

Seminar Paper

on

**Re-excavation of Ponds of Satkhira Zila Parishad in order to
Conserve Water and Provide Safe Water Supply: A Citizens'
Perspective.**

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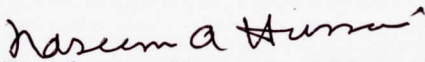
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Certificate

This is to certify that the Seminar paper on “Re-excavation of ponds of Satkhira Zila Parishad in order to conserve water and provide safe water supply: A Citizens’ perspective” is prepared by A.N.M.Moinul Islam, Zonal Settlement Officer, Jashore as a participant of 126th Advanced Course on Administration and Development at BPATC, Savar, Dhaka. This paper is prepared under my guidance and supervision and the quality of the paper is satisfactory level to submit to Course Management Team to fulfil the requirement of the course.

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Re-excavation of Ponds of Satkhira Zila Parishad in order to Conserve Water and Provide Safe Water Supply: A Citizens' Perspective.

Abstract

Water is essential for all socio-economic development and for maintaining a healthy ecosystem in the world. At present, not only reduction of water scarcity is prime goal of many countries and governments but also water scarcity is one of the most important concerns of present day. Due to adverse affect of climate change, Bangladesh is one of the most disaster-prone and vulnerable countries in the world. Bangladesh have to struggle against natural disaster. In spite of a lot of resources, there are scarcity of drinking water in Bangladesh. Considering the situation, The Government of Bangladesh is trying to ensure supply of safe water to its all citizen all over the country. Implementing fundamental principal of the state policy of our constitution article 18A, achieving SDG goal 6.1 and Delta Plan 2100, the government of Bangladesh through its relevant ministries and departments has taken steps to address water problem of Bangladesh. According to direction of honorable Prime Minister of Bangladesh, Local Government Division has taken initiatives to re-excavate the pond of Zila Parishad all over the country in order to conserved ground water and provide safe water supply. In Satkhira districts, Zilla Parishad of Satkhira is implementing local government divisions direction by re-excavating its pond to mitigate water crisis. This research has conducted to identify stakeholder view and satisfaction level regarding safe water supply of Zila Parishad. At the same time it has been tried to determination about the organizational capacity of Zila Parishad regarding management and maintenance of its water resources. Moreover, to find out challenges and to face the challenges some recommendation have been made through this research about conserve ground water and provide safe water supply by Satkhira Zila Parishad.

Keywords: water scarcity, climate change, re-excavate, organizational capacity, conserve safe water.

Introduction

“Water, water, everywhere, nor a drop to drink.”--Rime of the Ancient Mariner,

By Samuel Taylor Coleridge.

Bangladesh is called most disaster-prone and vulnerable countries in the world due to adverse impacts of climate change and its coastal area is most vulnerable. South-western people of Bangladesh have to struggle against natural disasters every year. The lives and livelihood of

the people of this region are at high risk by super cyclone as SIDR and AILA. The people of this area are facing many challenges, water crisis (especially conversation of water and safe water supply) is one of them. More than 3.4 million people die each year from water, sanitation, and hygiene-related causes. Nearly all deaths, 99%, occur in the developing world. (Source: *ActiveWater*) Satkhira is one of the 64 districts of Bangladesh, situated at the south western area of the country which is called coastal district nearby Sunderban. There are many rivers in this district that are not enough deep. That's why saline water intrusion from Bay of Bengal are increasing in the Sunderban mangrove areas.

Due to lack of rivers flow the sweet water availability of Satkhira district has decreasing. In the dry season the people of this district suffer from severe acute water crisis. There are another important matter that due to climate change sea level rise is rising and flow of sweet water in the river is declining. The pond and other reservoirs of this area have become saline in cultivating unplanned shrimp. Many people of this district are using their land for shrimp cultivation which is full consists of saline water. Much of the water in this area have been contaminated through increased salinity. This water is used as a drinking source as well as for cooking, leading to many water-borne infectious diseases such as diarrhea, dysentery and jaundice. As the coastal people rely heavily on surface water (ponds and rivers) and groundwater (tube wells) for drinking (Khan et al. 2014). As a result, the coastal inhabitants are victims of an enduring crisis of water resources for drinking and domestic uses (Abedin et al. 2014). The crisis has increased with the incidence of water-borne diseases that are linked to sea level rise, floods, and salinity intrusion (Sikder & Jian 2014). From a report, it was found that, since 1948, river salinity in the southern districts of Patuakhali, Pirojpur, Barguna, Bagerhat, Khulna, and Satkhira, has risen by 45% (Alam et al. 2017). The report clearly shows that the salinity intrusion already increased and it is likely to increase more in future because of shifted river flows, increased upstream withdrawal of freshwater, and due to the reduced rainfall during the dry season driven by climate change as well as sea-level rise (Abedin et al. 2014). This is one of the most serious health issues in the coastal region of Bangladesh, believed to be mainly caused by the combined effect of arsenic and salinity (Abedin et al. 2014). Dependent populations of unsuitable drinking water sources are facing high adverse risk to their health due to exposure to highly toxic elements and pathogens, causing them to suffer from various water-borne diseases (Flanagan et al. 2012). So fresh water conservation and provide safe water supply in this area is a challenge for the government.

