



**Inter-Organizational Coordination of  
Drainage Management System in Dhaka Metropolitan City  
(A Case study of Dania Union under DND)**

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## **Declaration**

I declare that the dissertation entitled “Inter-Organizational Coordination of Drainage Management System in Dhaka Metropolitan City (A Case study of Dania union under DND)” submitted to the PPG Program of North South University, Bangladesh for the Degree of Master in Public Policy and Governance (MPPG) is an original work of mine. No part of it, in any form, has been copied from other sources without acknowledgement or submitted to any other university or institute for any degree or diploma. Views and expressions of the thesis bear the responsibility of mine with the exclusion of PPG for any errors and omissions to it.

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## **Dedication**

I dedicate this thesis to my father and mother, life-long learners, who never failed to provide me with persistent support in my pursuit of learning.

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## Abstract

This study makes an attempt to investigate the factors affecting variable of Inter-organizational coordination in drainage management system of Dania union under DND in Dhaka Metropolitan City. This study takes a priori position that poor drainage system of DND which results in water logging is the result of poor inter-organizational coordination. Coordination is the lubricant for bringing organizations together for achieving certain objectives. It is argued that coordination brings mutual benefit and reduces transaction costs. Good inter-organizational coordination results where organizations have mutual dependency. This study adopts a qualitative strategy to explore the factors which results in inundation in DND which manifests as a regular phenomenon. The unit of analysis of the study, Dania Union which is inside the DND area is selected. In turn, this study may not only be the remedy for ensuring sound coordination, but can also resolve the water logging problem. Several departments, such as RAZUK, Water Development Board, DSCC, DWASA, Roads & Highway etc. are the key players of the drainage management. The study explores the sufferings of the local residents due to water logging and the consequences due to poor drainage. The study explores the state of inter-organizational coordination among the key actors with regard to drainage management and makes an attempt to investigate to what extent water logging is caused by a failure in inter-organizational coordination.

The inhabitants of DND consider water logging as a natural phenomenon. The problem of inundation and water logging has worsened in recent times due to siltation of the existing canals and outlets creating adverse physical, economic, social, and environmental effects. The main objective of the study is to investigate the inundation and water logging problem of DND of Dhaka Metro Politian City and makes an attempt to analyze the problem from an insider's perspective. The key questions of the study are How and to what extent coordination is exists in different organization to facilitate drainage management and Does coordination among different organization will improve the drainage management in Dhaka city?

Based on the theoretical perspectives of coordination, a theoretical framework for this study is developed. Mary Parker Follett (1866-1933) has been known to be a great pioneer in the all-embracing virtue of coordination. She has a theory of integration in the historical development of management literature. In this theory some variable affecting the coordination and for this, the variables affecting the coordination in drainage management in Dania union is chosen from that theory. Christensen and Laegreid (2008) include the new measurement of hypothesis in the organizations of the public sector. In his theory the organizations are basically two types like institutional and instrumental basis. In Bangladesh how the organizations are interplayed and how this theory establish its domain in this perspective. The dependent variable is inter-organizational coordination and the independent variable are direct contact, understanding resources in early stages, continuous direct supervision, understanding reciprocal factors, were chosen as factors and surveyed its relationship to among the organization who are involved in the Drainage management system in Dhaka city. The findings of the study suggests that state of inter-organizational coordination between organizations from government organization in drainage management system has been found to be weak because there is a lack of direct contact among the employee of the organization, have resource constraint, lack of supervision, some identified factor in the study area and lack of institutional attitude. There is a little bit of coordination among the organization about decision making. Public views evident that response activities conducted by different organizations were not effective so far. Though it is recognized that inter-organizational coordination is a must for effective drainage management system of the metropolitan city, but none of the relevant organizations mandated for drainage management seem to take ample corrective actions. The study reinforces the need for inter-organizational coordination for effective drainage management of the DMC(expand as Dhaka metropolitan City and for effective drainage management system variables such as direct contact, understanding resources in early stages, continuous direct supervision, understanding reciprocal factors must be taken into consideration.

**Key words:** inter-organizational coordination, drainage management, water logging and direct contact, understanding resources in early stages, continuous direct supervision, understanding reciprocal factors, institutional perspective.

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## List of Abbreviations

|         |   |
|---------|---|
| AC Land | Assistant Commissioner Land                       |
| BUET    | Bangladesh University of Engineering & Technology |
| DCC     | Dhaka City Corporation                            |
| DESA    | Dhaka electric Supply Authority                   |
| DNCC    | Dhaka North City Corporation                      |
| DND     | Dhaka Narayangonj Demra Embankment                |
| DSCC    | Dhaka South City Corporation                      |
| DWASA   | Dhaka Water Supply & Sewerage Authority           |
| LGED    | Local Government Engineering Department           |
| RAJUK   | Rajdhani Unnoan Kortipakha                        |
| SPSS    | Statistical Package for the Social Sciences       |
| UDD     | Urban Development Directorate                     |
| UNO     | Upazilla Nirbahi Officer                          |

## Chapter one: Introduction

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### 1.1 Introduction

Coordination is an essential tool for all public organizations, without which public functions will be compartmentalized resulting in duplications and more transactions costs. Public organizations increasingly recognize the need to coordinate having dependency and reciprocity. The purpose of coordination is to reduce the redundancy, contradictions in actions between actors for achieving certain common good. Coordination is an essential tool for all public organization. At present, public sector gradually emphasis on coordination. Public sector is now seen as an inter-organizational context. In this point of view, the main purpose is to reduce the legitimacy, redundancy, contradictions of actions between policy matters. More coordination is needed for making more bonding to organizations on the same purpose. The main motto is to best use of limited resources. Different stakeholders working in different policy matters and coordination makes unified to the organizations which was disorganized and disjointed between the patron and the citizen. (Weale, 1978)

Bangladesh is encountering natural resource because of fast urbanization, increase in population, and industrialization. By the by, when the developing rate of urban populace happens at an astoundingly quick rate, most urban communities and towns are unfit to adapt to moving circumstances because of their internal assets requirements and administration confinements (Bari and Hasan, 2001). Dhaka, the capital of Bangladesh is a standout amongst the most thickly populated urban communities of the South-Asian nations. Because of fast urbanization, the city is developing as a populous city. Dhaka city is assailed with various socio-ecological issues. Service to the citizen like. Sanitation, Water; drainage and alongside waste management are deep concern to human settlements. Inability to give these issue handle smoothly makes fast urbanization: dangers to wellbeing, loss of urban efficiency and ecological quality.

This research try to investigate the inter-organizational coordination among departments which is involved in drainage management system. Several departments, such as RAJUK<sup>1</sup>,

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<sup>1</sup> RAJUK is the autonomous organization which is under the Ministry of Housing and Public works solely responsible for the Development control of the Dhaka city.

DNCC, DSCC, DWASA<sup>2</sup>, Water Development Board (WDB<sup>3</sup>) etc. are the key players of the drainage management in Dhaka city. There is a striving need for coordination among these departments for drainage management system. This study find out the present state of coordination failure among the organization. Inter-organizational coordination is a critical part of drainage management system because this drainage management involves multiple interacting organizations.

**Table 0-1: Different forms of Coordination**

|                              | <b>Horizontal Coordination</b>  | <b>Vertical Coordination</b>   |
|------------------------------|---|--|
| <b>Internal coordination</b> | Coordination between different organization like RAZUK, Water Development Board, DSCC, DWASA etc. | Coordination between ministries and the subordinate agencies like Ministry of Housing and different organization like RAZUK, Water Development Board, DSCC, DWASA etc. |
| <b>External coordination</b> | Civil Society coordination, Private sector coordination, coordination with interest organization  | Coordination upward to international organization for example ministries and the donor agencies like JICA <sup>4</sup>   |

Therefore, in order to have a complete understanding of the new emerging governance process, it is necessary to explore how these actors are interacting and influencing each other's role and how the drainage management organization is making sense of its own in the whole process. This study mainly focuses on this and placed special emphasis on- a) identifying the actors that perform significant roles in the functioning of drainage management; b) people's perception about the drainage management problem; c) the interrelation and reciprocal relationship among different actors engaged in the process of governing to mitigate the drainage problems. The present study is taken to find out the failure inter organizational coordination for drainage management system in that area.

<sup>2</sup> DWASA is the Dhaka water supply and sewerage authority under the Ministry of LGRD & Cooperative, solely responsible for the supply of water and sewerage system of the Dhaka city.

<sup>3</sup> Water Development Board is another self-governing organization under the Ministry of Water Resource solely responsible for the national water policy and management plan.

<sup>4</sup> JICA means the Japan international cooperative agency which is a japan based organization. It generally provided fund and technical assistance for the sewerage and water management to Bangladesh.

