Parties Position of Votes Cast and Seats in the General Election, 2008

Political Party	Total Candidate in the election	Winner candidate	Total obtained voter by the party	Percentage of obtained vote
Bangladesh Awami League	264	230	33634629	48.04%
Bangladesh Nationalist Party	260	30	22757101	32.50%
Jatio Party	49	27	4926360	7.04%
Jatio Samastantrik Dal-JSD	7	3	506605	0.72%
Bangladesh Jamat-e-Islam	39	2	3289967	4.70%
Bangladesh Workers Party	5	2	262093	0.37%
Liberal Democratic Party (LDP)	18	1	191679	0.27%
Bangladesh Jatio Party (BJP)	2	1	173292	0.25%
Independent	151	4	2060392	2.94%
Others	772	0	1827563	2.25%
No Vote	-	-	381924	0.55%

Source: <http://www.ecs.gov.bd/files/14jjeif2OAZDbJifbCrdFE2yZ6Ed0XLXfSMe1HCJ.pdf> (Accessed on 1 September 2020)



Chart 1 # Percentage of the obtained vote by the political parties in the 2008 general election



Source: Bangladesh Election Commission website (data compiled by the author)

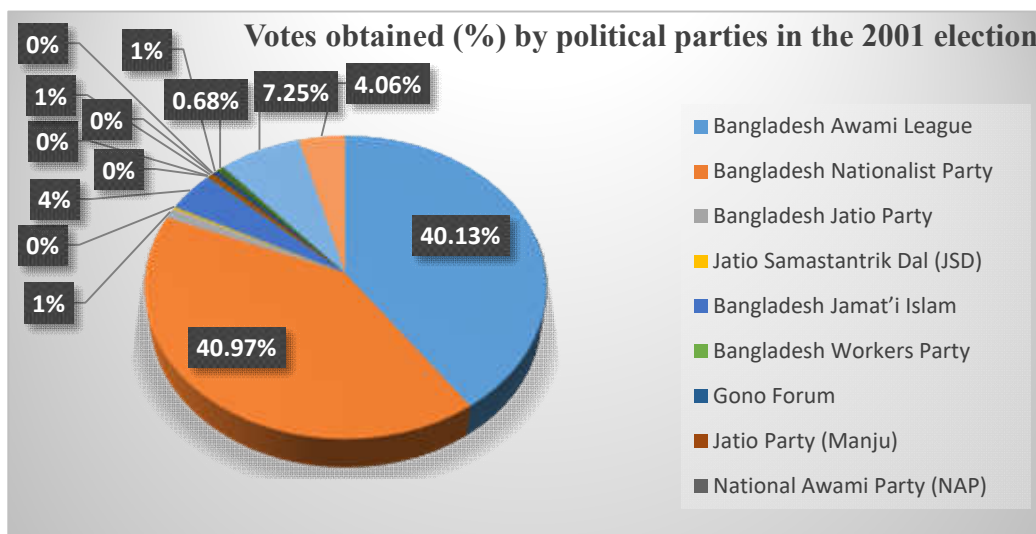
Table 2: Shares of Votes by a Party in the Election, 2001

Name of the Political Party	Candidates contested	Seats won	Votes Obtained	Valid Votes polled (%)
Bangladesh Nationalist Party (BNP)	252	193	22833978	40.97%
Bangladesh Awami League	300	62	22365516	40.13%
Islami Jatio Oikya Front (IIOF)	281	14	4038453	7.25%
Jamaat-e-Islam Bangladesh (JIB)	31	17	2385361	4.28%
Bangladesh Jatiya Party (Naziur)	11	4	621772	1.12%
Islami Oikya Jote	7	2	376343	0.68%
Krishak Shramik Janata League	39	1	261344	0.47%
Jatiya Party (Manju)	140	1	243617	0.44%
Independent	486	6	2262073	4.06%
Jatiya Samajtantrik Dal (JSD)	76	0	119382	0.21%
Bangladesh Workers Party	32	0	40484	0.07%
Bangladesher Communist Party	64	0	56991	0.10%
National Awami Party (NAP)	3	0	3801	0.01%

Source: <http://www.ecs.gov.bd/files/Khdh5RFCFWlpINOVIdJv3AsAPsvRoFHAOTZBBgZ7.pdf> (Accessed on 2 September 2020).



Chart 2 # Percentage of the obtained vote by the political parties in the 2001 election



Source: Bangladesh Election Commission website (data compiled by the author)

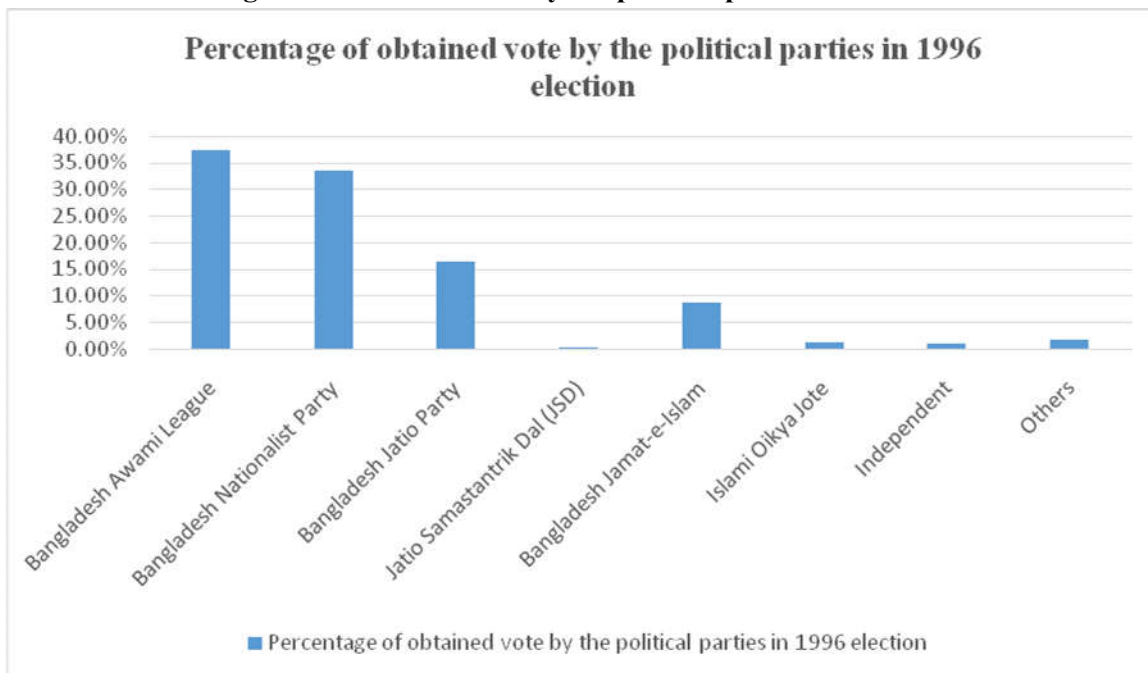
Table 3: Seats won by the political parties in the general election, 1996 in Bangladesh

Political Party	Total Candidate in the election	Seats obtained	Total obtained voter by the party	Percentage of obtained vote
Bangladesh Awami League	300	146	15882792	37.44%
Bangladesh Nationalist Party	300	116	14255986	33.60%
Jatio Party	293	32	6954981	16.40%
JatioSamastantrik Dal-(JSD-RAB)	67	1	97916	0.23%
Bangladesh Jamat-e-Islam	300	3	3653013	8.61%
IslamiOikyaJote	166	1	461003	1.09%
Independent	284	1	450132	1.06%
Others	864	0	666476	1.67%

Source: <http://www.ecs.gov.bd/files/DdoI94oJL4UqEDqrMKUyWHVTyMWlGD0gg8ZMHWmE.pdf> (Accessed on 3 September 2020).



Chart 3 # Percentage of the obtained vote by the political parties in the 1996 election



Source: Bangladesh Election Commission website (data compiled by the author)

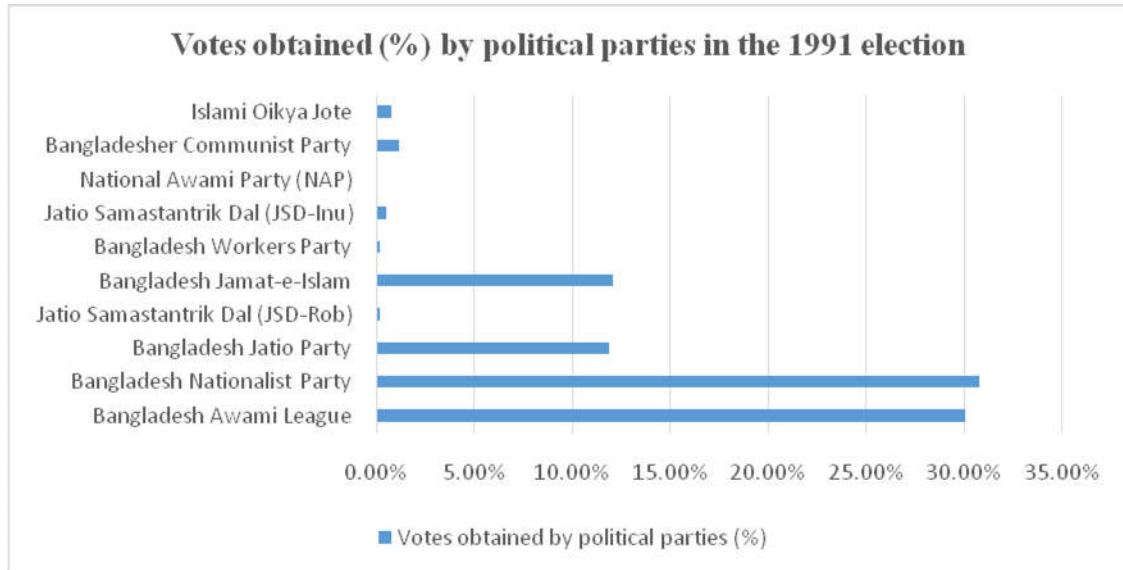
Table 4: Seats won by the political parties in the 1991 election

Name of the Political Party	Candidates contested	Seats won	Votes Obtained	Valid Votes polled (%)
Bangladesh Nationalist Party (BNP)	300	140	10507549	30.81%
Bangladesh Awami League	264	88	10259866	30.08%
Jamaat-e-Islami Bangladesh (JIB)	222	18	4136661	12.13%
Bangladesh Jatio Party	272	35	4063537	11.92%
Islami Oikya Jote	59	1	269434	0.79%
Jatiya Samajtantrik Dal (JSD-ASM Rob)	161	0	269	0.21%
Jatiya Samajtantrik Dal (JSD-Inu)	68	0	171011	0.50%
Bangladesh Workers Party	35	1	63434	0.19%
Bangladesher Communist Party	49	5	407515	1.19%
National Awami Party (NAP)	30	0	9129	0.03%

Source: <http://www.ecs.gov.bd/files/ThFLtbDbGhTUMoFTCOYIbiMqsTmSFf6gwtR39Vrx.pdf> (Accessed on 02 September 2020).