According to article 18A of The Constitution of the People's Republic of Bangladesh, there is a provision about the fundamental principles of state policy "**Protection and improvement of environment and biodiversity-The state shall endeavor to protect and improve the environment and to preserve and safeguard the natural resources, biodiversity, wetlands, forests and wildlife for the present and future citizens**". According to the UN water is the core of sustainable development and is critical for socio-economic and also for human survival. The sustainable development goals address this issues in their goal no,6 which aim to "**Ensure availability and sustainable management of water and sanitation for all**". Target 6.1 specifies "**by 2030, achieves universal and equitable access to safe and affordable drinking for all**." Another goal is 15 which aims to "**Protect restore, and promote sustainable use of terrestrial ecosystems sustainably manage forests, combat**

desertification, halt and reverse land degradation and bio diversity loss” and target 15.1 also specifies-“By 2020 ensure the conservation, restoration and sustainable use of terrestrial and inland fresh water ecosystem and their services, in particular forests, wetlands ,mountains and dry lands, in line with obligations under international agreement.” So, increasing the focus on conservation of water and providing safe water supply Bangladesh can achieve those targets.

In order to implement the fundamental principles of state policy of our constitution and achieving the SDGs goal and targets as well as mitigating water crisis in Bangladesh, some important directives has been given by the Honorable Prime Minister of Bangladesh Sheikh Hasina to the Local Government Division for conservation water and provide pure drinking water of its own ponds all over the country. According to the direction Local Government Division has taken steps to re-excavate 809 ponds of Zilla Parishad in all over the country. In doing so an important project has taken named **“Reopening / renovation of ponds / dighi / reservoirs of Zila Parishad in order to conserve water and provide safe water supply.”**

The main purpose of the project is to help to create a sustainable and beautiful environment, including the development of the environment by conserving ponds / reservoirs, to reduce the tendency to use ground water as a result of overuse of ground water, to reducing depletion of groundwater levels, to promote the economic development of rural people by reducing the incidence of various diseases related to water-borne and drinking water and rural water supply through pond conservation with installation of PSF.

In Satkhira district 57 ponds are included for re-excavation. Many ponds have dried up and are lying unutilized throughout the country. Those should be re-excavated for freshwater for the rural people. Local government division has signed a MoU with the Public Health Engineering Department for re-excavation of Zila Parishad pond.

Literature review

Many studies undertaken on conservation and use of pond water for drinking in south western Bangladesh due to importance of water for human being as well as biodiversity. In Bangladesh, in spite of abundant of water, scarcity of safe drinking water is the reality at present. Nearly one fourth of the population have no access of safe drinking water (Abedin 14). The south western coastal region is facing extreme difficulties in accessing safe drinking water (Quazi 2006). Arsenic, contamination ground water depletion, flooding drought and salinity are major difficulties for the rural people to get safe drinking water from both surface and ground water (Abedin et al. 2013). There are certain areas in coastal districts where both shallow and deep tube well are off use due to high salinity and natural arsenic in the ground water. In general, people in this region use ponds known as *mitha pukur* with pond sand filter as safe drinking resources (Abedin & Umme Habiba 14).

To overcome the water crisis a lot of measure is being practiced such as Open Pond Water(OPW),Hand Tube well(HTW),Water Treatment Plant(WTP) etc (Jubayer 15). Another study was undertaken by Oxfam on safe drinking water. The study shows that in Satkhira district there is a severe shortage of drinking water available to the people. Villager suffers not from the scarcity of water itself but the lack of clean water. Much of the water in this area has been contaminated by several man-made reasons and natural disasters. As usual the poor bear the burnt of this conditions and suffer greatly. Villagers often have to turn to contaminated water as a water source. The water used as a drinking sources as well as for cocking ,leading to many water-borne infectious diseases such as diarrhea, dysentery and jaundice (Oxfam blogs).

Another research shows that tidal flooding, inundation by storm surges and salt water intrusion has led to ,a rise in salinity in ground water and fresh water ponds. As a result, in the coastal area potable water is a scarce and precious commodity. The land structure of Satkhira area unlike any other area in the country. As a result, if a tube well gives clean water for a few months after its constructions the water source soon become contaminated .Pond water is one of the source water of ground water level which is very much useful to the village in the south west part of Bangladesh specially in Satkhira districts. Although there is no scarcity of availability water here but due to arsenic, excessive dissolved iron, lowering ground level getting drinking water is very acute problem (Musa 2004). Bangladesh has made considerable progress over the past 17 years in achieving water and sanitation goals, much need to be done by 2030 to achieve SDGs. But there are still about 71 million people do not have safety managed water(Rahman 17). Ponds are not only the source of safe and drinking water but also at regional level ponds can contribute highly to freshwater bio-diversity(Williams et al,2004).Considering the necessity of ponds water as one of the source of safe and drinking water Bangladesh government has approved Delta Plan 2100 related with water management on 04 September ,2018. Also government has taken steps to re-excavate the Zila Parishad ponds as important source of safe drinking and ground water in 61 districts all over the country. By using re-excavated ponds water of Zila Parishad, the people of Satkhira districts can solve their acute water crisis.

Problem statement

The sources of safe and drinking water of coastal area specially in Satkhira district almost completely destroyed in 2007,SIDR and the 2009 cyclone *AILA*. Due to climate change the amount of salinity in the coast river has almost double. As a result life and livelihood of this area has become extremely at stake. At present drinking water scarcity is a silent and ancient disaster round the year, especially during the dry season (November - May) in Satkhira. The problem became severe after the cyclone Aila. There is also a problem of surface and ground water availability. In the dry season this area suffers from acute shortage of both surface and ground water. Ground water is the main source of water supply in urban and rural areas in Bangladesh. Most of the area of Bangladesh is entirely underlain by water bearing aquifers at depth varying from 0 to 20m below ground surface.