## 1.2 Background of the Study

Bangladesh is one of the biggest crowded nation on the planet and Dhaka is the capital of Bangladesh. Developing of urban population at a fast rate, the city is unfit to adapt to changing situation because of their limitation of resources. Dhaka has not got due consideration since the start of Bangladesh as an independent country in 1971. Dhaka, being the fastest growing city need to control development. The driving components for this fast rustic urban relocation are surplus work in agri-business, globalization, and natural calamities orderly disappointment of provincial farming and saw opportunity in the city (Khan, 2008). With the expansion in population, the city spreading towards the north and the area is bigger day by day.

Now a days, Dhaka City is facing severe water logging which is occurred during the monsoon (May to October). This is the common and regular problem of the Dania union like water logging. This research emphases on the rainfall persuaded flooding that is caused by high concentration raining in the Dania union area that leads flooded for several days mainly due to governance fiasco like, lack of proper drainage system, lack of coordination among the related organizations and incompetent management. It will discover the main causes of water logging and its effects on the Dania union area. The efficient drainage management system has become an increasingly important issue over the last two decades due to the escalating growth in population and large increase in waste production in Dania union. Drainage management is the main headache to the DWASA in recent times. Waste Management has emerged as one of the greatest challenges faced by DCC<sup>5</sup> which is now divided into two areas like; Dhaka North City Corporation (DNCC) and Dhaka South City Corporation (DSCC) authorities. DNCC and DSCC are facing serious problems in providing a satisfactory service to the city dwellers with its limited resources and a poor management plan.

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<sup>5</sup> Dhaka City Corporation (DCC) is the previous self-representing organization that is connected with the undertaking of running the issues of the city of Dhaka. The total area is 360 km<sup>2</sup> was separated into a few wards, every ward has a chosen ward official. The Mayor of the city is chosen by democratic way. The Corporation was broken down by the Local Government (City Corporation) Amendment Bill 2011 on 29 November 2011, go in the Parliament of Bangladesh, and formally stopped to exist on 1st December 2011, after the President's endorsement, clearing a path for a Dhaka North and a Dhaka South city corporations.

As the population and the economic activity grows in the Dania union area day by day. Low-lying places like DND location, Basabo, Kamalapur, Shantinogor, Nandipara, and Badda went beneath waist deep water. (Islam 2008). Hence, even following a mild shower, water cannot flow by means of the drains and so inundate the road. Despite the fact that the Dhaka City Corporations (DCC) is mostly accountable for keeping these drains clean, efforts are hardly taken ahead of the onset of monsoon. On the other hand, each Dhaka WASA and DCC are trying to prove guilty one another.

Dhaka city is destroying day by day and the Dania union is almost the same way. Uncontrolled improvement like structures built. Present crisis is formed by the encroachment on wetland and river.<sup>6</sup>Dhakaites had never ever met this variety of scenario like the present days. Urban authorities face challenges to handle the drainage management of Dania union of DND. Fast development of population and unplanned development activities are the principal reasons behind that. So, coordination among public and private sectors, urban authorities and agencies and collaboration is needed for actual management and viable operation of urban drainage management needed for the Dania union.

### **1.3 Statement of the Problem**

The governance of Dhaka City, the capital of Bangladesh, is in a persistent state of crisis that has its roots in the conflicting relationship among the elected mayor of the DSCC, DNCC, DWASA, RAJUK, Water Development board and the central government. The Dania union of DND is the part of the Dhaka city. The problem is built by the inborn weakness of organization itself that derived from management, institutional, personnel and capacity deficiencies. Unethical practices like less commitment, less motivation made by the corrupted labor forces. In recent times the central government gave more emphasize to the local government which make the DSCC, DNCC, DWASA, RAJUK, Water Development board more responsibility. Service matters like sewerage system, law and order, utility supply, environmental impact, low income housing, township, urban planning matters make burden to the respective agencies. Coordination among different agencies of the government and the urban authority is poor. It is not surprising that the governance of this city is weak and ineffective, particularly

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<sup>6</sup> The resident living in the Dhaka Metropolitan city are generally called Dhakaites.

since the problems typical of any large city in the developing world are especially acute in Dhaka. These problems are manifold to serious drainage congestion which causes severe water logging in the Dania union.

This water logging turn into a problem to the residents of Dania union and creating adverse physical, economic, social, and environmental effects. Destruction of vegetation and aquatic habitats, disturbance of natural traffic movement and normal life; damage of infrastructure and structures. Low income people are greatly affected by the water logging. When the storm water is stagnant it becomes polluted and mixes with clinical waste, domestic waste, solid waste, silt, different contaminants and others led the water borne disease. Monsoon rain is a normal phenomenon and heavy rainfall is occurred during this time. But in recent years the impact was unbearable to the residents of Dania union as the filthy waste entered to the house. Clinical waste, domestic waste, human excreta, solid waste, silt mixes with the storm water and make the water bad odor. This foul smelling make the deep health concern of water borne disease. A small mm or rain turn the Dania union in a catastrophe situation.

#### **1.4 Significance of the Study**

In recent times, research on coordination is done both in domestic and international arena. Different researcher give some direction of coordination in various aspects. When a research problem is new or almost new, it calls for using qualitative research (Creswell, 2014). The present research is an exploratory one. A number of researchers in Bangladesh have studied and written about coordination. Pandey (2004) analyzed coordination in terms of credit management and linkage among agencies involved. In the context of Bangladesh, Jamil (2014) analyzed coordination and its impact on the policy implementation and urban governance. Their areas of study have been mainly about local governance, urban governance, field administration etc. Very little research was conducted on issues like inter-organizational coordination in drainage management system. Many facets of the problems of coordination beyond our knowledge may remain unveiled. Therefore, the present research may help explore important and interesting information on many unasked questions regarding the problems of coordination. This research aims to find the causes coordination failure that will solve the drainage management problem in Dhaka city. In addition, research on coordination problem is not only involved with successful policy implementation, but may also help find



answers to certain unsettled queries with regard to the causes of complications relating to coordination. In turn, this study may not only be a remedy for ensuring sound coordination, but can also resolve other issues in public administration. For example, conflict among the different organizations may be a problem of coordination and an unhealthy situation may prevail because of such conflict. The lack of a healthy atmosphere, in turn, may lead to a failure of the initiatives taken by the government in nation building. (Kamrul, 2010) In this light, the present study may help identify those factors causing such conflicts.

## **1.5 Research Objectives**

The main objectives of the research is to catch out the problems and pitfalls of the present system of inter-organization failure, probes dimensions of organization involved with drainage management system in relations with the central government, and examines various options for institutionalizing an appropriate system for Dhaka with the proper participation of relevant stakeholders. It discusses the nature of governance in Dhaka, the structure and functioning of the related organizations, and the effectiveness of the coordination.

1. The aim of the study is to explore and identify the problems of water logging in Dania union under DND.
2. To explore the status of inter-organizational coordination in addressing water logging and the drainage management system at Dania union under DND.

## **1.6 Research Questions**

The principle goal of this research is to investigate and recognize those elements that influence coordination and distinguish the reasons for the issues of coordination among different organizations who are the key players in drainage management in Dhaka city. So as to investigate data in such manner, the accompanying examination inquiries are tended to:

1. What Factors contribute to water logging in Dania union under DND?
2. What extent of coordination exists in different organizations related to drainage management in the Dania union under DND?
3. Does coordination across different organizations may improve the drainage management system in Dania union to mitigate the issue of water logging?

## 1.7 Research Hypothesis

Good Coordination among organization will mitigate the drainage management in Dhaka city.

## 1.8 Scope of the study

The scope of the study is limited to Dania union lying under the DND year which is vicinity of the Dhaka city. This is a neglected area for a decade which needs to be studied for investigating the reasons. For this, several departments are somehow related in facilitating drainage management. Relationship builds among the organization to do any sort of work. The fruitful of work depends on the efforts done by various department, coordination among them and their interrelated activities. In this dimension, it is very much urgent to find if there are any sort of coordination of various organization who is responsible for the drainage management. To do so, one area namely DND as an area of study, is selected, after which the now seriously affected with drainage congestion and which derives to sever water logging. To find the results of the inter-organizational coordination the field survey like people direct interview (e.g., members of Dania union parishad, and the general public) will give the entire scenario of the problem of coordination in the area of DND.

## 1.9 Unit of Analysis

Yin (2003) suggests that it can be generalized from single case study design as well, if a case is critical or extreme or unique. In brief, case study allows investigators to focus on a 'case' and retain a holistic and real-world perspective-such as small group behavior, organizational and managerial processes, neighborhood change, social performance, international relations and others. (Yin, 2014, p. 4). For the purpose of the study Dania Union<sup>7</sup> which is inside the DND<sup>8</sup> area is selected. This union is recently added in DSCC and it is gazette as ward no 50 of DSCC of Dhaka District. In the recent years, this union of DND area is facing acute problems

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<sup>7</sup> Union is the smallest country administrative unit in Bangladesh. Every Union is comprised of nine Wards. Normally one village is assigned as a Ward. There are 4,554 Unions in Bangladesh. A Union Council comprises of a Chairman and twelve individuals including three individuals solely saved for ladies. Union Parishads are shaped under the Local Government (Union Parishads) Act, 2009. The limit of every Union is divided by the Deputy Commissioner of the District.