Chart 4 # Votes obtained (%) by the political parties in the general election, 1991 in Bangladesh



Source: Bangladesh Election Commission website (data compiled by the author)

Electoral Politics and Minor Political Parties:

The regularity of elections and rotation of power between the two major parties/ electoral alliance did not institutionalize electoral democracy due to the undemocratic behavior, for example, winners take all. So the minor parties do not play an active role in democratic practice in the same way they have not any successive position in the electoral politics in Bangladesh. Strategically, the following analysis gives an essential argument behind the voting representation of minor parties from the 1991 election to the 2008 election which describes the collapse of voting percentage, number of votes, and seats in parliament. “According to one estimate, in 2006, even though there were 100 Islamic parties, only two managed representation in parliament. Moreover, the percentage of votes achieved by the Islamic parties has declined consistently since 1991 and right now they have control over only 7% of the total electoral population” (Riaz & Fair, 2011). In most cases, the alliance politics in the electoral field did not impact in an indicative way in the digressions of the vote of minor parties. The overall position in voting percentage did not change widely. In the following, I have discussed voting politics and its figure of Bangladesh Workers Party (WPB), Communist Party of Bangladesh (CPB), Jatiya Party (JP-Ershad), Jamat-E-Islam Bangladesh (JI), Jatiya Samajtantrik Dal (JSD-All front), Bangladesh Islami Front (BIF), Bangladesh Khilafat Andolon (BKA), Islami Oikya Jote (IOJ), National Awami Party (NAP- Bhashani) and National Awami Party (NAP-Muzaffar).

Bangladesh Workers Party (WPB)

The Workers Party of Bangladesh (WPB) was founded in 1980 after splitting the Communist Party of Bangladesh (CPB-Leninist) whither Amal Sen regarded as the founding secretary-



general of the party. After that, it was divided into another clique although they assembled in 1992.

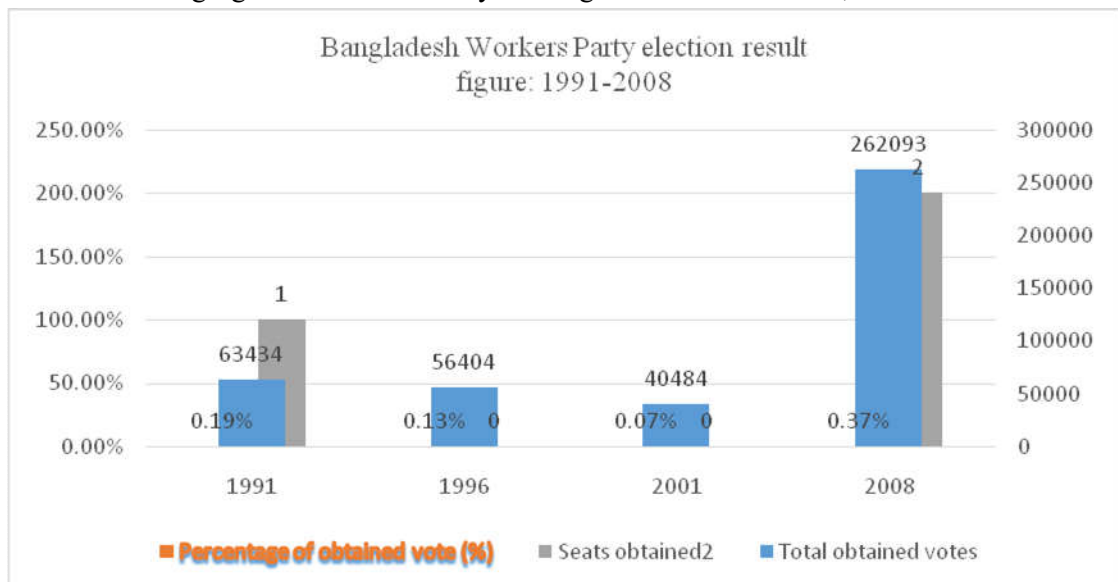
Table 5: The voting figure of Workers Party of Bangladesh in the election, 1991-2008

Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	63434	1	0.19%
1996	56404	0	0.13%
2001	40484	0	0.07%
2008	262093	2	0.37%

Source: Bangladesh Election Commission website

The WPB got one constituency in 1991 and two in the 2008 general election. But in the 1996 and 2001 general elections, this party did not obtain any parliamentary seats. In the above figure, the voting presentation in the parliament dropped from 0.19% to 0.07% in the 2001 election. But for the alliance politics in the election, they got 262093 votes which amounted to two parliamentary seats with 0.37% vote overall. Although WPB participated in 35 constituencies in the 1991 election, 34 seats in the 1996 election, 32 seats in the 2001 election, and five seats in the 2008 election. In the 2008 election, WPB won in Rajshahi-2 and Dhaka-8 constituencies where the president and secretary-general of the party were the candidates who got 116599 votes in Rajshahi-2 and 97841 votes in Dhaka-8 because of the alliance in the election. By analyzing the data, this assessment is supported by the document that the number and percentage of vote WPB cut back day by day in Bangladesh.

Chart 5 # Voting figure of Workers Party of Bangladesh in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

**Communist Party of Bangladesh (CPB):**

The Communist Party of Bangladesh, a successor organization, to the All India Communist Party which established in Cownpur on 26 December 1925 with Singar Bhelu Chettiar of Madras as president, S.V Ghate and G.P Bagarhatta as secretaries. After the independence of Bangladesh, the party was renamed the Communist Party of Bangladesh (CPB). In 1973, the CPB elected with Moni Singh as president and Mohammad Farhad as general secretary.

Table 6: The voting figure of the Communist Party of Bangladesh (CPB) in the election, 1991-2008

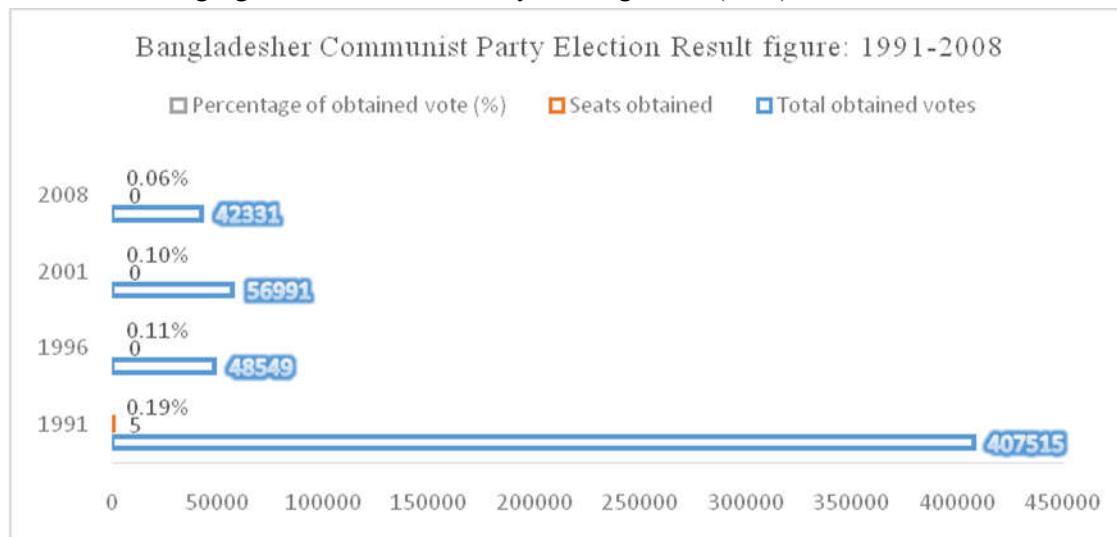
Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	407515	5	1.19%
1996	48549	0	0.11%
2001	56991	0	0.10%
2008	42331	0	0.06%

Source: Bangladesh Election Commission website

The CPB is the only party that voting delegacy in Parliament is going downwards extensively from 1991 to 2008 general election. This decline happened due to the “unable to promote the niche political dynamism needed to attract citizens towards their agendas” (Ahmed, 2018). After independence, the CPB had a significant role in parliament and establishing people’s rights in Bangladesh. In 1991 election secured five parliamentary seats which are from Panchagarh-2 with 42335 votes, Thakurgaon-2 with 46452 votes, Nilphamari-2 with 35216 votes, Chittagong-7 with 34615 and others obtaining neck and crop in voting percentage of 1.19%. The 1991 general election was the last election where they brought under control in 5 seats of parliament and conforming 5th position among all parties in the election. In the 1996, 2001, and 2008 general elections they did not secure any constituencies however CPB obtained 48549 votes in total which is the corresponding voting figure with one parliamentary seat in the 1991 election. Alike in the 2001 and 2008 elections, they thoroughly watered down from the electoral politics with securing just only 0.10% and 0.06% of votes successively in Bangladesh.