Ground water in Bangladesh is available in adequate quality ,but the availability of ground water for drinking purposes has become a great problem for the following reasons ;1) Arsenic in ground water 2) Excessive dissolved iron 3) Salinity in the shallow water level in coastal areas 4) Lowering the ground water level. So,in spite of heavy rainfall, readily accessible ground water and large river system in Bangladesh, at present water scarcity for drinking water purpose and safe water supply is a major problem in Bangladesh due to arsenic contamination in ground water and surface water pollution. And, so is happening in Satkhira. Maximum land area are being using for shrimp cultivation using saline water .Saline water is responsible for ,as said earlier, various diseases related to water-borne and drinking water. So, the people are seriously facing for safe water crisis and health issues. People of different areas of Satkhira still deprived of pure drinking water and safe ground water. In dry season depletion of ground water level is another major problem here .So re-excavation of ponds of Satkhira Zila Parishad can resolve the water crisis problem.

Objectives

The objectives of this seminar paper are:

- (1) To analyze the stakeholders view regarding the re-excavation pond of Zilla Parishad in order to conserve water and provide safe water supply.
- (2) To find out the challenges.

Research Questions

- (1) What is the stakeholders' concept about re-excavated ponds of Satkhira Zila Parishad ?
- (2) What is the condition of conserved water of re-excavated ponds?
- (3)What is the stakeholders' opinion about supplying safe water of re-excavated ponds?
- (4) What are the challenges to maintaining the re-excavated ponds?

Rationale of the study

The sustainable development goals no, 6 which aim to **“Ensure availability and sustainable management of water and sanitation for all”** and target 6.1 specifies **“by 2030, achieves universal and equitable access to safe and affordable drinking for all.”**Another Sustainable Development Goals no.15 aims at meeting these needs, specifically with respect to **“Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss”**. And the goal's target area 15.1 urges that **“by 2020 ensure conservation, restoration and**

sustainable use of terrestrial and inland freshwater ecosystems and their services, in particular forests, wetlands, mountains and dry land, ...”

The two imperatives together constitute the full physical features of Bangladesh. To fulfil the SDGs goal 6 and 15 and its targets Honorable Prime Minister of Bangladesh has directed local government division to re-excavate ponds all over the country. That's why re-excavate program of Zila Parishad pond has been taken up by Local Government Division. Now, it needs to know the impact of this program and the views of stakeholders of re-excavated ponds regarding fresh water conservation. In this field, there is no holistic research work of those problem regarding re-excavation of Zila Parishad pond . This research will find out how a organization like Zila Parishad can effectively organize water management system and mitigate safe water crisis as well as will determine its organizational capacity. Moreover, this research will contribute to policy making process as well as further research for future researchers.

Conceptual framework

Bangladesh is riverine country. There are many sources of water here. A lot of rivers, lakes, haors, beels, khals, ponds are the reservoirs of water. First of all, we should describes what is pond? why does pond re-excavation is necessary? Pond is a small water body which found everywhere in all over the country. It may be man-made or natural-made. In our country most of the pond are man-made pond. People use it primarily as a source of water.

This water can be used as a source of drinking water as the people does in south western part of Bangladesh. But pond have different use as well. What is pond? As long ago as the beginning of the last century, (Forel 1904) noted that ponds are ecologically different from larger water bodies, describing them as lakes where the deep aphotic zone was missing. But there are another definitions of ponds linked to various aspects of their size, depth, type of water supply, use, geographical location, formation, and water quality (Jammes 1997)). During the early 1990s, in the United Kingdom a defination developed characterizing ponds mainly in terms of easily measured morphological criteria, specifically : ‘Waterbodies between 1 m² and 2 ha in area which may be permanent or seasonal, including both man-made and natural waterbodies’ (Biggs et al.2005).Working in Switzerland, (Oertli et al. 2000) added a criterion linked more to water-body function, defining a pond as: ‘A waterbody with a maximum depth of no more than 8m, offering water plants the potential to colonize almost the entire area of the pond’.

In our country some ponds are small and some are big. Big ponds are often called Dighi such as Khan Jahan Ali Dighi, Ghora Dighi in Bagherhat district. Why it is needed to re-excavated of pond? According to information of Zila Parishad, many of its ponds were dug in British era. After a long time ,this ponds filled up with soil as boundaries of the pond have broken down. Another reason is overflow water of flood, storm ,cyclone etc. As that pond are unable to reserve much more water as need for the local community that are mostly unused for safe water or ground water conserver. In order to more conservation of water, re-excavation of

those ponds are essential. As it is said earlier Bangladesh is a waterine country but of its most of the water sources or reservoirs are not safe water.

Water is responsible for 90% disasters in the world, 70% deaths, natural calamities occur owing to flood and other water related diseases. Potable water is not only essential for human being but also for the entire animal kingdom. The main problem is lack of safe drinking water, scarcity of preservation of surface water. In order to solve the problem re-excavated of ponds are essential. Local Government Division is one of the core division of Bangladesh deals with local government related issues. It is responsible for the housing and building, regional and rural policy, municipal and cities administration and financing and the conducted of election. Zila Parishad is one of the tier of local government bodies at district levels. Public Health and Engineering Department is a body of Local Government and Rural Development Ministry. It is said earlier that LGD has signed a MoU with the PHD for re-excavating of Zila Parishad pond.