<sup>8</sup> The Dhaka-Narayanganj-Dernra (DND) project is located in the southeast suburb of Dhaka Metropolitan City and is stretched over Dernra, Jatrabari and Shampur Thana of Dhaka district and Shiddirganj and Fatullah Thanas of Narayanganj district. It is surrounded by four river shitalakshya, the Buriganga, the Balu and the Dholaikhal. In the late sixties the area within Dhaka-Narayanganj-Dernra road was protected from external flooding to enable growth of three crops annually. The location has been acronym as DND triangle by local people.

of drainage congestion all the year round which increases during the monsoon resulting in sufferings to the inhabitants living in this area. Water stays congested the area almost throughout the year. DND area can be considered as one of the most drainage congested areas of Dhaka City. Nevertheless, critical question at this corner is that, how it can generalize the study phenomenon based on the study of single case only. The current research is grounded on qualitative research and the union is the main unit of analysis.

### **1.10 Structure of the thesis**

This thesis is compiled of six chapters, some discussion is given below here

**Chapter One: Introduction-** This chapter will give an overview of the research objectives, research questions, research problem, and unit of analysis, scope of the study, background of the study, significance of the study and the overall structure of the thesis

**Chapter Two: Theoretical and Conceptual Framework-** This chapter will discuss dependent and independent variables and their relationship. A theoretical framework for this study through a brief overview of literature for conceptualizing the relationship between dependent and independent variables will be presented in this chapter.

**Chapter Three: Drainage & Storm water management in Dhaka-** will make an attempt to find out the present drainage management system and how it works right now. This chapter also investigate the key players who is solely responsible for the drainage management system.

**Chapter Four: Methodology-** will make an attempt to employ various methodological approaches used in this study. Why various methodological approaches will be used, why it will appropriate for this study, how such usages will be justified over others, and how these will be incorporated in this study are also discussed

**Chapter Five: Presentation and Data Analysis-** will presents the analysis of primary as well as secondary data on various independent variables (i.e., direct contact, understanding resources in early stages, continuous direct supervision, understanding reciprocal factors, institutional perspective etc). Discussions on why inter-organizational coordination matters when multiple departments are involved in policy implementation and how and to what extent these variables affect coordination are dealt with in this chapter as well. In this chapter,

attempts will be made to analyse the process and the extent of coordination among the departments. Moreover, this chapter will also discuss the impacts of the lack of inter-departmental coordination on policy implementation.

**Chapter Six: Findings & Conclusion-** discussions of findings and thereafter the conclusion. In this connection, the issues on the objectives of this study, what theories and methodology were used, which theory satisfy the research objective, how the findings will come, what are the main connections of this type of findings, how the study can be implemented for future research will be focused in this chapter. Moreover, the next chapter will search the relevant literature of the study and finding the variables with an analytical framework.

## **2 Chapter Two: Theoretical and Analytical Framework**

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### **2.1 Introduction**

The purpose of this study mentioned in the first chapter is to analyse inter-organizational coordination. The main aim is to measure to what extent the coordination exists among various departments who are the key players in drainage management in the Dhaka city. The chapter portrays the review of current literature, concepts of coordination and correlation between dependent and independent variables. Based on the study of literature on theoretical perspectives of coordination, a theoretical framework for this study is developed. An analytical framework was formulated based on the relationship of dependent and independent variables. Definition of variables is also mentioned here. The chapter will formulate a theoretical framework for exploring and analyzing coordination regarding drainage management in Bangladesh.

### **2.2 Review of relevant literature**

To what extent the coordination prevails in the organization is very much important. Because success depends much on the issue of coordination. In recent, public administration gives more focus on coordination for the efficiency of the organization. Two different terms like inter-organization and intra-organization are not new concepts but there is an attempt to find out the historical development of literature in that regard.

Mary Parker Follett (1866-1933) has been known to be a pioneer in all aspects of coordination and integration. She found that business symbolized a great institute and the social process of personal cooperation. Follett's deep understanding in coordination led her to develop a holistic model of coordination. She identified four principles of coordination for efficient management. They are: 1. direct contact with the people. 2. Early stage coordination. 3. Coordination of all the factors which is involved in a given situation. 4. Continuing process of Coordination (Follett, 1941). Scholars such as Luther Frederick W. Taylor (1911), Henri Fayol (1916), Gulick (1937), Chester I. Bernard (1938), and all highlighted the subject of coordination. March and Simon (1958) acknowledged three forms of coordination: standardization of coordination, coordination by mutual adjustment and coordination by plan. Thompson (1967) found that the theory of mechanism depends on the situation rather

than the theories. Mintzberg (1979) and Van Meter and Van Horn (1975) are notable scholars who showed coordination in two dimensions like intra- and inter-organizational perspectives, respectively. Drawing on Gulick, McCurdy (1983) selected some variables like defining the duties and responsibilities, written rules, organization structure, authority system for finding the coordination mechanism.

Malone and Crowston (1991) found coordination as “management of dependences among activities”. Malone and Crowston (1994) highlighted group action depends on the performance of actors which should be done independently. Resource of various types may require for that performance. Customer’s problem is the basic thing that requires consistency. Functionality of existing system, resource actor in organization, customers problem are the key elements to perform. Metcalf (1994) observes that coordination is a continuous process and the successful end results mainly depends on the better programming of work. Peters, (1998) analyses the politics of coordination in managing horizontal government. He mainly emphasized how to minimize the redundancy, structural problems, hierarchy etc. In some cases public organization is found ineffective because of coordination, structural arrangements of people, and the lethargic actions done by the individual organization.

Recently, Robinson (2000) showed the mechanism of coordination is taken on the basis of legitimacy, expert opinion, capacities etc. Christensen and Lægveid (2008) analyzed coordination in the Central Government of Norway from both intra- and inter-organizational perspectives. Bouckaert (2010) examined the result of coordination in terms of the specialization in the public sector. He did his research in seven countries. Three types of coordination basically found in his research like the market mechanism, network mechanism and the hierarchy of mechanism

Some interesting research found in the Bangladesh context which is more fruitful in the issue of coordination. Anisuzzman (1963) conducted a study on coordination of the Circle Officer and analyzed his powers and functions, problems and prospects visa-vis the basic democracies. It emphasized the need for inter-departmental coordination to enhance the role of the coordinator at the upazilla level. Chowdhury (1987) discussed coordination from public administration perspective in Bangladesh. He emphasized the need for integration of the individual and groups in the process of administration. Fostering interagency understanding

i.e. change of orientation and attitude of the public servants about their work is also important to improve coordination in public administration. Coordination can also be improved if clear and consistent policies are given by the Government in all cases. Coordination can also be greatly improved by removing difficulties and obstacles through inter-personal communication, group dynamics and motivation. Coordination cannot be improved by adhoc and coercive measures. It has been argued that uniformity of jurisdiction of all field organizations, policy consistency, noninterference in other agency's sphere of activities, rationalized use of committees system, decentralization of decision making power and authority facilitate the process of coordination in public administration.

Panday (2004) basically give the importance on policy implementation, rules and regulations of the institutions, management of financial matters, accountability and the local central relationship. He found the two face to face dimensions like bureaucratic and democratic. So independent variables and the dependent variables mentioned earlier is the main element to find the coordination and the measurement of effectiveness of organization. This research is very much relevant and contextual in case of Bangladesh organization. Panday and Jamil (2012) stated organization and cultural theories which contains three types of coordination mechanisms: formal rules and standard operating procedures, common organizational cultural norms and values, and leadership. Jamil (2014) map the inter-organizational coordination in urban governance in Bangladesh. Focusing on two city corporations in Bangladesh, it analyzes their coordination, both vertically and horizontally, with public and non-public organizations. The findings reveal that when rules and laws are outdated, redundant, and unclear, they make hierarchically based central-local relations ambiguous. Network-based coordination is more useful when there is trust, mutual reciprocity and a history of coordination. Parimal Sarker (2014) found that the UNO<sup>9</sup> are the main coordinator to maintain the coordination process. Different types of coordination like supervision, meeting, informal contact, inspection make the objective more focused. Another factors like field visit, consultation and feedback from the upazilla level officer make the coordination

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<sup>9</sup> UNO termed as “**Upazila Nirbahi Officer**” is the chief executive of an upazila (sub-district) and a junior-level officer of the Bangladesh Civil Service (Administration Cadre). An officer equivalent to senior assistant secretary level is usually assigned to this post

more effective in the upazilla level management. This study finds that direct contact, supervision, trust etc. are the main factor of coordination.