Chart 6 # Voting figure of Communist Party of Bangladesh (CPB) in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

Jatiya Party (JP-Ershad)

The Jatiya Party, a military-oriented party from its establishment, formed on 1 January 1986 under Lt General HM Ershad during military rule. Through rigging in the 1986 election, JP got a brute majority. In the 1991 election, JP secured as the third major party in the parliament getting 35 seats. After that, JP crumbled into several parts such as Ershad JP, Anwar Hossain Manju JP, Naziur Rahman Manju JP, etc. The built-in tendencies of party organizations to be autocratic that means its favor the authoritarian leadership such as Duverger’s view that a party that organizes itself along authoritarian lines is superior to others’ (1967, p. 134, as cited in Chr. Michelsen Institute, 2014). In 1986 third national parliamentary election the Jatiya party got 153 seats with obtaining 42.34% votes, and in the 1988 election, JP got 251 seats with securing 68.4% votes although that’s election was debatable and highly centralized by the state-sponsored parties (Jahan, 2015, p. 24).

Table 7: The voting figure of Jatiya Party (JP-Ershad) in the election, 1991-2008

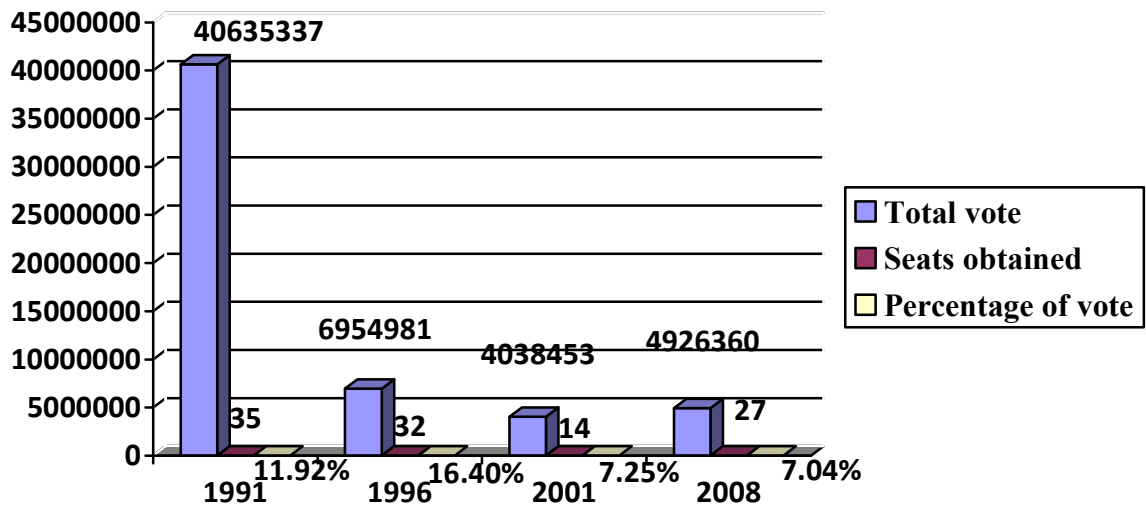
Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	4063537	35	11.92%
1996	6954981	32	16.40%
2001 (Unitedly)	4038453	14	7.25%
2008 (Unitedly)	4926360	27	7.04%

Source: Bangladesh Election Commission website



The Jatiya Party is the third largest and only party that became the ruling power in the 1990s among the minor parties which was chosen by the reseacher as a sample of this paper. Viewed historically, the percentage of the obtained vote by the Jatiya Party got worse from the 1996 election. Although, JP took part in the 2001 and 2008 general elections as an alliance of the Awami League. The interesting point is that in 2001 they got a 7.25% vote with securing 14 parliamentary seats, but in the 2008 election they obtained a 7.04% vote (27 seats in 2008) which is less than the previous election in voting percentage. Even they failed to ensure their positions in the party stronghold areas. "Once Rangpur was a stronghold of the Jatiya Party, but things have changed now. The number of seats has come down. We have to regain those seats. We have to work to win in the 22 constituencies in greater Rangpur. We will go to power if we get those 22 seats" (Ghatack, 2018).

Chart 7 # Voting figure of Jatiya Party (JP-Ershad) in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

Bangladesh Jamat-E-Islam (JI)

After establishing in 1941, the Jamaat-e-Islami Hind has resorted to their support through an Islamic constitution in Pakistan. Though, all Islamic parties together gained only one seat in East Pakistan in the 1970 election. After the emergence of Bangladesh, the Jammat-e-Islami did not continue its political party development due to the ban. But it again revived after the emergence of the military regime in Bangladesh. By joining in the movement of Anti-Ershad, JI got acceptance to some extent. In 1976 second national parliamentary election the Jamat-e-Islam formed the Islamic democratic League (IDL) and coalition in the poll with Bangladesh Muslim League securing the 3rd largest portion of vote and seats figuring 10.8% and 20 seats consecutively (Ahmed, 2010, pp. 28-29). In the 1986 election, they secured 4.61% votes with ten parliamentary seats (Ahmed, 2010, pp. 36-37).



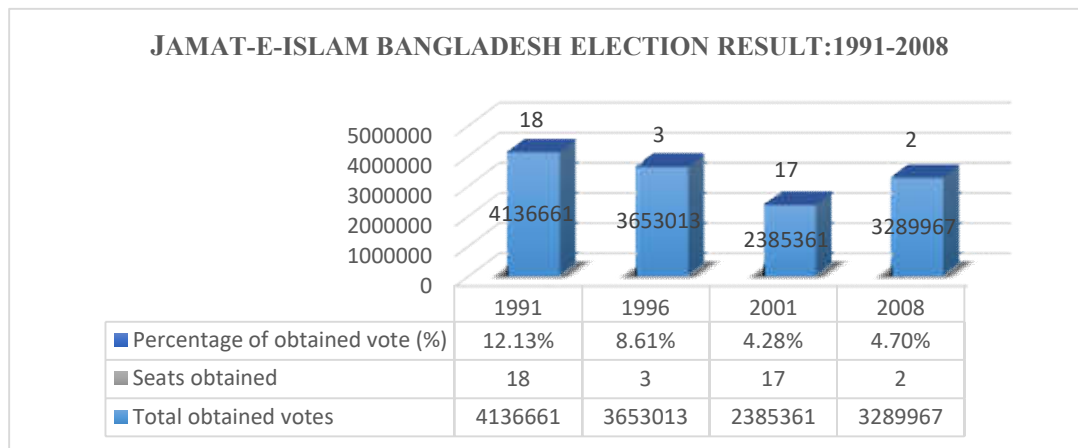
Table 8: The voting figure of Bangladesh Jamat-E-Islam (JI) in the election, 1991-2008

Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	4136661	18	12.13%
1996	3653013	3	8.61%
2001	2385361	17	4.28%
2008	3289967	2	4.70%

Source: Bangladesh Election Commission website

From the 1991 election to the 2008 election their voting presentation in parliament is decreased from 12.13% to 4.70%. JI participated in the election as a bunch of alliance with BNP in 2001, and 2008 general election and the vote and seats of JI declined significantly in 2001 election though they got 17 seats in 2001 election as a bunch of alliance politics with BNP. In the 2008 election, they got only two parliamentary seats in Chittagong-14 and Cox’s Bazar-2. The representation through parliamentary constituencies and voting delegacy dropped with a higher margin in Bangladesh for the Islamic political parties such an example is given below by analyzing the voting representation, obtained seats of JI.

Chart 8 # Voting figure of Bangladesh Jamat-E-Islam (JI) in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

Jatiya Samajtantrik Dal (JSD-All front)

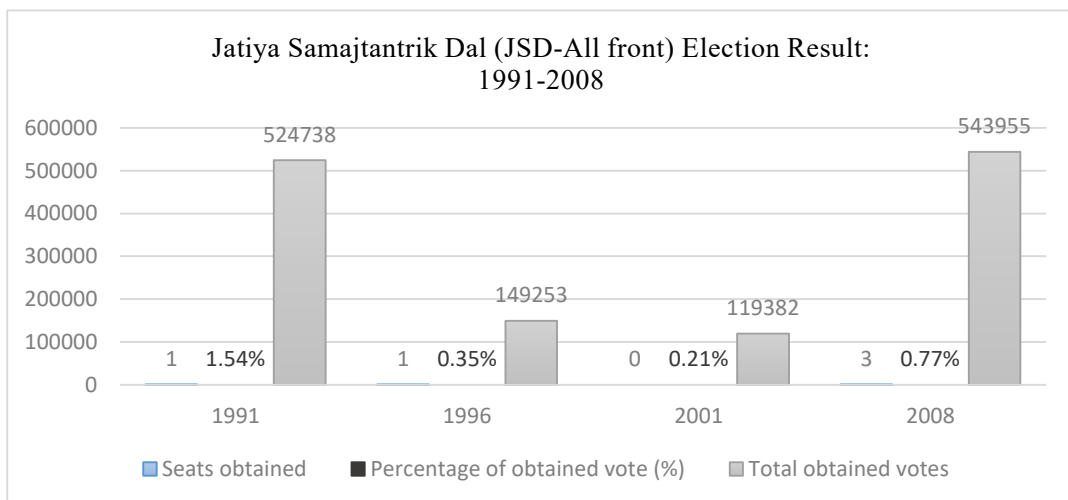
Under ASM Abdur Rab and Sirajul Alam Khan, JSD was formed on 31 October 1972 where Major Ma Jalil and Abdur Rab were the joint conveners. From its emergence, it fragmented into several sections such as JSD (Khaliqzaman Bhuiyan). The split groups were BSD (AFM Mahbubul Haq), JSD (Jalil), JSD (Rab), JSD (Siraj), JSD (Inu), JSD (Raja).