Methodology

The study were conducted on the beneficiaries and stakeholders of two re-excavated ponds at Kaliganj Upazila in Satkhira district only due to shortage of time. South-western coastal region of Satkhira district has been selected as the study area because the problem of safe drinking water is severely acute in this area and most of the drinking water technologies are used here. The data were collected within three days from 18th August, 19 to 20 August, 19. Both primary and secondary data were used for the research work.

Two different types of questionnaire were used for interviewing (Appendix-A, B). Primary data are collected from the relevant department through key informant's interview (KII). Two officials from the Zila Parishad were interviewed as this department is the owner of re-excavated ponds and is responsible for forming Management Committee for Management and Maintenance of the re-excavated ponds. Another two officials from Public Health Department of Satkhira were interviewed who is primarily involved in re-excavation of Zila Parishad pond. Chairman of Zila Parishad and one women member from Zila Parishad and executive engineer and sub-assistant engineer of Public health Department of Satkhira were interviewed.

On the other hand, a total of 13 people were interviewed from two ponds area. The name of one pond is *DEYA GOVERNMENT POND* and the name of another pond is *UKSHA GOVERNMENT POND*. To collect primary data, selected officials of Public Health Engineering Department office of Satkhira and other concerned will be interviewed. The secondary data is collected from journals, articles and research papers and so on.

Project Overview

Name of the project:	• Reopening / renovation of ponds / dighi / reservoirs of zilla parishad in order to conserve water and provide safe water supply.
Ministries / Departments:	• Local Government, Ministry of Rural Development and Cooperatives / • Local Government Departments
Real Estate Company:	• Department of Public Health Engineering
Estimated Expenditure (in crore):	: Total:: 374.51 GOB: 374.51
Proposed Real Estate Period:	: September 2016 - June 2019
Project area:	: 809 pond in 42 districts of the whole country.

Reasoning for selection of project area:

- As per the directive of the Hon'ble Prime Minister of the Government of Bangladesh, all the ponds / dighi / reservoirs etc. of the Zila Parishad of this country are called for use as source of water. Which will be used as a source of ground water.
- There are also guidelines on ensuring safe water source through re-excavation of a pond in each union in light of 'RUPKALPO-2021'. Accordingly, information about the ponds owned by the Zila Parishad of the 61 districts was taken, except for the 3 hilly districts.
- Information about 2165 ponds is available from the Zila Parishad in 56 of the 61 districts. (There are no ponds owned by District Councils in 5 districts; out of the 56 districts, there are no pond / ceaseless / lease less ponds in 14 districts)
- A total of 8 ponds / reservoirs have been included in the restructured DPP of the negotiated project in a total of 12 (3-5) districts.

The main purpose of the project:

- Help to create a sustainable and beautiful environment, including the development of the environment by conserving ponds / reservoirs.
- Reduce the tendency to use ground water as a result of overuse of ground water.

- Reducing depletion of groundwater levels (Water Table).
- To promote the economic development of rural people by reducing the incidence of various diseases related to water-borne and drinking water.
- Rural water supply through pond conservation with installation of PSF .

Main activities of the project

Zila Parishad reopens the pond	809
PSF construction	574
Solar PSF construction	225
Pond Water Filtration System Training	10
Computer Purchase	30
Vehicle purchase	jeep-1, pickup-1
Motor bike	20

Things to consider in Pond rewiring:

- The circumference of the pond must be bordered by a fence cut.
- The distance of pond from any latrine or sockpit should be at least 10 feet.
- Connecting any type of drainage line to the pond is completely prohibited.
- Fish can not be cultivated and bathed in the pond.
- PSF water should be used only for drinking and domestic use.
- Right sidewalks are required for land collapse.
- Soil is good for the bottom of the pond.
- In the dry season, the depth of water from the bottom of the pond should be 6.5

Plantation-

- Various types of trees (coconut, palm, neem, date palms, betel nut) should be planted around the pond and these trees should be properly maintained.

Implementation strategy to publish the pond owned by the Zila Parishad:

- The project will be implemented as per the guide line of the **Project Steering Committee (PSC)** headed by the Secretary, Local Government Department.
- **The Project Realization Committee (PIC)**, headed by the Additional Chief Engineer (PUR), Department of Public Health Engineering, will oversee and coordinate the overall activities of the project: will ensure work realization.
- **The District Project Advisory Committee**, at the district level under the leadership of the Chairman, Zilla Parishad, will provide guidance and overall assistance on excavation and re-digging of ponds at the field level. The composition and conditions of the committee are as follows:

Formation of District Project Advisory Committee (DPAC)

Chairman, Zila Parishad:	President
Secretary, Zila Parishad:	Member
Deputy Director / Assistant Director (Local Government)	: Member
Executive Engineer / Assistant Engineer, Zila Parishad	: Member
Executive Engineer, Department of Public Health Engineering	: Member Secretary

Scope of Work:

- A. Providing assistance in the activities related to excavation and re-excavation of pond.
- B. Monitoring and reviewing prior and subsequent condition of pond reclamation and providing recommendations for problem solving.
- C. The pond is subject to re-certification of the pond and the management committee is constituted to ensure proper management and maintenance of the pond.