From the studies above, it is evident that in the national and international level coordination has given more importance. Concerning theoretical dimension, the classists were more concerned with the hierarchical nature of coordination adhering to rules, procedures and structure of the organization. The rationalists' approach did not negate the hierarchical nature of coordination. Rather, they identified reciprocal interdependence and mutual adjustment to accommodate the situational context of the process of coordination. There has been a new way of looking at coordination. These neo-institutional groups emphasized the norms that shaped the behaviors of the members of the institutions. Modern scholars have attempted to analyze coordination from network, market and hierarchy approach. Network like approach requires more negotiation, mediation among the actors involved in coordination process and coordination is likely to occur without applying authority.

## **2.3 Theoretical Framework: Relevant Theories**

### **2.3.1 Theory of Mary Parker Follett**

Mary Parker Follett (1866-1933) has been known to be a great pioneer in the all-embracing virtue of coordination and integration in the historical development of management literature. According to her theory organization is seen as an institution, social process, and individual cooperation. She made a holistic model which is the bible of coordination. She identified four principles of coordination for effective management. These principles are as follows: 1. direct contact with the people who are basically responsible for that task. 2. Early stages of coordination. 3. Situations are the main elements which are mainly reciprocal of the factor effecting elements 4. Coordination is seen as continuing process.

#### **2.3.1.1 Coordination by Direct Contact:**

The first principle of coordination is direct contact with the person who is liable for that task. Face to face communication is more effective to share the information's, ideas, and improvements. It will also eliminate the misunderstanding among the people. It denotes control through cross relations between heads of departments instead of up and down the hierarchy. For example, in the case of international relations contact directly means to contact



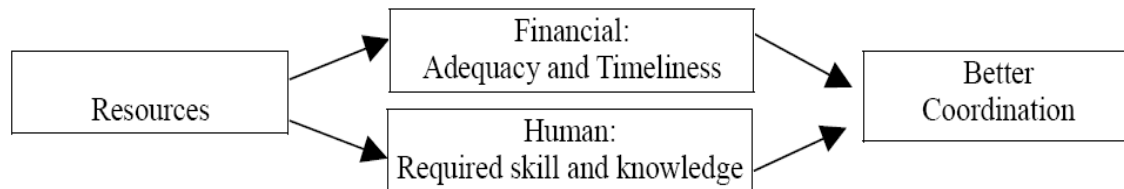
between nations will some time takes more time. But if the related ministries of each country contact each other, the process will be faster. So national planning should go in that way. That will give the headache to the head of the ministry to maintain the coordination of different issues.

### **2.3.1.2 Coordination in the early stages by understanding resources**

Early stages coordination is more effective in policy making and planning process. This will improve the quality of plan. There should be direct contact will be responsible people who is liable for that sort of project work. If the Coordination processing found earlier then it is very much easier to design any project, managing any event, coordinating any process. Consultation with the participation make the plan better designed. Interaction in the early stages makes more motivation, morale, benefits of the organization. If the things are not done in previous they may arrive some chaos and disorder. Different uncoordinated events takes place and make the objective of the plan blurred. So it is very much needed to the head of the organization while developing policies and plans. He should be in clear discussion with his subordinates. Here two things are arrives, policy forming and the policy adjustments. Successful coordination will look into the both matter.

Two types of resources in organization is found. They are financial resource and human resources. Benson (1975) mentions that resource is the main factor of coordination is the organizational relations and behavior. Organizations usually exist in an environment where resources are limited, they are dependent in varying degrees on other organizations for resources which are critical for their continued functioning. In the case of inter-organizational activities such as policy implementation, resource is controlled by a single organization. So resources is very much important tool for coordination. In a recent study, Howlett and Ramesh (2003) showed that funds are indispensable for successful policy implementation. Funding must be allocated, personnel assigned, and rules of procedures developed, among other. Van Meter and Van Horn, (1975) found that for policy implementation, resources such as funds and other incentives are crucial. Panday (2006) in a recent study of city corporation in Bangladesh found that If more financial control is imposed on local or urban bodies, problems occur in coordination among departments, creating negative impact on policy implementation. On the other hand human require skill and knowledge. Standardized skills

and knowledge of human resources can be achieved through proper training. Coordination of organization is achieved by virtue of their respective training. Their standardized skills and knowledge ensure coordination within the group.



Source: VanMeter and VanHorn, 1975

**Figure 2-1: Reciprocal Factors of Resources**

### **2.3.1.3 Coordination as the reciprocal relating of all the factors in a situation:**

This shows the actual process of coordination. Generally in an organization have several dimension and process of coordination. All the organizations have different conflict, different psychological aspect, different nature of control, different nature of integration. So it varies from organization to organization. There is no one size fits all recipe for all the organization. The factors have different dimension and reciprocal each other. This situation needs to handle in different manner in a different situation. It basically give into account to decisions made by the head of the organization. Coordination here involves every dimension that are encountered by the decision maker of the organization. Full phase of coordination is never possible but defining the reciprocal factors it can be optimized. An outsider cannot find the degree of coordination without involving him to the organization. It is very much difficult to read the factors from outside.

### **2.3.1.4 Coordination is a continuing process:**

Coordination is not a static thing. It has the dynamism character. Coordination cannot meet the one size fit's all theory. It can be derived from previous experience, previous goals and principles. Follett introduce the coordination as machinery which need maintenance. Here he coin the term from one planning process to another planning process. As the machinery is working well when it is run properly. She termed coordination as continuous, one activity to another activity

### **2.3.2 Theory of Henry Mintzberg**

Henry Mintzberg (1979) develops the structure of an organization on two fundamental requirements. One is the division of labor which have different tasks, another is establish coordination of those different tasks. Mintzberg observe coordination is a complicated issue and it needs various factors to successful. He basically give the importance of mechanism. Coordination control and communication is the main important thing to successful. Around the world there are various dimension of work and not all people are suitable for all work. So division of labor is the basic thing to do any distinct type of work. He highlighted then coordination of those labor who performed different activity. There may be numerous way to perform activity. The main goal is to better divisions of labor and better coordination. Henry Mintzberg (1979) identified six mechanisms for effective coordination. An organization can achieve effective coordination by following six factors. These are the basic elements that give the organization in harmony holds effectively.

#### **2.3.2.1 Mutual adjustment:**

Coordination can be achieved by the informal communication. There should be clear understanding among the employees. The employee will get greater interdependencies to their work.

#### **2.3.2.2 Direct supervision:**

Coordination can be achieved by team work. There will be an hierarchy. Everyone is responsible to his superior. Everyone will take responsibility. Without supervision coordination cannot be achieved.

#### **2.3.2.3 Standardization of work processes:**

Every divisions of a work has some rules and routine of activity. So the working process should be forecast before starting the work. Coordination should be designed before starting the work. Analysis of rules and process is given priority in this dimension.

#### **2.3.2.4 .Standardization of output:**

Successful coordination is measured by the expected result and outcomes. Every individual actions lead to the final goal in a successful manner. There should be coordination in the expected results and clarification of those results give better coordination.

### **2.3.2.5 Standardization of skills and knowledge:**

Specialization of people is very much needed to perform certain activity. Proper training and education give those specialization. Here the people trained how to coordinate each other and how they achieve better result.

### **2.3.2.6 Standardization of norms:**

Culture and norms are another factor in a certain organization. Every organization have some unique socialization of work, have standard procedure, and have common expectation. Here cultural attitude of the employed depends a lot for better coordination.

## **2.3.3 Theory of Bouckaert**

Bouckaert (2010) is the founder of the theory of mechanism in coordination. To achieve his theory Bouckaert did the survey in seven countries considering the factors of coordination and specialization. He then identified mechanism of coordination and instruments. Three types of mechanism he identified: 1) hierarchy based mechanism 2) market based mechanism 3) network based mechanism. He basically tried to establish a link between the coordination and the specialization. New public management is the driver of his actions. There are certain issue like clients, globalization, different public domains, which is very much important for coordination. Market based mechanism and network instruments can promote better coordination when civil service works as reliable institutionalized network. The pendulum between specialization of labor and coordination of the organizations and programs has been fluctuating for more than a few decades, but the movement continues.

### **2.3.3.1 Theory of Mechanism**

Coordination, not a simple of political and administrative type of problem. It can indicate a various range of problems within the public sector, and the need for cooperation may arise for a variety of administrative type and political type reasons. Social science go ahead to get a clear perception of the theoretical approach. The social scientist found numerous way to achieve coordination. Bouckart basically trying to establish in the political science theory to find the better coordination. In the theory of mechanism he found that when the politics and administration go in the same tune then the coordination will be better. When the

coordination between the political people and the administrative people achieve, then the working process is more successful.

#### **2.3.3.1.1 Hierarchy Based Mechanism**

In the public sector hierarchy is the familiar type of mechanism to establish coordination between the public sector organizations. Weber (1947) is the founder of this theory. He basically framed the theory which is popularly name as bureaucratic theory. There are certain dimensions in his theory like rules and regulations, procedures, coordination instruments. To draw the hierarchy of the different position is very much important for coordination. Displacement of hierarchical position gives disorder to the institution and there is a chaos in coordination. He identified some behaviors which is relevant for coordination of programs. There are some legitimacy that makes the workflow better. Set up the people in different order and make coordination among them is main theme other hierarchy based mechanism.