**Table 9:** The voting figure of Jatiya Samajtantrik Dal (JSD-All front) in the election, 1991-2008

Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	524738	1	1.54%
1996	149253	1	0.35%
2001	119382	0	0.21%
2008	543955	3	0.77%

Source: Bangladesh Election Commission website

The interesting point is here they participated in the 2008 general election unitedly with the Awami League. Notwithstanding, JSD came to Bangladesh politics with the vigorous opposition of the Awami League. But none of the parties could muster significant electoral strength (Jahan, 2015, p. 18 as cited in the Centre for Policy Dialogue, 2014). In the 1973 election, JSD got only one seat with an overall 6.44% in almost all areas of their electoral constituencies (Jahan, 2015, p. 19). In the 1979 and 1986 elections, they ensured more electoral seats than the previous election, but their dilapidation started from the 1986 election because of factionalism within the party. After going beyond several parliamentary elections, JSD came into the limelight in the 2008 election by forming the alliance with AL in the election politics of Bangladesh by mastering 3 parliamentary seats. Still, JSD did not obtain in total 1% vote in the 2008 general election overall. In some electoral areas, the Election Commission of Bangladesh (ECB) confiscated JSD candidates, and his/her properties are not getting the required level of the vote to overcome forfeit.

Chart 9 # Voting figure of Jatiya Samajtantrik Dal (JSD-All front) in the election, 1991-2008

Source: Bangladesh Election Commission website (data compiled by the author)



Bangladesh Islami Front (BIF)

Bangladesh Islami Front, an Islamic party, has no seat representation in the parliament of Bangladesh. From 1991 to 2008 general election, they obtained less than 1% of the vote, particularly in all parliamentary elections. They did not get any seat in any general election in Bangladesh.

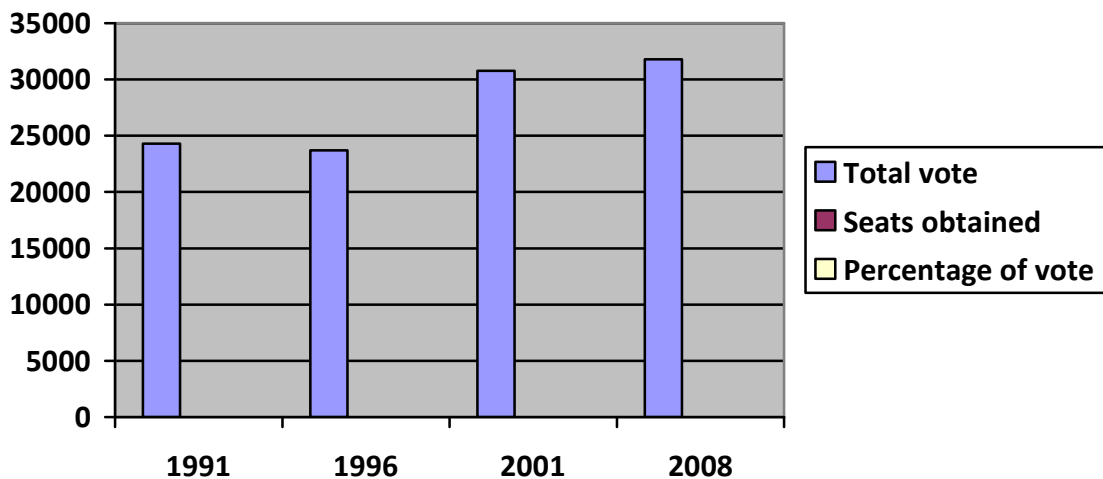
Table 10: The voting figure of Bangladesh Islami Front (BIF) in the election, 1991-2008

Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	24310	0	0.07%
1996	23696	0	0.06%
2001	30761	0	0.06%
2008	31785	0	0.05%

Source: Bangladesh Election Commission website

The figure mentioned above of Bangladesh Islami Front showed that the grass-roots party bases are not organized to show their strength in the electoral politics in Bangladesh. The Islamic parties either try to build an alliance or make contact for getting benefitted through the electoral politics with significant parties. Though, Bangladesh Islami Front did not engage in any types of politics in Bangladesh which will lead them to the delegation in the parliament. Their best voting percentage is 0.07% in the 2008 election but in the previous three elections, they got less than 0.06% vote in total.

Chart 10 # Voting figure of Bangladesh Islami Front (BIF) in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

**Bangladesh Khilafat Andolon (BKA)**

Bangladesh Khilafat Andolon is an Islamic political party that emerged after the 1981 elections in Bangladesh by hardliner Hafezzi Huzur. The following electoral representation of Bangladesh Khilafat Andolon did not show any step of the Islamic revivalism in power politics in Bangladesh. As a presidential candidate, Hafeez Huzur came third in 1981, scoring 387 215 votes (1.79%) that were supported by the Islamic Republican Party and Bangladesh Justice Party. (Ahamed & Nazneen, 1990).

Table 11: The voting figure of Bangladesh Khilafat Andolon (BKA) in the election, 1991-2008

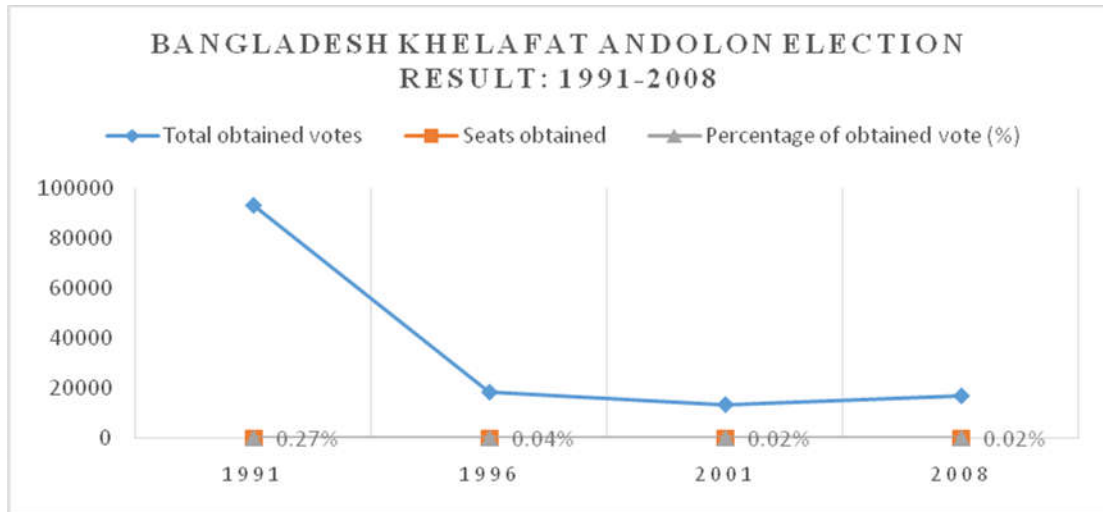
Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	93049	0	0.27%
1996	18397	0	0.04%
2001	13472	0	0.02%
2008	16944	0	0.02%

Source: Bangladesh Election Commission website

In the 1991 election, they did not secure any seats in parliament where BKA obtained only 0.27% votes. By considering their representation division-wise then it was figured out that BKA ensured 12715 votes in the Dhaka division out of 18397 votes all over Bangladesh. The most gripping things are that there is a media outlet about Islamic revivalism in electoral politics in Bangladesh. But the above chart does not represent any point towards analyzing the argument of increasing Islamic votes in the election. The party ran 30 candidates in the 2001 parliamentary polls out of whom no-one got elected. By taking into account the division-wise or constituencies' wise voting proposition they got the highest vote (7918 votes) in Dhaka in the 2001 election out of 13472 votes. BKA is another political party that got less than 1% vote in the poll from 1991 to 2008. BKA got 8590 votes in Dhaka division, 4429 in Chittagong, 1847 in Sylhet, 1080 in Barishal, 859 in Rajshahi, and 135 in Khulna division in the 2008 election.



Chart 11 # Voting figure of Bangladesh Khilafat Andolon (BKA) in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

Islami Oikya Jote (IOJ)

With seven political parties, IOJ consisted of 1990. Based on the Khilafat principle, IOJ took part in the 1996 election and secured only one seat in parliament.