Management Committee for Management and Maintenance:

Corresponding Ward Member / Reserved Ward Member	: President
Nearby Government Primary School Teacher	: Member
Beneficiary Representative (Male and Female)	: Member
Representative, Zila Parishad	: Member

Working circumference:

- Protecting the pond from extrusion.
- Repairing ponds and fences to prevent future damage.
- To remove the shoulder of the pond from time to time to maintain the depth of the pond.
- Maintenance and maintenance of PSF and other filter units.
- Send the report to the Zila Parishad at the time of need or once a year.
- Support to the Department of Public Health Engineering for quality water quality testing.

Project Implementation of Satkhira Zilla Parishad

Total pond	Number of packages	Invitation for quotation	Work order	Prework measurement	earthwork	Pond embankment	Iron fencing	Rain water connection	PSF
57	10	55	55	49	46(85%)	23(80%)	6(70%)	2	1(100)

Total achievement: 55%

Data Analysis and Findings

In order to find out stakeholders' view about conserving water and drinking safe water of Zila Parishad re-excavated pond, two pond were selected, both of the ponds located at Kaliganj Upazila in Satkhira district. One of the ponds name is Deya Government Pond and other is Uksha Government Pond. Both ponds are in a good position. There is a Hindu temple on northern side of Deya Government Pond as most of the people surrounding the pond are Hindu in religious belief. The community people, i.e. Muslims, Hindus and other indigenous people use the pond water. There are two PSF on the northern side of the pond. The village women collects water at any time they think fit to collect ,but naturally they collect it at morning and evening of the day. The name of other pond is Uksha Government Pond, situated at Dhalbari village, is also in a nice position. Both ponds are well communicated and well sighted from the main road.



Study area:Upazilla:Kaligang
Dist; Satkhira



Name of the pond: Uksha Government Pond



Name of the pond : Deya government pond

Seven local users both male and female, one ex Union Parishad Member as well as local elite person was interviewed for this purpose from Deya Pond area and five local users were asked for this purpose from Uksah Pond area. Five questions were asked in the questionnaire to officials and technical persons, another five questions are asked to local users.

Questionnaire Survey of stockholders

Question no 1: Do you know about re-excavated ponds of zilla perished?

In answer about re-excavated pond *all interviewee mention that they know about it.*



Question No 1 : Do you know about re-excavated ponds of zilla perished?

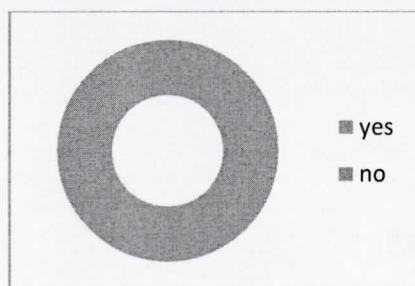


Figure no1: Yes(100%) No(0%)

Question no 2: Does the water of re-excavated ponds safe for drink?

*'Does the water of reexcavated ponds safe for drink?'*In answer to this question 6 out of 8 interviewee replied that they think the ponds water is safe for drinking and cooking. 2 interviewee mentioned that it may not be safe for drinking and cooking.



Question no 2: Does the water of re-excavated ponds safe for drink?

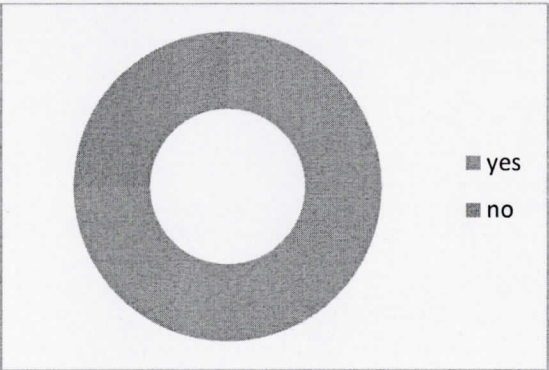


Figure2 :Yes(75%) No(25%)

Question no3: **Do you know the objectives of re-excavated ponds of Zila Parishad?**

.They were are asked whether they know about the objectives of re-excavating ponds. In answer to this question all of them replied positively about conserving water and drinking water of the ponds.

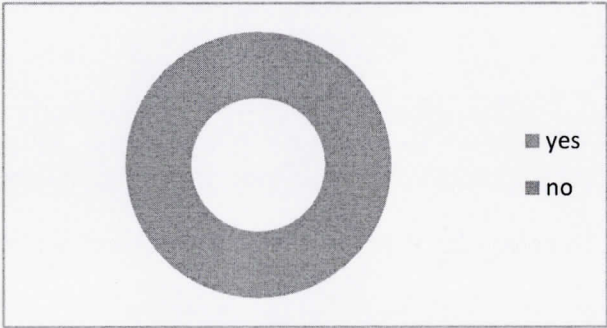


Figure no3: Yes(100%) No(0%)

Question no 4: **It there any problem to maintain the re-excavated ponds?**

. ‘ Is there any problem to maintain the re-excavated pond?’ In answer to this question 4 out of 8 interviewee think that there is no problem to maintain the pond. But the rest three interviewee mentioned that natural calamity i,e cyclone, storm are the main threat to keep water fresh and safe. Another problem, they mention, is entering cattle inside pond border, weakness of conservation of pond bank etc.

One interviewee mentioned that *this is significant to maintain of this pond. He further added that if the local people or local committee is not formed in time the problem may arise regarding keeping the pond water safe and clean.*



Question no5: ‘Do you think that after this work water borne diseases will be reduced?’