#### **2.3.3.1.2 Market Based Mechanism**

Markets establish the second fundamental instrument for coordination, with trade among performing artists being focal in delivering the fancied results. In their most fundamental structure markets are naturally a method for coordination, uniting purchasers and dealers, and equilibrating free market activity through a value instrument. Without the making of business sectors, through laws setting up property rights and accommodating the implementation of agreements, purchasing and offering would be extremely troublesome and costly. When set up and working legitimately, markets can rather easily arrange the activities of purchasers and dealers, utilizing the value system as a method for finding a proper level at which purchasers and merchants can both be fulfilled. The utilization of business sectors as coordination instruments assembles primarily on bartering as essential procedure and asset. In addition, market types of coordination likewise include a few components of both data and force. Bartering among projects might be reliant upon the accessibility of data about the projects, and making the transaction framework successful may require backing with force.

#### **2.3.3.1.3 Network Based Mechanism**

Third fundamental model of mechanism is the network based mechanism. Network based mechanism is very relevant for the public sector. Public sector can be an effective one by

utilizing the connection among the various organization. Network of government officials may found more successful to achieve coordination. Network is seen here the alternative type of governance. Interactions among the dependent actors and policy issue management there need some integration. There are two types of network based mechanism 1) horizontal mechanism 2) vertical mechanism. Horizontal mechanism is the interaction among the same key players who is working in the same legitimacy. Horizontal vertical mechanism is the important issue for any public decisions. There should be reciprocal relationship between the vertical and the horizontal type organization.

### **2.3.4 Theory by others**

#### **2.3.4.1 Organization theory and the public sector**

Christensen and Laegreid (2008) include the new measurement of hypothesis in the organizations of the public sector. The hypothesis of the organization theory is the way to deal with the general population that one can't comprehend the substance of open arrangement and basic leadership out in the open organizations without investigating the organization and operational methods of people in general organization. Inter-organizations are presently confronting extensive revamping and modernization forms. This hypothesis is secured in a scholastic custom that consolidates organization hypothesis, political science and exact investigations of basic leadership in formal open organizations. It concentrate on two viewpoints, one instrumental and two institutional. A key refinement between these viewpoints is that an instrumental point of view takes a glimpse at inter organizations as devices for pioneers, while institutional points of view are interested in the possibility that organizations have their own way of life, qualities and standards that apply a free impact on basic leadership. Thus organizations don't, in any straightforward and unproblematic path, adjust to moving signs from pioneers. Inside an instrumental point of view demonstrated a recognize a various leveled variation, where a pioneer's control and normal computation are key variables, and an arrangement based variation, which considers verbalization of interests, bargains and transaction between performing artists with halfway clashing objectives. Concerning institutional points of view, concentrated on recognize a social viewpoint – where the fundamental thought is of regulated organizations with an exceptional inside hierarchical society and customs – and a myth point of view – which grasps standardized situations, where

the emphasis is on the criticalness of qualities and standards found in an organization's domain.

## **2.4 Analytical Framework**

The analytical framework has been developed to analyze the role of the DSCC (Dhaka South City Corporation), WASA, Water development board, RAJUK etc. in coordination process at drainage management in the Dania union of Dhaka city. It is also intended to establish the relationship between dependent and independent variables and relate them with the broad theoretical perspective.

### **2.4.1 Choice of the theory for the study:**

Theories are formulated to explain, predict, and understand phenomena and, in many cases, to challenge and extend existing knowledge within the limits of critical bounding assumptions. The theoretical framework is the structure that can hold or support a theory of a research study. The choice of theory introduces and describes the theory that explains why the research problem under study exists. Mary Parker Follett theory has been called the prophet of management and has been identified as a pioneer in public administration, in organizational studies, in conflict resolution, and in inter organizational conflict management. At the beginning of the 20th century, Follett's theory received international recognition, and this theory has been identified as one of the leading guidelines regarding the inter-organizational coordination. The theory of Follett is very much experienced to solve the discipline of management, public administration and the conflict resolution. In the age of postmodern, this theory has a historical focus and it is very much pragmatic in nature. This theory encourage the public participation which is very much popular in the world wide movement. This theory can solve the conflict management in the public arena and more creative nature in the holistic domain.

The research objective is to find out the problems of coordination that take place among various departments in drainage management systems in Dania union. To find out the inter-organizational conflict, this theory is one of best theory which will find out the gap and solve the issue which will improve the drainage management system of Dania union in Dhaka city. This theory have four principles of coordination for effective management. These principles

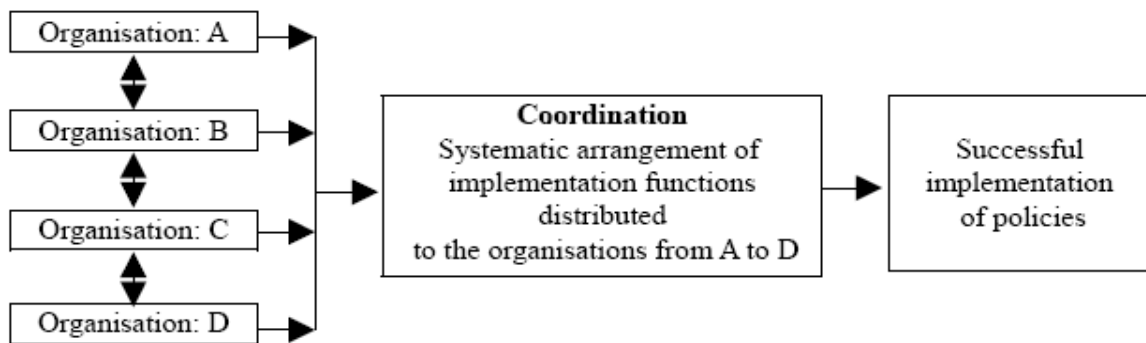
are as follows: 1. direct contact with the people who are basically responsible for that task. 2. Early stages of coordination. 3. Situations are the main elements which are mainly reciprocal of the factor effecting elements 4. Coordination is seen as continuing process. Christensen and Laegreid (2008) include the new dimension which also finds organization in institutional and instrumental basis. Regarding the drainage management context, the organization are found very much instrumental. If the organization is found institutional basis there will be better coordination. So finally five independent variables is taken four from Follett's theory and one from Christensen and Laegreid (2008) theory.

## **2.4.2 Dependent variable**

### **2.4.2.1 Coordination**

'The synergism produced in human body is basically the result of coordinated efforts of different organs. Any system, whether organizational, management or others having interrelated parts or subparts must coordinate with each other in order to produce synergism' (Islam, 1994: 1). One of the ways through which structure and functioning of organizations can be described and analyzed is coordination (Christensen and Laegreid, 2008: 97). Coordination is indispensable when multiple actors are involved in the pursuit of common goals. However, the obvious end of coordination is to have a harmonious relationship among actors by synchronizing their actions to avoid conflicts inevitably arising in their activities, and wastage of resources including time and energies. As to the implementation of a multi-actor policy, the process of achieving coordination and how it leads to successful policy implementation can be seen in Figure 2.2. The lack of coordination leads to discord, friction, chaos and confusion, ultimately causing inefficiency and ineffectiveness in the activities of organizations involved (Khan, 1980: 29). Here, coordination refers to a suitable working relationship based on the mapping of perceptions of those involved in policy implementation towards coordination.





**Figure 2-2 Relationship between coordination in policy implementation,**  
Source: Hasan (2010)

#### **2.4.2.1.1 Inter-organizational coordination**

‘Tell me, and I forget; show me, and I remember; involve me, and I understand’. Chinese Proverb (cited in Badiru, 2008: 29) Inter-organizational coordination must be considered when a policy is implemented by multiple organizations. Organizations are considered as homogeneous entities, and large organizations have other organizations nested within them. Inter-organizational coordination may take place at any level: between ministries, between divisions within the same ministries or in different ministries, or between departments or offices within the same or different divisions.

Two dimension basically found in the coordination. They are horizontal and vertical. Inter organizational coordination is similar to horizontal and intra organizational coordination is vertical type. Inter organization coordination is more network based and coordination concerned with managing the activities of different organizations. Bouckaert (2005) intra-organization coordination is more hierarchy based and coordination concerned with managing the activities of individuals or subunits of an organization are considered. Christensen and Læg Reid (2008). Inter-organizational coordination takes place in the context where organizations are dependent on each other and need cooperation from each other to achieve common goals. This means that the level of intensity associated with interdependence enhances the extent of coordination to be achieved among interdependent entities. Thus, the greater the complexity of interdependence, the greater will be the possibility of coordination.