Table 12: The voting figure of Islami Oikya Jote (IOJ) in the election, 1991-2008

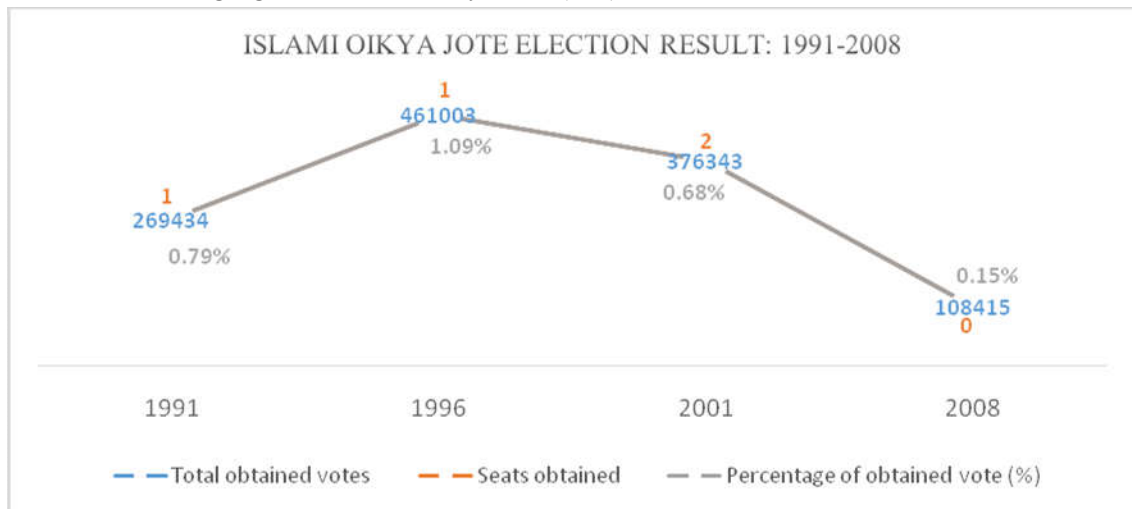
Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	269434	1	0.79%
1996	461003	1	1.09%
2001	376343	2	0.68%
2008	108415	0	0.15%

Source: Bangladesh Election Commission website

IOJ broke their political alliance with BNP without mentioning any reason, but they were affiliated with the four-party alliance in the 2001 general election where they got two parliamentary seats in Bangladesh. After starting parliamentary form democracy in Bangladesh, IOJ participated in all elections though their voting percentage is going ups and downs. Overall they are losing their portion from the 1996 election where they got a 1.09% vote however they had only 0.15% vote in the 2008 election. In the meantime, in the 2001 election, their voting rate (0.68%) is going down with a greater margin.



Chart 12 # Voting figure of Islami Oikya Jote (IOJ) in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

National Awami Party (NAP- Bhashani)

Bhasanai became the president of the NAP after splitting from AL in 1957. The NAP was also divided into two parties, led by BHasani and WALi, during the time of the Sino-Soviet conflict. Though it has gained public support in the decade of 1960s that included the mass movement of 1969. The NAP, Bhasani faction (NAP-B), put up a more strident opposition largely through the public positions of Maulana Bhasani expressed through his newspaper *Haq Katha*. The party developed an anti-India posture and picked up support from some Islamists (Jahan, 2015, p. 18).

Table 13: The voting figure of NAP-Bhasani in the election, 1991-2008

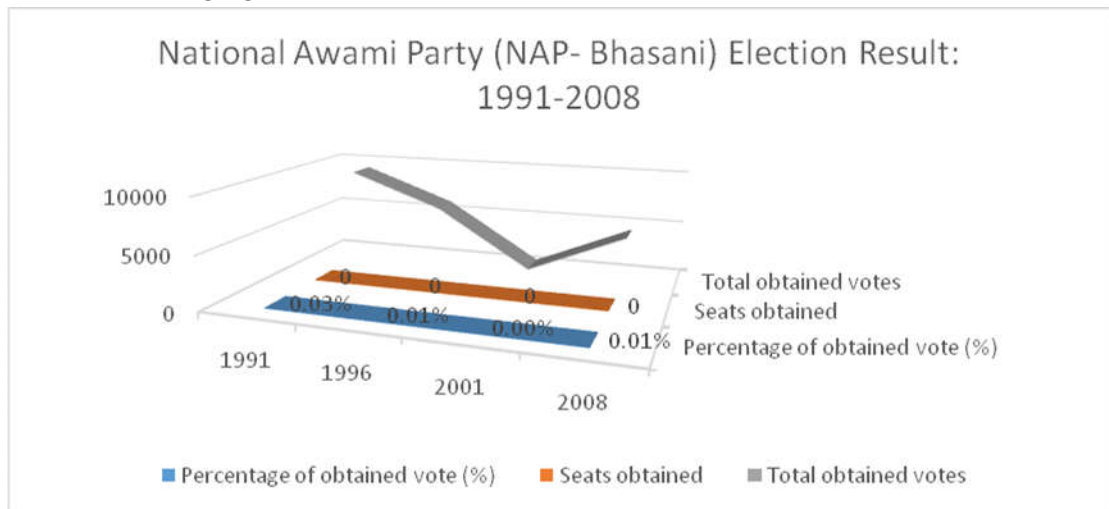
Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	9129	0	0.03%
1996	5948	0	0.014%
2001	442	0	0.00%
2008	4356	0	0.01%

Source: Bangladesh Election Commission website

NAP did not tighten its political power in the 1973 election in Bangladesh because they had not had any parliamentary seats in parliament. They performed well in the 1986 election with securing five seats but after that their obtained vote in the poll was getting worse from the 1991 election where they got only 0.03% vote. Most astonishing things that they did not even secure only 1% vote in any election after the establishment of the parliamentary form of democracy in Bangladesh. Their voting representation in parliament was 0.01% in the 2008 election and 0.00% in the 2001 election.



Chart 13 # Voting figure of NAP-Bhasani in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

National Awami Party (NAP-Muzaffar)

Splitting into two parties (1967), pro-Moscow and pro-Chinese, NAP-Muzaffar allied with AL and the Communist Party in 1973. The Communist Party of Bangladesh (CPB) and NAP, Muzaffar faction (NAP-M) pursued a policy of being a responsible opposition and earned the nickname of being the ‘B’ team of the AL (Jahan, 2015, p. 18).

Table 14: The voting figure of NAP-Muzaffar in the election, 1991-2008

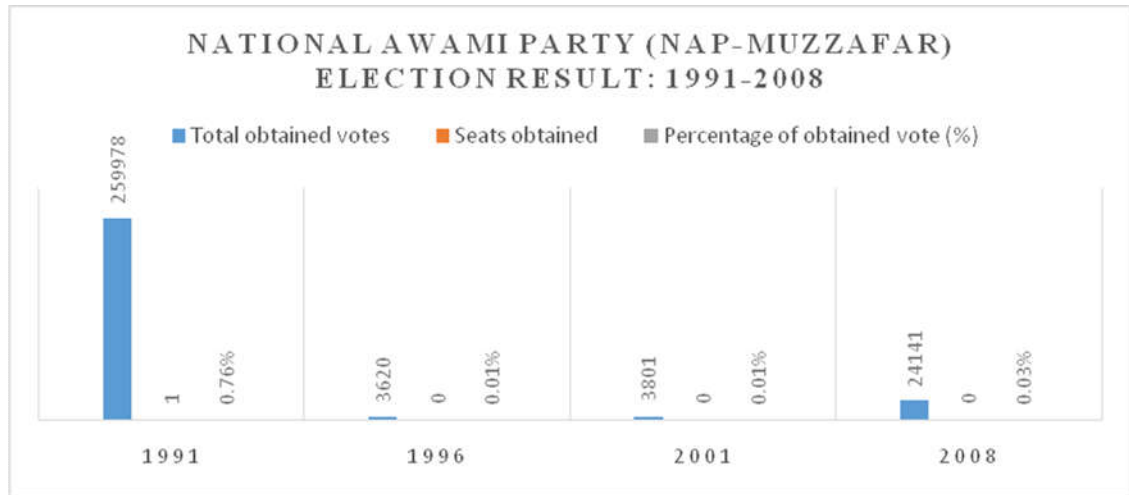
Election Year	Total obtained votes	Seats obtained	Obtained vote (%)
1991	259978	1	0.76%
1996	3620	0	0.01%
2001	3801	0	0.01%
2008	24141	0	0.03%

Source: Bangladesh Election Commission website

In the 1973 election NAP (Muzaffar) won 2 parliamentary seats as part of the alliance with the Awami League securing a 6.44% vote. In the 1979 election, they got one seat with obtaining the vote of 2.25%. In the 1986 election, they won 2 seats with a 0.71% vote in parliament. In 1991 election got 1 seat with 0.76% vote. After that in the 1996, 2001, and 2008 elections they did not win any parliamentary seats.



Chart 14 # Voting figure of NAP-Muzaffar in the election, 1991-2008



Source: Bangladesh Election Commission website (data compiled by the author)

Election Results: Analysis and Evaluation

All the political parties that may be minor or major, particularly demonstrate specific characters for organizationally faction-ridden, weakness in leadership, party building through state-sponsored, growing influence of money and muscle, criminalization of politics, ideology declining, politics of ballots, bombs, and bullets. The above chart and table illustrated appropriately the election results of the representation of minor parties that bring out insights into the stakeholder's representation in parliament. The extensive information based election data helped conducting the basic idea of the research and its analysis. With the increase of total voter in Bangladesh, the number of the vote does not increase in the same pattern for the minor parties, in most cases the reverse things happened. Bangladesh Workers Party (BWP), National Awami Party (NAP-Muzaffar), got more than the previous election because of alliance politics. Though their voting number is increased the percentage of the vote does not increase. Even some parties do not have any professionalism and institutionalization process in political maturity. They lead their party with a dynastic and autocratic leadership where the party does not drive the value of democracy, leadership, and organization. That's happening for all parties like leftist and rightist. From the emergence of the party, they do not even change their policies in the constitution because of the one-man leadership system. Though they failed to ensure their voting representation in any stage of the election that may be national, city, and Upazila level.

“Dormant parties resurface and mushroom ahead of every parliamentary election in Bangladesh, and the upcoming polls are likely to be no different. While the number of political parties in Bangladesh can be estimated at over 100, only 39 are officially registered after three recently had their registrations canceled by the election commission. Although a few go on to win seats, candidates from minor parties do not get significant votes even after they are handed registrations to contest for a second or even third time in the polls. Indeed, there is no



instruction from the election commission to check the history of dormant and inactive parties who achieve less than 1% of the total votes cast” (Irani, 2018).