*‘ Do you think that after this work water borne diseases will be reduced?’ In answer to this question 6 out of 8 interviewee said that *the waterborne diseases will be reduced*. But 2 out of 8 intrviewee think that *the water may not be safe regarding waterborne disease*.*

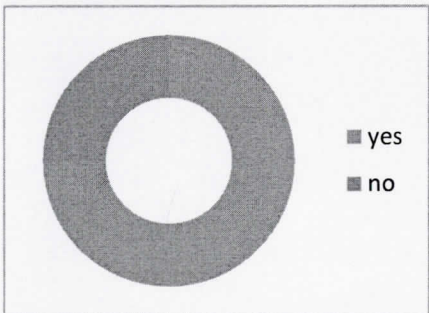
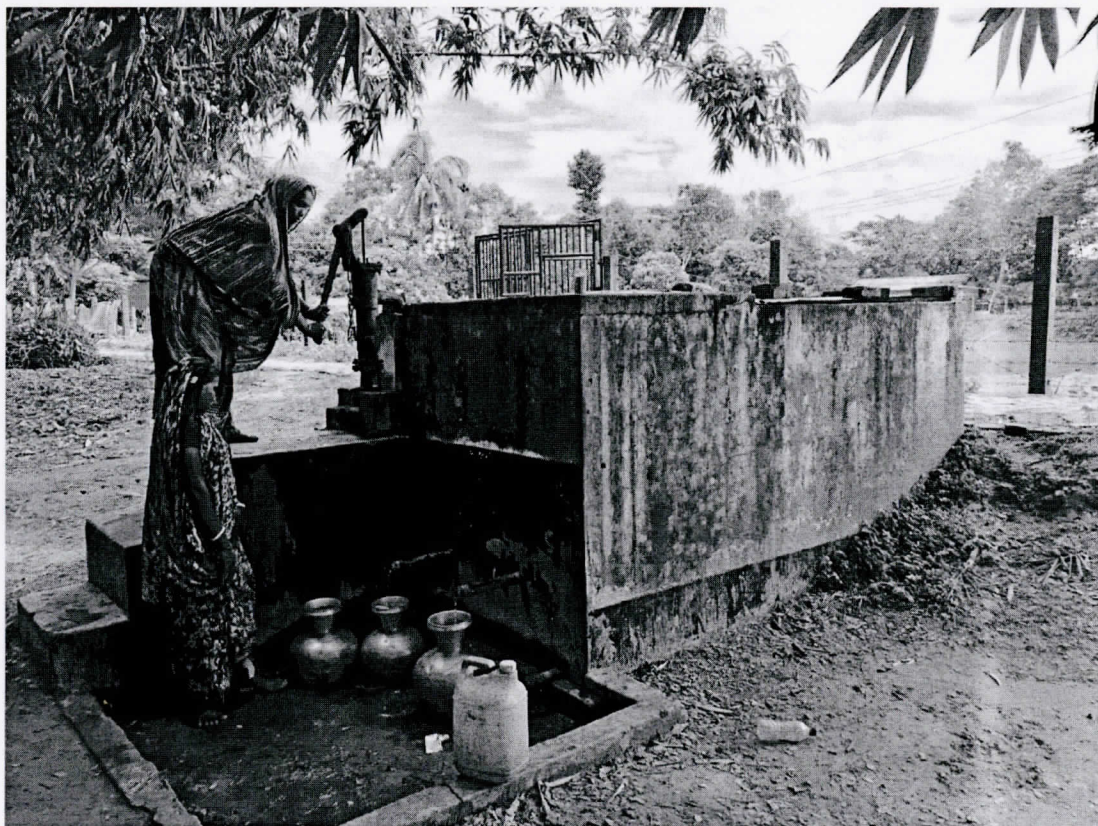


Figure no 5: Yes(75%) No(25%)



Picture of PSF: Collecting Drinking Water

Questionnaire survey of technical and officials

Department of Public Health and Engineering is primarily responsible for re-excavating the pond of Zilla Parishad and Zilla Parishad is the owner of the pond .

Question no1: **‘Do you think that after this work the environment will be sustainable and clean?’**

‘Do you think that after this work the environment will be sustainable and clean?’ Chairman and women member of Zila Parishad ,Executive Engineer and Sub-Assistant Engineer of Public Health and Engineering Department mention that after this work the environment of surrounding area will be sustainable and clean.

Question no 1: **‘Do you think that after this work the environment will be sustainable and clean?’**

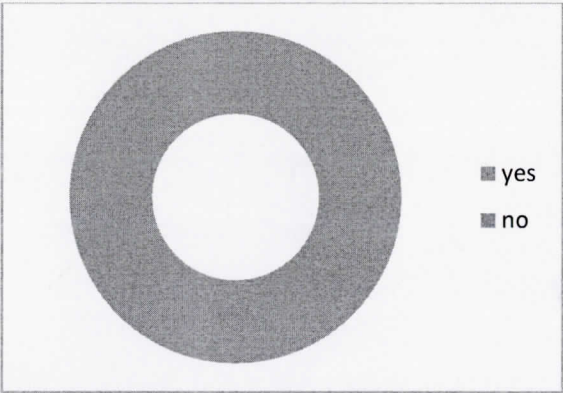


Figure 1 :Yes(100%) No(0%)

Question no 2: **Do you think that after this work water borne diseases reduced ?**

About water borne disease the 4 officials out of 4 mention that *by using water the people will remain safe and sound. About forming Management Committee for Management and Maintainance of the pond, the Chairman of Zilla Parishad said that the process of committee forming is under process. Very soon ,he further mention, it will be formed.*

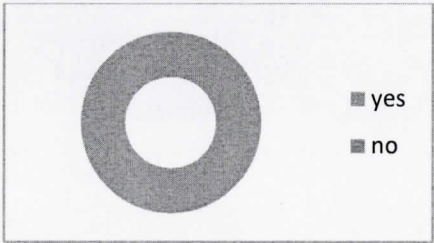


Figure 2: Yes(100%) No(0%)

Question no 3: **Does formed pond Management Committee for management and maintenance ?**

About formation of Management Committee for Management and Maintenance ,The Chairman of Zila Parishad mentioned that that committee will be formed very soon.