#### **2.4.2.2 Measurement of coordination**

Coordination can be measured by various dimension. There are some independent variable that make the coordination full functional. When the independent variable is running

smoothly there should be improve in coordination. But how the coordination will be measured that is the important issue. Questionnaire can be a tool to measure the status of coordination. Suppose when it is seen that water logging is improved by applying the independent variable of coordination for drainage management then it can be told that coordination is improving. People's perception can be another tool to measure the coordination. When the people's perception is good regarding the drainage management system, then it can be told that coordination is good. Satisfaction of the respondents can give a positive improvement of coordination. Then coordination can be measured in the organizational perspective. For example, if the objective of the organization fulfilled then it can be identified that what the activities are. If the condition is better from previous then It can be said that coordination is good. If the people of different inter-related departments make a cumulative effort to any job within the time frame and without any interference it can be said that coordination improves among the organization. When the feedback of the employees of the organization related to drainage management system is improved then we can say that the coordination is good than before. People's perception, regular contact, mutual dependency and good network can measure the coordination if improved.

### **2.4.3 Independent variables**

#### **2.4.3.1 Coordination by direct contact**

Informal communication is an updated form of direct contact theory given by Mary Parker Follett (1866-1933). It is an unplanned form of sharing information generally used in person to person conversation with the colleagues, partners, higher officials, lower officials within a business environment. Informal communication making the working environment lively that happens outside the formal correspondence structures of the working environment. Informal communication is continuous out in the organizations, it helps authoritative individuals in finding out about each other and their work, it supports both generation work and the social relations that underlie it, and it gives a basic office that colleagues depend on to begin joint work, look after it, and drive it to conclusion. Without casual correspondence, numerous coordinated efforts would without a doubt not happen and others would separate before getting to be fruitful. Generally, communication is a way through which people stay close and share their feelings. It is a process of transmitting cues that modify human behavior (Piffner

and Presthus, 1953: 111). Communication is transformation of meaning from one to another, in which transmitted information and ideas are conveyed (Robbins, 1995: 114). Thus, whereas the first independent variable of this study focuses on the existence of formal division of labor, this one focuses on the informal form of communication as a coordination mechanism. In this respect, Verhoest and Bouckaert (2005) argue that inter-organizational coordination is more network-based. A network, in fact, is developed on the basis of informal relationship or communication that helps organizations to coordinate their operations. With regard to coordination, Mintzberg introduces a concept of mutual adjustment known as informal communication. He notes that coordination in activities can be achieved through the simple process of informal communication (Mintzberg, 1979: 3). Here, it is important to note that informal communication takes place even if there is formal communication. Formal means obligatory and is held in accordance with the rules. Formal communication among organizations for achieving objectives understood is not an end; rather it necessitates and facilitates the process of informal communication. This is because informal communication, in some cases, is needed for the sake of formal communication, meaning, informal communication can supplement formal communication. In this respect, Mintzberg argues that 'the two systems seem to be rather interdependent: at the very least, the formal appears to shape the informal, while the informal greatly influences what works in the formal, and sometimes even reflects its shape to come'(Mintzberg, 1979: 53). Organisations that communicate with one another whenever they need and encourage such activities are likely to be more successful at coordination than those that do not. Pfiffner and Presthus note that 'Communication is inseparably linked with coordination which is a process by which the multiplicity of skills, attitudes, and interests in an agency or a major program are bound together' (Pfiffner and Presthus, 1953: 129). Here informal communication refers to an interactive process through which information is shared among departments involved in policy implementation in an upazila. Thus, informal communication across the organizations having exchange of information is assumed as one of the important factors that make inter-departmental coordination possible. This variable can be measured by the factors like the nature of interaction, psychological strength, workers satisfaction, contact, meeting etc. if the indicators is good then we can say that this variable is functioning properly.

#### **2.4.3.1.1 Why direct contact?**

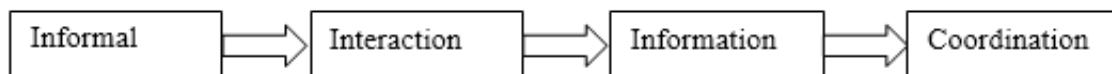
Various forms of ingredients are found in forms of communication that necessitate coordination. According to Chisholm (1989) informal mechanism is more effective than the formal channel. Given that information is exchanged through communication and coordination takes place based on communication when communication is an independent variable, the most important argument concerning the informal channel lies in the statement. Informal communication is also argued to take place when issues are novel, new or innovative, and there is no precedence which may allow an organization to develop routine to handle this issue. In the case of transferring public officials, experiences gathered are taken away. Expertise is developed through experiences, and experiences can be formalized and translated into rules. That is why informal communication is important in coordination. Alexander identifies turnover of the personnel as an impediment in coordination and can also be symptomatic of other problems in coordination (Alexander, 1995: 18).

#### **2.4.3.1.2 Function of direct contact in achieving coordination**

In the present study, goals are intended to follow the issues of coordination in public sector, particularly in the exercises of different divisions required in strategy usage. The issue now is the procedure by which informal communication encourages coordination among divisions. At the point when casual correspondence happens among divisions, data is exchanged. The trading of data is liable to communication which prompts coordination. Information exchange works in two ways that prompt coordination: it improves the valuation for the performing artists of their shared issues and interdependencies and impacts their choices and activities (Alexander, 1995: 43), in this way encouraging common learning. From the perspective of informal communication, a network is seen as a steering of organizational functions because interaction through communication takes place among organizations, and accordingly, information is shared leading to coordination. This means that informal communication is crisscrossing hierarchical needs of functional units. In this regard, divisions of labor is dependent each other. Therefore, their activities need to be coordinated.

Exchange theory sees resource exchange as the main factor that explains organizational relations and behavior (Benson, 1975). The assumption behind exchange theory is that the primary incentive for all organizations is survival. Since organizations usually exist in an

environment where resources are limited, they are dependent in varying degrees on other organizations for resources which are critical for their continued functioning (Grandori, 1987: 58-60). Contingency theory is another schools of thought about organizations. Here this is presented under one heading, because it has an important theme in common: both address organizational adaptation. In contingency theory, however, the focus is the single organization's adaptation to its environment. Organizational ecology, on the other hand, looks at populations of organizations, and examines their "fit" with their relevant "ecological niche" (Grandori, 1987: 21, 121-122). Coordination is not accomplished through a focal arrangement or a hierarchical chain of command, nor does it occur through the value component, as in the conventional business sector model. Rather, coordination happens through organization among firms in the system' (referred to in Harriss, 2000: 229).The interaction among organizations is a vehicle of informal communication.



**Figure 2-3: Relationship between informal communication and coordination**

Source: Mintzberg (1979)

Figure 2-3 indicates that informal communication leads to coordination among organizations involved in policy implementation. When organizations share information through interaction, coordination takes place; this is because interaction among organizations creates opportunities for acquiring and sharing information on many issues on policy implementation (i.e., who is doing what, who is having what problem, who needs what). In turn, the issues on mutual concern that ensures coordination among organizations assigned to perform specific functions concerning the policies to be implemented are resolved. Furthermore, information is power, and people who possess and use it are considered key factor to the success of policy implementation, (Badiru, 2008: 47). Due to the lack of informal communication among departments, duplication in their operations may occur. Now the question is what is the use of rules in the light of duplication? Here, apathy in obeying rules specifying who will do what, when, and how is the main restraint; however, this can be avoided by engaging in informal communication. When duplication occurs, scarce resources are wasted and implementation process takes more time than required, increasing the volume of unnecessary expenditure.

Considering the importance of communication in achieving coordination, Bennett notes that the primary objective in the case of inter-organizational coordination is to ensure the minimization of duplication and wastage by sharing information and/or resources (Bennett, 2000: 189).

#### **2.4.3.2 Coordination in early stage by understanding resources**

Mary Parker Follett (1866-1933) identified another dimension understating the coordination in early stage by optimizing the resources. Later on Benson (1975), Grandori (1987), Howlett and Ramesh (2003), Van Meter and Van Horn, (1975), Panday (2006) all emphasizes the Resources— financial and human are vital for completing coordination in the exercises of different divisions within approach execution; money related asset quickens the procedure of arrangement usage adding to the convenient consummation of usage exercises, while human asset puts the strategy into impact productively and cost adequately. There are some factors like internal resource, external resource optimization competencies, capabilities etc. The improvement of this factors can give a positive movement of the understating of resources.