Concluding Remarks

Bangladesh from its restoration of the parliamentary system, a multi-party electoral system has been practiced. The electoral politics provides a historical overview of the development of minor political parties since independence highlighting their failing growth and the emergence of undemocratic tendencies in Bangladesh. “In Bangladesh, over the last twenty years party organizational structures have spread and partisan identification has deepened, but this has not necessarily led to the greater institutionalization of political parties (Jahan, 2015, p. 8) especially the minor parties. The minor and major parties are increasingly becoming clientelist using patronage system to build support that resulted in intra-party factional feuds within the factional groups. There is a growing concern in Bangladesh that democracy with the two-party system would not lead to a proper commitment to promoting democracy within the organization. The minor parties have to prioritize the democratic values and roles with interest articulation and aggregation not but their policies and practices towards democracy do not focus on the invocation of the general people. In such regard, the leftist political organization has failed to promote the real political and electoral dynamism needed to attract voters towards their agendas.

The Awami League always defended its core state principles that incorporate socialism in the constitution. From its founding leader, Maulana Hamid Khan Bhasani to Bangabandhu Sheikh Mujibur Rahman, Bangladesh has seen the significant role of these politicians in the state policymaking and electoral system. During the military regime, AL again proved it as the party of people-oriented through ousting the military ruler from power. Though in the 1991 election, AL did not secure the electoral majority for forming the government. The BNP emerged as the opposite force of AL by securing a majority in that election. Therefore, even though Islamic principles and Islamic political parties had gained significant influence in the policymaking process over the period, this gain has not been achieved through electoral success (Jahan & Shahan, 2013). The Left speaks well, the Left articulates their arguments well—but without having seats in Parliament or being the united ideological force that they once were, there is little to no hope for this brand of politics to survive in Bangladesh (Ahmed, 2018). In the same way, not like leftist parties, the other right-wing political organization did not create a vast vote bank politics in Bangladesh. The voting figure of significant parties are ups and downs, but the vote of minor parties are going down in every election that has already proved in the data, graph, and chart as mentioned earlier. “Yet, little is known of how smaller parties and independent politicians contribute to politics and government and the impact they have on the functioning of democracy and institutions’ governance” (Copus & et al., 2009).



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SOCIO-ECONOMIC DETERMINANTS OF HOUSEHOLDS' PER CAPITA EDUCATION EXPENDITURE: A CASE STUDY IN BARISHAL DISTRICT, BANGLADESH

Mamunur Rahman* and Md. Tanvir Ahmed**

Abstract

This study attempts to analyze the socio-economic determinants of per capita annual education expenditure at the household level. A cross-sectional household survey has been conducted to Barisal district and households have been selected randomly through simple random sampling method. A structured questionnaire containing both closed and open ended questions has been used to collect data. A multiple regression model has been used to find the relationship between socio-economic determinants and households' per capita annual education expenditure. The OLS estimation technique is used for estimating slope coefficients of explanatory variables. The main findings of this study show that income of households, education level of household head, land ownership, house ownership, number of school going children, types of schools and location of schools have a significant impact on households' per capita annual education expenditure. Therefore, in an attempt to improve education attainment, policy makers should target the majority of poor households. Moreover, public and household education expenditures are complementary to each other. The improvement of public schools in habitants with well trained and motivated teachers will be an incentive for households to increase education expenditure.

Keywords: Education Expenditure, Ordinary Least Square(OLS) Method, ANCOVA Model, Education Level of Household Head, Households Income, Number of School Going Children, Types of Schools and Location of Schools.

Introduction

Education is defined as the process of knowledge, skills, values and attitude to fully develop individual capacities for social welfare. By getting education, people can acquire necessary knowledge, skills and expertise which increase their productive capacity thereby promoting economic growth and prosperity. Considering the important role of education in nation building and national prosperity, countries specially developing economies have over the years continue to introduce policy reforms in the education sector. Recently Bangladesh has achieved the status of lower middle income country and GDP growth rate has reached more than 8 percent. In order to maintain this economic growth and development, Bangladesh has to give more focus on the improvement of the quality of education and human development. But there are challenges in assisting households with educational expenditure in many developing countries facing resource constraints because of targeting households that do not require assistance or not targeting

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households that do require assistance. So, the understanding of the socio-economic determinants of households' expenditure on education is of great importance in educational policy formulation and implementation. But this topic remains untouched, especially in this south central region of Bangladesh. From this study, concerned authorities will be able to know different types of important information regarding households' characteristics and students' characteristics including households' willingness to pay for improving quality of education and important socio-economic determinants of households' per capita annual expenditure in this south central region of Bangladesh.

Objectives of the Study

Broad Objective

The study aims at exploring the socio-economic determinants of the households' per capita annual education expenditure in Barishal district, the south-central region of Bangladesh.

Specific Objectives

- i. To find the characteristics of households and households' heads that affect the amount of households' education expenditure in Barishal district.
- ii. To find the characteristics of educational institutions that affect the amount of households' education expenditure in Barishal district.
- iii. To find the characteristics of students that affects the amount of households' education expenditure in Barishal district.

Literature Review

A number of works have been done to investigate the possible determinants of households' per capita education expenditure in different countries. But the different social and economic factors like parental education, parental professions, types of schools, location of schools, amount of land ownership and house ownership which might have an influence on households education expenditure are yet to be looked into, especially in this south central region of Bangladesh. By including these socio-economic variables, we have tried to find out more realistic socio-economic factors that influence the households' per capita education expenditure in this south-central region of Bangladesh.

Education is considered as both consumer and capital goods because it offers utility to a consumer and also serves as an input into the production of other goods and services. As a capital goods, education can be used to develop human resources which is useful for economic and social transformation. Gertler and Glewwe (1990) viewed education both as consumption and investment goods by reasoning that education is valued for itself and brings future monetary benefits. An investment because it helps to raise a person's aggregate wealth and consumption goods due to the values a learner assumes by, for instance, assuming classes today and developing one's expertise for consuming other goods in future life. According to Farrant (1981), there are two implications of the word education. Firstly, it definitely helps lead to the



search of new knowledge and experiences and secondly, nursing and accelerating this quest of exploring something interesting. Education is the accumulation of incidents happening throughout the lifetime of an individual. The theoretical framework most responsible for the wholesome adoption of education and development policies is known as the Human Capital theory. This theory roots from Smith's (1776) ideas of labor economics. The division of labor is an important factor of economic growth as it increases productivity through tasks specialization. Schultz (1961) and Becker (1964) stated that time and money spent on education build Human Capital, hence one can be able to estimate the rate of return of such investment in a way similar to physical capital. Olaniyan and Okemakinde (2008) proved the positive relationship between labors generated income and human capital measured through the number of years of schooling. According to Almendarez (2011), education or training raises the productivity of workers and hence raises workers future income. According to human capital theory, an individual decision to invest in education is based on the assessment of net present value of the costs and benefits of such investment. Therefore, education expenditure should be considered as an investment. This human capital theory is useful to find out expectations and determinants of a household's investment in education. Tilak (2002) found that there are different socio-economic determinants of household expenditure on education. From the study of Tilak (2002) it is found that household income and the education level of the household head are two important factors of household expenditure on education. Both have the significant positive impact on household education expenditure. This study also shows that the number of school going children has significant positive effect on household education expenditure. Sulaiman, Ismail and Othman (2012) conducted a study on the determinants of household education expenditure by using the OLS model. They found that the demand for education depends on the characteristics of parents and household background such as parent's income, education level of parents and the parental awareness of the impact of globalization and these factors play an important role in determining expenditure on education. According to their study, household income and parental awareness of the impact of globalization are significantly and positively related to households' expenditure on education. The study also demonstrates that the age of the household head is positively and significantly related to education expenditure and the level of education of the household head is correlated positively but is not statistically significant. Another study conducted by Tansel (2002) in Turkey shows that household income, parental education and occupation have significant positive impact on household education expenditure. Kambhampati (2008) examined the relationship between the amount a household spends on education and the rate of return in education. The study finds that the rate of return in education is highly significant in increasing the amount spent on education for both boys and girls. Using the Tobit model, Quang (2012) found that households with higher income are always associated with higher amounts of education spending. He also found that highly educated household heads or with professional jobs enhance the probabilities of educational spending. Moreover the household with more school going children spend more on education. Duong (2004) conducted a survey using 360



households using logistic regression model, the study found that parents' schooling year and the interaction between parents and their children are positively related to the school enrolment and education attainment of the children. The study of Awudu and Ogundari (2014) shows that household spending decisions on education and healthcare purposes depend positively on family income, family size and the education year of the family head. Also the study reveals that female-headed households tends to spend more on education of household members and healthcare services compared to their male counterparts. Another study led by Mariara and Kirii (2006) in Kenya displays that child and household characteristics, quality and cost of schooling, community variables, regional and gender differences are important factors of demand for education. Andreous (2012) directed a study on household expenditure on education in Cyprus. The findings of the study reveal that household income, number of children in a household, area of residence, level of education and age of the household head are the most important factors affecting household education expenditure decisions. Moreover the study shows that household education expenditure increases with household income and household size but decreases with education level and age of household head over the period of time. Al- Samarra and Tessa (1992) conducted a study in rural Tanzania with the aim at evaluating educational attainment and education characteristics by using household survey data. The study shows that whether to enroll in school, father's education has larger impact on boys and mother's education has larger impact on girls. Another study conveyed by Dimoso (2012) in Tanzania shows that mother's literacy level has a significant and positive impact on the education attainment of school children regardless of their gender. While the mother's secondary education significantly increases the probability of both the girls' and boys' progress at school and the mother's primary education level significantly increases the education attainment of the boys only. Another study conducted by Owen and Neriman (2011) in Tanzania unveils that households' education expenditure decision depends on the probable future benefit of education. A typical earning function model was applied by Ngwilizi (2013) on which household education expenditure was regressed to its determinants. The study finds that household size, household income, education level of household head, number of school going children are major driving forces of households to invest in education. There is a positive relationship between public and private funding in education (Tilak, J. B. 1991). Mehrotra Delamonica (1998) found that countries that invest less in education put a huge burden of educational cost on parents of the learners. Furthermore, it is generally debated that characteristics of household members play a pivotal role in allocation of households' resources in education. For instance, a household with a larger portion of members being educated and having a strong bargaining power can always impact the decision of resource allocation (Maasterson, 2012).