Question no 4: **Are there any problems regarding re-excavated ponds?**

Regarding problems about re-excavated pond 4 out of 4 officials interviewee stated that *natural disaster, increasing salinity outside pond area, lack of awareness of local people, illegal occupation, decreasing water level in dry season are the problem.*

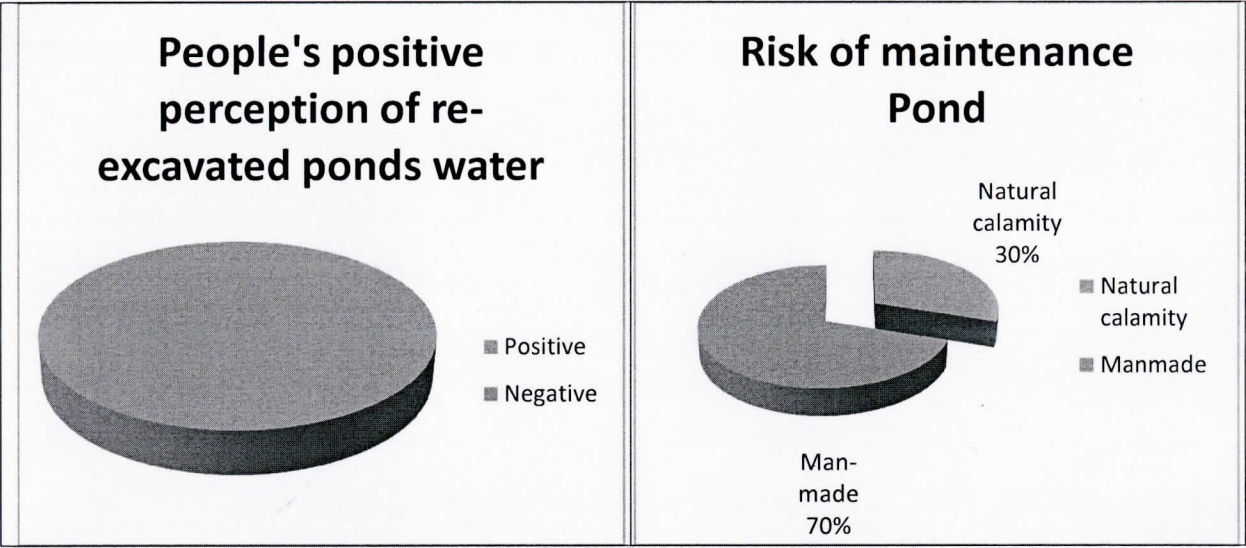
Question no 5: **What is the your opinion for farther improvement of present condition of the ponds?**

About further improvement of present condition of the pond 4 out of 4 officials mention that *regular monitoring by the management committee can improve the environment of conservation and provide safe water. They also urged to increasing people awareness. They mention that there is a scope for improvement the present condition of pond such as raised ponds bank to restrain contamitted turbid surface run off resulting from a strom event and lining of pond sides to avoid saline ground water input to the pond.*

FINDINGS

- 1) Positive perception about the reexcavated pond's water.**
- 2) Risk of maintenance: Natural and Man-made**

From the study and data analysis some findings have been found about people's positive perception about the water of re-excavated pond. In previous times, people could not provide enough fresh drinking water. According to their opinion , the water crisis was "LALON MORLO JOL PIPASHAY,THAKTE NADI MEGHNA,HATER KASHE VORA KALOSH TRISNA METE NA" But now people are very hopeful getting enough fresh drinking water according to their needs round the year. From the study and data analysis some findings about problems and risk of maintenance pond have been found which can be divided into two parts; one is natural calamity(30%) and another is man-made problems (70%).The picture given below shows the information:



Most of the users opined that the initiative of re-excavated pond of Zila Parishad is very important to mitigating drinking water crisis. In spite of having sufficient water from the excavated pond the users have mentioned some problems related with man-made and natural issues. Cyclone, storm, climate change draught heavy rainfall are the natural calamity and occupation, filling-up pond by the grabbers, lack of awareness, fish cultivation, weak water management system etc are the man- made problem.

Challenges

1) Climate change

Bangladesh is familiar with natural disaster. Bangladesh is recognized to be one of the most climate vulnerable countries in the world. A number of hydro-geographical and socio-economic factors of Bangladesh also enhance its vulnerability highly to climate change(Ahmed 2004 & 2006). South-western coastal people specially the people of Satkhira district have to struggle against natural disaster every year, such as, super cyclone AILA , SIDR etc. So, there is a great possibility to destroying those re-excavated fond of Satkhira Zila Parishad.

2) Insufficient rainfall

Due to effect of climate change, rainfall is decreasing in our country. So, sufficient water supply in the pond using rain water harvesting may not always make possible.

3) Sea level rising

Due to effect of climate change, the sea level is rising and saline water is entering towards north of the coastal area.