##### **2.4.3.2.1 Financial resources and coordination**

Resources are considered only as instruments contributing in keeping continued functioning of all involved in a joint course of actions. An organization whose functions are dependent on resource cannot start functioning unless and until resource is disbursed, and hardly be able to continue unless the disbursed resource is adequate. On the other hand, timely disbursement of resources leads to timely completion of functions that, in turn, lays the foundation upon which others can begin to start performing their tasks and functions in a timely manner. The continuation of this process is subject to synchronization of the functions accomplished by interdependent organizations that ensure coordination in the activities of various organizations. Thus, the extent to which coordination is achieved in the activities of organizations involved in policy implementation depends on the degree to which funding for such a task is adequate and available. The lack of funds leads to the poor quality of implementation activities, while the occurrence of untimely funding causes failures to meet the deadlines of policy implementation; this ultimately increases the total cost of policy implementation. Therefore, funds are important for policy implementation which influences

coordination. This view is prevalent both in literature on coordination and policy implementation. Thus, in order to ensure coordination among organizations involved in policy implementation, timeliness is as important as adequate funding.

#### **2.4.3.2 Human resource and coordination**

Coordination is done naturally in a given circumstance when organizations depended with obligations and have the required abilities and learning. In this way, guaranteeing coordination in the exercises of organizations, the abilities and information of the individuals who are in charge of completing these exercises must be institutionalized. In this regard, skilled human resources is very much needed. Without standardization of skill and knowledge coordination is not possible.

#### **2.4.3.3 Coordination as a continuous process**

Mary Parker Follett (1866-1933) was as a chief in a organization for many years. She reveals that the coordination is not a static thing rather than it is a continuous process. Later on Mintzberg (1979) give some emphasize on this theory. As indicated by this guideline, coordination must be a ceaseless procedure. It must not be a one-time movement. The procedure of coordination must start when the organization begins, and it must proceed until the organization exists. Coordination must be done persistently amid the administration procedure. It must be done amid arranging, sorting out, coordinating and controlling.

#### **2.4.3.4 Coordination as a reciprocal relating factors**

Mary Parker Follett (1866-1933) identified the coordination as a network building process. Without network building among the employees coordination cannot be achieved. Later on Bouckaert (2010) explains the theory of mechanism. Network base coordination is one of this theory. Jamil (2014) showed network-based coordination denotes voluntary collaborative action and information sharing amongst mutually dependent organizations in order to achieve a common goal. It is based on trust, solidarity and spontaneity.

#### **2.4.3.5 Institutional Perspective**

Christensen and Lægreid (2008) indicated institutional viewpoints permit organizations to have their own institutional guidelines, qualities and standards, which apply a free impact on basic leadership conduct. At the point when a formal organization creates formal standards

and qualities notwithstanding the formal assortment, it gets institutional components, and one talks about standardized organization. The social states of mind and activities of individuals from an open organization will take shape and get to be efficient as per the rationale of suitability. Performers will pick up experience of an institutional society by realizing what is fitting at the end.

| Variable Analysis   |   | Dependent Variable  |
|---|---|---|
| Independent Variable  | Measurement of indicators   |   |
| <b>Direct Contact</b><br>Mary Parker Follett (1866-1933)                        | Nature of interaction<br>Psychological strength<br>Workers satisfaction<br>Contact, meeting | <b>Coordination</b><br><br>Peoples perception<br>Regular Contact<br>Mutual Dependency<br>Good network |
| <b>Understanding resource in early stage</b><br>Mary Parker Follett (1866-1933) | Internal resource<br>External resource<br>Optimization<br>Competencies, capabilities        |   |
| <b>Continuous direct Supervision</b><br>Mary Parker Follett (1866-1933)         | Compliance<br>Actions<br>Monitoring   |   |
| <b>Understanding reciprocal factors</b><br>Mary Parker Follett (1866-1933)      | Quick response<br>Goodwill<br>Less time consuming   |   |
| <b>Institutional Perspective</b><br>Christensen and Læg Reid (2008)             | Decision<br>Future planning<br>Independent organization<br>Institutional memory             |   |

#### 2.4.4 Operational definition of variables

In order to assess the level of coordination between the DSCC Mayor and other organization officers the study takes Mayor Role as coordinator dependent variable and informal communication, resources, direct contact, supervision, network, institutional as independent variables.

##### 2.4.4.1 Coordination by direct contact

Informal communication is the form of direct contact as well as direct formal communication between the Mayor and other organization based officers through committee, inspection and



field visit to oversee and monitor the actions of the officers issuing instructions and orders for enhancing coordinating role of the Mayor in Dhaka city. As per this rule, all chiefs must have a Direct Contact with their subordinates. This will bring about great relations between the supervisor and their subordinates. This is on account of direct contact stays away from misconceptions, misinterpretations and debate amongst administrators and subordinates. It empowers the supervisors to arrange all the distinctive exercises of their subordinates successfully and effectively.

#### **2.4.4.2 Coordination in early stage by understanding resources**

When a policy is implemented by several departments, there is a dependency among departments as one's action depends on another's. Considering resources as an independent variable, dependency, in this study, refers to the amount of resources exchanged, the frequency of transactions, and the value of the resources to the recipient for policy implementation.

#### **2.4.4.3 Coordination as a continuous process like direct supervision**

Supervision makes the process in a continuous manner. It refers to both the communication between the Mayor and other officers as well as the other organization officers and their higher authorities to ministries in the form of coordination meeting, inspection and field visit to oversee and monitor the progress of the development activities and actions of the officers through issuing instructions and orders.

#### **2.4.4.4 Coordination as a reciprocal relating factors**

Some reciprocal factor like setting up a network is useful for achieving coordination for the Mayor of DSCC. Also a diverse, heterogeneous and complex environment therefore demands network-based coordination. However, this new form of coordination referred to as network governance reflects the drainage management in Dhaka city.

#### **2.4.4.5 Institutional perspective**

Institutional perspective makes democratic politician, a responsible caseworker, a great individual from an open administration or an open minded administrations. They will have the capacity to act even in exceptionally unpredictable and fluctuating circumstances since they are guided by a central social premise gained through socialization into casual standards

and values. The rationale of suitability clearly brings advantages since complex activity boosts are reacted to with institutionalized, practically natural activities.

## **2.5 Conclusion**

The purpose of this chapter was to develop a theoretical framework for exploring and analyzing the issue of coordination in drainage management in Dhaka city. In doing so, literature on coordination has been reviewed briefly and attempts have also been made to establish a relationship between coordination (dependent variable) and factors (independent variables) affecting coordination. The above discussions suggest that in a situation characterized by informal communication, resources, direct supervision, network based coordination, institutional perspective. There is likely to be better coordination in the activities of the organizations involved in policy implementation. On the basis of the above arguments, an analytical framework has been developed in this chapter which clarifies the integrated involvement of by direct contact, coordination in early stages, coordination as a continuous process, coordination as a reciprocal relating factors, coordination as institutional perspective that cumulatively lead to coordination in this study. Next chapter will discuss the prevailing drainage system and how the drainages works. It also find out who are the key players of the drainage management system.

## **3 Chapter Three: Drainage and Storm Water Management in Dhaka**

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### **3.1 Introduction**

The expansion of Dhaka city has been impacted by its geographic area and topographic setting. An imperative element of Dhaka's geography is the low-lying territory all around the city, which extends from the Buriganga bank in the south towards the north, for all intents and purposes to the Tongi river. An extend of higher land is flanked on either side by low-lying ranges or back marshes which at a few areas degree directly into the focal point of the higher hoisted porches (Chowdhury and Faruqui, 1991). The development of the city before the 1950's was low and slow and was limited between the Buriganga waterway in the south, the Turag stream in the west, the Shitalakhya stream in the east, the Balu waterway in the north east and the Tongi khal in the north. After 1950, Dhaka has encountered a huge yet broken and uncontrolled development. Rustic to urban relocation is perceived as a noteworthy segment of the fast development. Amid the most recent decade, roughly 70% of the populace increment in Dhaka has been ascribed to such movement (FAP-8B, Final Report, 1991).

### **3.2 Review of Drainage Master Plans**

The sewer framework gathers water from inside homes and organizations and conveys it to a treatment plant where the wastewater is cleaned before being discharged into the Delta. Storm channels are situated along boulevards and in parking garages and stream straightforwardly to the Delta without treatment. Several flood control and storm water drainage plans for greater Dhaka have been prepared by the Government of Bangladesh (GOB) with cooperation and assistance from various international agencies. However most of the major drainage facilities have been constructed after the 1988 flood. The first master plan was prepared on flood protection and internal drainage of Dhaka city was undertaken by the DPHE in 1968. The master plan covering on area of 75 km<sup>2</sup> included construction of an embankment around the city, pump station and other internal drainage facilities. The water and power development authority (WAPDA) was assigned to construct the embankment and pump stations and the DPHE was appointed to construct the internal drainage system however the plan does not work. As a follow up of the above Master plan, BWDB prepared a detailed plan covering an area of 144 km<sup>2</sup> and DPHE also prepared a separate plan for the

internal drainage system. In 1981, a study on Dhaka Metropolitan Area Integrated Urban Development Project was completed with assistance from ADB and UNDP but no detailed flood control and drainage plan was proposed in the study. In 1980, following the crash program mentioned above, another drainage plan namely “Interim scheme for Removing Water logging within Dhaka Metropolis” was prepared by DPHE, which was continuing at the time of finalization of the report of another comprehensive study, namely “Study on Storm Water Drainage System Improvement Project in Dhaka City” being carried out JICA (JICA, 1987)