Methodology

An ANCOVA (Analysis of Covariance) model is the model in which dependent variable is the function of quantitative variables as well as qualitative (dummy) variables (Gujarati,2004).In this study, ANCOVA (Analysis of Covariance) is applied to find out the relationship between



households’ per capita annual education expenditure and other independent variables. In this study, we have some independent quantitative variables as well as some independent dummy variables. That’s why we have used ANCOVA (Analysis of Covariance) model in this study. Dummy variable is the variable in which it takes value 0 and 1. In such types of variables, 0 indicates absence of an attribute and 1 indicates presence of an attribute.

In this paper ANCOVA model is constructed by different types of socio economic variables where households’ per capita annual education expenditure is dependent variable and age, gender, level of education of household head, household income, house ownership, land ownership, number of school going children, types of schools, and location of schools these are independent variables.

Econometric model

In this paper an ANCOVA model is used to measure the impact of independent variables on the dependent variable. In this paper, a semi-log (log-lin) model is used to find the relative change in households’ per capita annual education expenditure due to absolute change in explanatory variables.

The basic ANCOVA model is given below:

$$Ln_PCEE_i = \alpha + \beta_1 A_i + \beta_2 G_i + \beta_3 LOE_i + \beta_4 H_i + \beta_5 L_i + \beta_6 Y_i + \beta_7 NOSGC_i + \beta_8 TOS_i + \beta_9 LOS_i + U_i \dots \dots \dots (1)$$

In the above equation,

Denotation	Name of the variable	Measurement
PCEE _i	Households’ per capita annual education expenditure of i th household.	Total amount of money spend on education per capita annually (Quantitative variable)
A _i	Age of i th household head.	Complete years a household head has lived (Quantitative variable)
G _i	Gender of i th household head.	Dummy variable. 1 if household head is male, 0 if otherwise/female
LOE _i	Education year of i th household head.	Complete years of schooling of household heads. (Quantitative variable) 5 if primary level, 10 if secondary/SSC level, 12 if higher secondary/HSC level, 16 if graduation level, 17 if post- graduation level.
H _i	House ownership of i th household.	Dummy variable. 1 if the household owns a house, 0 if otherwise.
L _i	Land ownership of households.	Acres of land owned by i th household (Quantitative variable)



Y_i	Annual income of i^{th} household.	Average total annual household income measured in Bangladeshi Taka.(Quantitative variable)
$NOSGC_i$	Number of school /college/university going children of i^{th} household.	Total number of children going to school/college/university in each of the households. (Quantitative variable)
TOS_i	Type of schools/college/university in where children of i^{th} household are studying.	Dummy variable with non-governmental school being a reference category. 1 if government school/college/university, 0 if otherwise
LOS_i	Location of school/college/university in where children of i^{th} household are studying.	Dummy variable with outside region being a reference category. 1 if within region, 0 if otherwise.

To apply OLS (Ordinary Least Square) method on this model and ensure the estimated coefficients are BLUE (Best Linear Unbiased Estimator), in this study we have assumed that the above model is linear in parameters, with zero mean value of error term and no autocorrelation between error terms.

Sample and sampling technique

In this study a cross- sectional research design is applied to find out the socio-economic determinants of households' per capita annual education expenditure in Barisal district. A cross-sectional research design allows the collection of data in a particular region at one point in time. Both quantitative and qualitative primary data have been used in this study. A structured questionnaire containing both closed and open ended questions method is applied to collect data for this research inquiry. Both probability and non- probability sampling techniques are applied to select households. Households are sampled based on a stratified random sampling method. Data are collected only for those households which have at least one secondary school going child and have various socio-economic levels (high, middle and low) and other characteristics including age, gender, education, income, types and location of school/college/university. In this study, Slovin's formula is applied in calculating the number of households.

$$\eta = \frac{N}{N d^2 + 1}$$

Where, η = Number of samples.

N = Total number of households.

d = Error margin (5%)

The total number of households which have at least one secondary school going child living in Barishal district have been considered as the population and each household is considered as a unit of analysis. Using Slovin's formula, 150 samples are collected by considering 5% level of significance.



Result and Analysis

In this study the sample survey of 150 households, among them 131 are male headed households and 19 are female headed households.

The statistical properties of sample data is demonstrated below:

Table 1: Statistical Properties of Data Set.

<i>Variable</i>	<i>Observation</i>	<i>Mean</i>	<i>Std. Dev.</i>	<i>Minimum</i>	<i>Maximum</i>
<i>PCEE</i>	150	60941.11	38900.63	10000	275000
<i>GENDER</i>	150	.8733333	.3337134	0	1
<i>AGE</i>	150	49.95333	8.350812	30	70
<i>LOE</i>	150	12.2	3.683812	0	17
<i>HOUSE</i>	150	.7666667	.4243695	0	1
<i>LAND</i>	150	1.548473	2.135045	0	20
<i>INCOME</i>	150	285906.7	165043.4	100000	700000
<i>NOSGC</i>	150	1.813333	.7542868	1	4
<i>TOS</i>	150	.6066667	.4901262	0	1
<i>LOS</i>	150	.5666667	.4971957	0	1
<i>WTSOE</i>	150	.8933333	.3097231	0	1

From the above table it has been shown that the average annual per capita education expenditure is 60941.11 BDT, where minimum and maximum annual per capita education expenditure are 10000 and 275000 BDT respectively. The average age of the household head of this survey is 49.95 years where minimum and maximum age are 30 and 70 years respectively. The average schooling year of household heads is 12.2 years. Among the sample survey of 150 households, 115 household heads have their own houses and 35 household heads have not. That means, 76.66% of households have their own houses. The average land ownership of a household is 1.548 acres of land where minimum and maximum are 0 and 20 acres of land. The average annual income of a household head is 285906.7 BDT, where minimum and maximum annual income are 100000 and 700000 BDT. The average number of school going children of households is 1.81, where minimum and maximum number of school going children of a household are 1 and 4 respectively. In this sample survey, 60.67% educational institutions are government-type in nature, where children of sample households are studying. Again 56.67% of educational institutions are located in this region and the rest are located outside the region where children of sample households are studying. Among 150 households, 134 household heads have a willingness to spend more on improving educational quality and the rest of others have not.

Regression Analysis

The result of the regression analysis is given below:



Table 2: Result and hypothesis test.

<i>ln_PCEE</i>	<i>Coefficient value</i>	<i>Std. Err</i>	<i>t-value</i>	<i>P-value</i> <i>P > t </i>	<i>[95% Conf. Interval]</i>	
<i>GENDER</i>	0.0331656	0.1026085	0.32	0.747	-0.169697	0.2360282
<i>AGE</i>	0.0035039	0.0042945	0.82	0.416	-0.004986	0.011994
<i>LOE</i>	0.0231324	0.0099393	2.33	0.021	0.003481	0.042782
<i>HOUSE</i>	0.2652737	0.0813102	3.26	0.001	0.104519	0.426028
<i>LAND</i>	0.0096612	0.0156049	0.62	0.537	-0.02119	0.040512
<i>INCOME</i>	0.000000698	0.000000238	2.94	0.004	.000000228	.00000117
<i>NOSGC</i>	-0.1532223	0.0477186	-3.21	0.002	-0.2475644	-0.0588802
<i>TOS</i>	-0.2778804	0.1008377	-2.76	0.007	-0.477242	-0.0785189
<i>LOS</i>	-0.3807356	0.0974381	-3.91	0.000	-0.573376	-0.1880952
<i>Constant</i>	10.59547	0.2446454	43.31	0.000	10.1118	11.07915

Estimated equation is given below:

$$\ln \widehat{PCEE}_i = 10.595 + 0.0331G_i + 0.0035A_i + 0.0231LOE_i + 0.2653H_i + 0.0097L_i + 0.000000698Y_i - 0.1532NOSGC_i - 0.2779TOS_i - 0.3807LOS_i \dots \dots \dots (2)$$

The above estimated equation shows that there is a positive relationship between the age of household heads and households' annual per capita education expenditure. If the age of household head increases by one year, households' annual per capita education expenditure will increase on average by 0.35 percent, keeping other things constant. The estimated slope coefficient of explanatory variable age is not statistically significant at 5% level of significance. Since the P-value (The exact level of significance at which null hypothesis can be rejected; N Gujarati) of the slope coefficient of age is 0.41 which is greater than 0.05. So we can't reject the null hypothesis. Again, the average households' annual per capita education expenditure varies $(e^{0.0331}-1) = 0.0336$ or about 3.36 percent due to gender differences of household head. That means, the male headed households spend, on average 3.36 percent more on education than female headed households, keeping other things constant. The slope coefficient of the dummy variable, gender, is not statistically significant at 5% level of significance as P-value is 0.74 which is greater 0.05. There is a positive relationship between the education level of household head and household per capita annual education expenditure. If the schooling year of a household increases by one year, it will increase households' annual per capita education expenditure on average by 2.3 percent, keeping other things constant. Since the P-value is smaller than the 5% level of significance, we can reject the null hypothesis. That means, there is a significant positive relationship between per capita education expenditure and level of education of household heads. The estimated slope coefficient of the level of education of the household head is statistically significant on the basis of t-test. The dummy variable, house ownership has a positive impact on households' annual per capita education expenditure. Keeping other things constant, the household that has its own house/houses spends, on average