4) Increasing Salinity

Increasing salinity in surface water is a great concern today for the coastal area specially for Satkhira district. As the sweet water is not coming from the north by the river because of its filling-up by silt, That's why sea water is entering into those river. As a result, salinity is increasing in the river water and ground water. So, in the dry season saline water may enter in the re-excavated pond and the water may not be suitable for drinking.

5) Shrimp cultivation

One of the main occupation of the coastal area like Satkhira district is shrimp cultivation and saline water is essential for this cultivation. There are a lot of shrimp cultivation area around the re-excavated pond. So, there is a great possibility to entering saline water through ground level into the pond .

6) Grabbed the pond illegally

The re-excavated pond grabbed illegally by the local muscle man.

7) Decreasing ground level water.

As a result of climate change water level will be low in the pond in the dry season. In dry season, due to insufficient rain, the pond may be empty.

8) Lack of awareness of people

Still lack of awareness of the people is one of the main hindrance to successfully operation of the pond.

9) Household uses of water

The pond water is to be conserved only for drinking and cooking. But local people is using their other household work such as bathing, dish washing ,cattle bathing, soap using etc in the pond.

10) Ineffectiveness of Pond Silter Water

PSF is a famous tool of drinking water supply from the re-excavated pond .PSF is very much effective source but it is ineffective with respect to pesticides, insecticides and fertilizers if they enter the pond water. On the other hand, PSF is not maintains properly, collection of drinking water by the users of the pond may be hampered.

11) Weak monitoring by pond management committee

Although pond management committee is not formed ,according to local people ,this committee have to be very strong to maintenance pond properly.

Recommendations

The objectives of the re-excavated pond is to conserved water and provide safe water supply. But some challenging issues have been identified through the study. In order to face those challenges a lot of measures to be adopted which mentioned below:

- 1) The circumference of the pond must be bordered by a fence cut so that cattle cannot enter inside the pond .
- 2) The distance of pond from any latrine should be at least 10 feet.
- 3) Connecting any type of drainage line to the pond is completely prohibited.
- 4) Fish can not be cultivated and bathed in the pond.
- 5) PSF water should be used only for drinking and domestic use.
- 6) Various types of trees (coconut, palm, neem, date palms, betel nut) should be planted around the pond and these trees should be properly maintained.
- 7) People awareness should be increased in the pond area.
- 8) Proper maintenance of PSF is very essential. So, PSF system should be maintained properly by DPH.
- 9) Maintenance Committee for the pond is to be formed as early as possible so that the committee can play an important role to maintain the pond.
- 10) Strong and proper monitoring is to be continued by the Zila Parishad so that no muscle man can grab the pond illegally.
- 11) To protect from the natural calamity such as cyclone, storm, draught, etc preventive measure should be taken in time by the authority.

Conclusion

The stakeholder's view about the re-excavated pond of Zila Parishad of Satkhira was assessed through a questionnaire survey. It reveals from the study that people are very much satisfied with those pond water. As the people of Satkhira faces an increasing number of challenges including cyclone, tidal surges, floods ,drought, saline water intrusion, water logging etc. which are threat to the livelihood of the district. Therefore, mass people dependency on Zila Parishad ponds water is increasing and people are benefiting from best quality of water of the pond. People in the study area mentioned that they like to collect rain water of the pond because the quality of the water very satisfactory. But still there are some problems in the pond water as safe drinking water sources. Because there are a few threats which are both natural and man-made for implementing the objectives of the re-excavated pond .People are more concern about man- made trouble related with safe water supply as well as about the ability of Zila Parishad as organizational capacity. The re-excavated pond, which used to commercial purpose before but now only will use for safe drinking water supply So, it's a great challenges for Zila Parishad whether it is capable enough to fulfill the peoples positive perception about the ponds water or not. Considering people's perception and demand, the objectives of the government of Bangladesh in fulfilling fundamental principles of state policy of the constitution and achieving SDGs goal 6.1 and 15.1 Zila Parishad have to be played a vital as well as significant role to conserve water and provide safe water supply.

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Checklist of Questions for interview of re-excavated ponds of Satkhira Zilla Parishad

Name:

Age:

Profession:

Educational qualification:

Gender: Male ☐ Female ☐

Marital Status: Married ☐ Unmarried ☐

Questionnaire Survey of Technical and Official Persons:

1. Do you think that after this work environment will be sustainable and clean?

Ans:

2. Do you think that after this work water borne diseases will be reduced?

Ans:

3. Is Pond Management Committee formed for management and maintenance?

Ans:

4. Are there any problems regarding re-excavated ponds?

Ans:

5. What is the your opinion for further improvement of present condition of the ponds?

Ans:

Check list of Questions for interview of re-excavated ponds of Satkhira Zilla Parishad

Name: _____

Age: _____

Profession: _____

Educational Qualification: _____

Gender: Male ☐ Female ☐Marital Status: Married ☐ Unmarried ☐**Questionnaire Survey of Stakeholders:**

1. Do you know about re-excavated ponds of Zilla Parishad?

Yes ☐ No ☐

2. Does the water of re-excavated ponds safe for drink?

Yes ☐ No ☐

3. Do you know about the objectives of re-excavated ponds?

Yes ☐ No ☐

4. Is there any problem to maintain the re-excavated ponds?

Yes ☐ No ☐

If yes----- please mention it.

1.

2.

3.

5. Do you think that after this work water borne diseases will be reduced?

Yes ☐ No ☐

If yes --- please mention it.