$(e^{0.2653} - 1) = 0.3038$ or about 30.38 percent more than the household having no own house. Since the P-value is smaller than at the 5% level of significance, the estimated slope coefficient of this dummy variable is statistically significant on the basis of t-test. Again there is a positive relationship between household per capita education expenditure and amount of land ownership of that household. The estimated equation shows that if a household owns one more acre of land, it will increase, on average 0.97 percent annual per capita education expenditure of that household, keeping other things constant. But the slope coefficient of this variable is not statistically significant on the basis of t-test. That means land ownership has no significant impact on households' annual per capita education expenditure. There is a positive relationship between the annual income of a household and the annual per capita education expenditure of that household. Although the estimated value of the slope coefficient of income is very small, it is statistically significant on the basis of t-test. That means, households' annual income has a significant positive impact on households' annual per capita education expenditure. The above estimated equation shows that there is a negative relationship between the number of school going children and a household's annual per capita education expenditure. Keeping other things constant, a household decreases on average 15.32 percent annual per capita education expenditure for an additional school going children. The slope coefficient of the number of school going children is statistically significant on the basis of t-test. The dummy variable, types of school with reference category of non-government school has negative impact on household's annual per capita education expenditure. Ceteris paribus, household spends less, on average $(e^{0.2779} - 1) = 0.3203$ or about 32.03 percent annual per capita education expenditure if children of that household study in government school/college/university compared to private school/college/university. So the slope coefficient of the dummy variable types of schools has a significant impact on per capita annual education expenditure. Again the dummy variable, location of schools with reference categories outside this region has a negative impact on a household's annual per capita education expenditure. Ceteris paribus, household spends $(e^{0.3807} - 1) = 0.4637$ or about 46.37 percent less per capita annual education expenditure if the children of that household study in school/college/university that is located within the region compared to outside the region. The slope coefficient of this dummy variable is statistically significant on the basis of t-test. That location of school/college/university has a significant impact on per capita annual education expenditure. The value intercept in this estimated regression equation is 10.59 and this intercept term is statistically significant on the basis of t-test. That indicates the logic behind the inclusion of the intercept term in this regression equation. The signs of all the slope coefficients of the above estimated regression equation are relevant to our priori expectations.

Test of Goodness of Fit and ANOVA Table

The value of R-square is commonly known as the coefficient of determination and most commonly used to measure the goodness of fit of a regression line. The value of R-square measures the proportion or percentage of the total variation in dependent variable explained by



the explanatory variables or regression model. The value of adjusted R- square also measures the total variation in dependent variable due to explanatory variables adjusted with the degree of freedom. The value of R-squared and adjusted R-square of this regression equation are 62.3 percent and 59.9 percent respectively. This indicates that in the above regression model, the dependent variable is well explained by the explanatory variables. The overall significance of a multiple regression test is performed by using F-test. The result of the ANOVA (Analysis of Variance) of this regression model is given below:

Table 3: ANOVA Test Result

<i>Source</i>	<i>Df</i>	<i>SS</i>	<i>MS</i>	<i>F-value</i>	<i>Prob. > F</i>	<i>R-squared</i>	<i>Adj. R-squared</i>
<i>Regression</i>	9	35.0154584	3.89060649	25.73	0.0000	0.6233	0.5990
<i>Residual</i>	140	21.1653353	0.151180966				
<i>Total</i>	149	56.1807937	0.377052307				

In the above ANOVA model, the P-value of the F-test is less than 5% level of significance. Since the P-value is smaller than the level of significance, we can reject the null hypothesis that all the partial slope coefficients are simultaneously equal to zero. So the above estimated model is statistically significant.

Multicollinearity test

Multicollinearity refers to the existence of a perfect or exact, linear relationship among some or all explanatory variables of a regression model (Gujarati, 2004). Multicollinearity can be either perfect or less than perfect. If multicollinearity is perfect, the regression coefficients of the explanatory variables are indeterminate and their standard errors are infinite. If multicollinearity is less than perfect, the regression coefficients, although determine, possess large standard errors (Gujarati, 2004). Multicollinearity test can be performed by using Variance Inflation Factor (VIF).

$$VIF_j = \frac{1}{1-R^2_j}$$

Where, R^2_j is the coefficient of determination of the model which includes all explanatory variables except j^{th} variable. The usual rule of thumb is that any variable with VIF greater than 10 indicates a serious multicollinearity problem.

Table 4: Result of Multicollinearity Test

<i>Variable</i>	<i>VIF</i>	<i>1/VIF</i>
<i>GENDER</i>	1.16	0.865359
<i>AGE</i>	1.27	0.788924
<i>LOE</i>	1.32	0.756846
<i>HOUSE</i>	1.17	0.852182
<i>LAND</i>	1.09	0.914060



<i>INCOME</i>	1.52	0.659186
<i>NOSGC</i>	1.28	0.783183
<i>TOS</i>	2.41	0.415383
<i>LOS</i>	2.31	0.432313

Mean VIF = 1.50

The results of the multicollinearity test show that there is no serious multicollinearity problem since the value of VIF for each of the explanatory variables is less than 10. So the estimates of the slope coefficients do not suffer multicollinearity problems.

Heteroscedasticity Test

Homoscedasticity or equal variance of error term for all explanatory variables is one of the assumptions of CLRM (Classical Linear Regression Model). The violation of this assumption is known as heteroscedasticity. That means, heteroscedasticity is the unequal variance of the error term given the value of explanatory variables. Due to the presence of heteroscedasticity problem, estimates of coefficients can't satisfy the property of efficiency, although they can satisfy the property of linearity, unbiasedness and consistency. So it is important to test heteroskedasticity in this study. White's General test is applied in this study to check whether the assumption of homoscedasticity is satisfied or not. The null hypothesis is homoscedasticity. The results are presented in the following table:

Table 5: Result of Heteroscedasticity Test

Sources	df	SS	MS	F-value	Prob. > F	R-squared	Adj. R-squared
Regression	9	1.46126061	.16236229	1.87	0.0611	0.1073	0.0499
Residual	140	12.1530119	.086807228				
Total	149	13.6142725	.091370956				

e2	Coefficient Value	Std. Err.	t	p> t	[95% Conf. Interval]	
<i>GENDER</i>	-.0164556	.0777522	-0.21	0.833	-.1701759	.1372648
<i>AGE</i>	.002694	.0032542	0.83	0.409	-.0037397	.0091276
<i>LOE</i>	.0100504	.0075315	1.33	0.184	-.0048399	.0249406
<i>HOUSE</i>	-.1069672	.0616133	-1.74	0.085	-.22878	.0148456
<i>LAND</i>	.0100302	.0118247	0.85	0.398	-.0133479	.0334083
<i>INCOME</i>	-.000000546	.00000018	-3.03	0.003	-.000000903	-.00000019
<i>NOSGC</i>	.0102151	.036159	0.28	0.778	-.0612732	-.0817034
<i>TOS</i>	-.15344	.0764104	-2.01	0.047	-.3045075	-.0023726
<i>LOS</i>	.0444249	.0738343	0.60	0.548	-.1015495	.1903993
<i>Constant</i>	.1703787	.1853816	0.92	0.360	-.1961306	.536888

The result of the White's General test of heteroscedasticity shows that the calculated F- value is only 1.87 and the P-value is 0.06. These results ensure that we can't reject our null hypothesis



of the presence of homoscedasticity at the 5% level of significance. That means, there is substantial evidence of the presence of homoscedasticity in this model. So this study does not suffer the problem of heteroscedasticity.

Conclusion and policy recommendations

The aim of this study is to assess the socio-economic determinants of households' per capita annual education expenditure in Barishal district. The findings of the study show that education level of household head, age of household head, annual income of household, ownership of land, ownership of house, number of school going children, types of schools and location of schools are important determinants of households' per capita annual education expenditure. Among them the age of household head, gender, education level of household head, annual income of households, land ownership and house ownership of households have a positive impact on households' per capita annual education expenditure. Remaining determinants such as number of school going children, location of school within region and government type school/college/university have negative impact on household per capita annual education expenditure. This study also shows that approximately 90% households have a willingness to spend more on education for the improvement of the quality of education. Public and household (Private) education expenditure are complementary to each other. This study shows that households with higher annual income spend more on education. So policy should be taken targeting at the poor households to increase their more job opportunities as well as their income in Bangladesh, especially in this south –central part of Bangladesh. Government can play a significant role in this regard, particularly for poor households by providing free educational materials and by setting up new government educational institutions within region. Government can provide free uniforms, learning materials, subsidies and free scholarships for children from poor families. By raising public awareness about the importance of family planning and adult education can play a vital role in spending more on children education for the improvement of the quality of education in this south central region of Bangladesh. ICT based education systems and free internet access for both teachers and students can play an important role in this regard. So, the outcome of this study will be useful to formulating policies and guidelines for overall development of the education status of this country, especially this south-central part of Bangladesh.

Limitations and scope for further study

There are some important explanatory variables which may have significant impacts on education expenditure. This study doesn't differentiate characteristics of male-female children of households. Also this study doesn't make any comparison between rural and urban areas of Barishal district. Therefore, having these pitfalls further research can be conveyed to include these important factors. Moreover, it can further be conveyed using other econometric estimation techniques to examine how these factors affect per capita annual education expenditure



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