### **3.3 History of Dhaka WASA**

The historical backdrop of the Dhaka city backtracks over 400 years. Toward the Beginning of the sixteenth century, the Mughals, in reality the initially, settled Dhaka city, and it was then 10 Sq. km in size. Under British lead it developed to 22 Sq. km and continued extending amid the Pakistan time frame to 50 Sq. km. presently it is 350-465 Sq. km in region, and this quick development is primary test for Dhaka WASA. Dhaka city's present populaiton of 12.5 million individuals is relied upon to extend to 21 million by 2025 and to live in a zone of around 1,000 Sq. km. Dhaka lies on the banks of the Buriganga River in focal Bangladesh. The development of Dhaka city was mostly in and around the stream Buriganga. The trenches inside the super city Dhaka and the streams encompassing the city were going about as normal drainage framework, water repository, and the waterway course. These waterways were Begunbari khal, Segunbagicha khal, Kallayanpur khal, Dholai khal and so on. The encompassing streams are the Buriganga, the Shitolakhya, the Balu, the Turag, and the Dhaleshari. Since 1953 advancement of the Dhaka city was guided by The Town Improvement Act, 1953. In 1959, an end-all strategy was created demonstrating a territory 320 Sq. km having 0.575 million individuals, and is called first all-inclusive strategy of the super city Dhaka. After the freedom of Bangladesh in 1971, relocation of individuals to Dhaka city from urban and provincial territories were high. In the meantime the interest for lodging, water, power, and gas expanded enormously. In this circumstance the town change arrangements of 1959 neglected to take care of the demand and felt for another ground breaking strategy. On this foundation another end-all strategy was created in 1996, and is called second end-all strategy of Dhaka city. In this arrangement, the final range was 590 Sq. km and population was evaluated 10 million. Be that as it may, the present population of Dhaka City is 12.5 million, which is 2.5

million more than the evaluated arrange. Really, the consumable drinking water supply was begun in Dhaka City in the year 1874, and that year Nabab Khaja Abdul Ghani built up a water treatment arrange in Chadnighat close to the bank of the waterway Buriganga. After that period the channeled water was provided to city individuals in the restricted way furthermore sanitation framework.

After British control, the then Pakistan government built up Department of Public Health Engineering (DPHE) for recovery of polluted water, waste, and sanitation framework for provincial and urban individuals. Dhaka WASA was set up in the year 1963 as an autonomous organization, under the East Pakistan mandate XIX. In 1989, the waste management of Dhaka city likewise gave over to Dhaka WASA from DPHE. Again in the year 1990, Water, Drainage, and Sewerage systems of Narayangonj city gave over to Dhaka WASA. In view of the huge geological development and population development in the course of the most recent two decades, Dhaka WASA's exercises have been rearranged by Dhaka WASA Act, 1996. As indicated by this Act, Dhaka WASA is working as a semi self-autonomous organization under a Board, and the line service is the Ministry of Local Government, Rural Development and Cooperatives (LGRD&C). As far back as its creation in 1963, Dhaka WASA has been constantly extending its administration area and updating its level of administrations to keep pace with the developing interest. Before the liberation war water supply in Dhaka city, sanitation, city sewerage system and drainage management was done by the DPHE. In 1963, Dhaka WASA was emerged for the water supply and sewerage management. In 1989, DPHE handover the responsibility of storm water management to the WASA. After that WASA is the prime responsible for the storm and sewerage management of Dhaka city. WASA prepared the sewerage map in Dhaka city (Annex 02) and the drainage map of Dhaka city (Annex 03) but the growing demand of population need for the further modification of map according to the present needs. In fact, DSCC, DNCC is also responsible for the drainage management in Dhaka city. At present, Dhaka WASA is saving all the natural canals, development of existing drainage lines, storm water pump station management. Various types of the water logging removal projects, reclamation of all natural canals of Dhaka city and making all types of initiatives for the removal of water logging in Dhaka city.

### 3.4 Main Responsibilities of Dhaka WASA

Dhaka Water Supply and Sewerage Authority (WASA) is a service oriented autonomous commercial organization in the Public sector. This organization is solely responsible for sewerage disposal (wastewater), providing water supply and storm water drainage services to the city dwellers of the fast-growing metropolitan Dhaka, the capital of Bangladesh. It covers more than 360 sq. km service zone with 12.5 million individuals with around 2110 million liters for each day (MLD). Dhaka WASA faces various difficulties. These incorporate impromptu city improvement and casual settlements, transitioning to utilizing surface water rather than groundwater, and huge speculation subsidizing. Yet, Dhaka WASA has various eminent accomplishments incorporating noteworthy increment in water creation and efficiency, enhanced administration quality, expanded income, decrease of non-income water, and arrangement of water supply with ease. Primary obligations of Dhaka WASA is Construction, operation, improvement, and maintenance of the necessary infrastructures for collecting, treating, preserving, and supplying potable water to the public, industries, and commercial concerns

- Construction, operation, improvement, and maintenance of the necessary infrastructures for collecting, treating, and disposing domestic sewerage and other sewerage, and
- Construction, operation, improvement, and maintenance of the necessary infrastructures for storm water drainage facilities of the City.

At present Dhaka WASA is working with recently endorsed "Table of Organization and Equipment (TO&E)" and guided by a Board. The Dhaka WASA Board comprises of 13 individuals including Chairman, and it is made for detailing arrangement and giving general rules. A Managing Director and four Deputy Managing Directors including Chief Engineer and Commercial Manager head the official administration of Dhaka WASA. The overseeing executive is the CEO of the organization, and the top-level places of the organization were revamped by the WASA Act, 1996. The hierarchical structure of Dhaka WASA is divided into four wings alongside the Office of the Chief Executive (Managing Director), and they are administration, Finance, Operation and Maintenance, and Research, Planning, and Development. As per current organogram add up to labor in Dhaka WASA is 4,431. Be that as

it may, as of June 2011 the quantity of labor decreases to 3,294. The present organogram in view of administration necessity and considering the geographic extension of the City was endorsed in 2009. The ebb and flow water supply staff position and its chain of importance at the utility are reflected into the present organogram. Various administrations (Water Supply, Sewerage, and Drainage System) of Dhaka WASA is related, and the proportion of labor occupied with two standards are Sewerage System (13.4% of total manpower) and Water Supply System (87.6% of total manpower).

### **3.5 Major challenges to Dhaka WASA in Drainage management**

Dhaka WASA faces numerous challenges while providing Water Supply and Sewerage services in fast growing Dhaka city, and they are briefly described below:

#### **3.5.1 Mega City in developing country**

A city is generally characterized as a metropolitan region with an aggregate population in abundance of 10 million individuals. A few definitions additionally set a base level for population thickness (no less than 2,000 people/square km). As indicated by these definitions, Dhaka is distinguished as one of the mega city in creating nations. It has population of more than 10 million, furthermore the population thickness (people per sq km) of Dhaka city is 30,000. In any case, for Low Income Community (LIC) individuals the population thickness increments to 220,000 which is more than 7 times contrasted with that of Dhaka city. Mega city itself is a biggest weight and colossal test for the creating nations, and this is additionally a major test for Dhaka WASA to address the issue of water request of this mega city. In a period of quick urbanization, Dhaka is the world's quickest developing mega city. Every year the stream of transients into Dhaka city, leaving the rustic and other urban regions to attempt to bring home the bacon in the enormous city, is too high. By 2025, the aggregate Population in Dhaka city is evaluated to be 21 million of which LIC 8 million (roughly 44%). The LIC individuals will be more swarmed in Dhaka city in casual settlements.

#### **3.5.2 Unplanned City development and growth**

The quick development of Dhaka city likewise causes demand for water alongside housing, power, and gas. Because of colossal geological extension and the pressure of population in the course of the most recent two decades, the City was produced in an extremely

spontaneous way, and all things considered the getting ready for the Dhaka WASA exercises is altered time to time to take care of Dhaka's quickly developing demand for water, and still this is one of the difficulties for Dhaka WASA.

### **3.6 Present Scenario of Waste Management and Drainage facilities**

During the liberation war, Dhaka had a population of about 70 million which now increased to almost 15 million. The rate of increase in population is more because of healthcare, education and many other facilities are more advanced in Dhaka city. The impacts of such unplanned development are tremendous in terms of quality of indoor and outdoor environment, socio-economic and environmental requirements. Hence it is high time for studying the housing environment both inside and outside of the residential buildings and make proper suggestions regarding their effects on the growth of Dhaka city. In the context the present research has been conducted with the goal of identifying the Engineering and Environmental issues and probable line of solutions to this problem.

Unplanned development of buildings is increasing risks of earthquake induced accidents and is posing serious threat to the inhabitants and their belongings. Due to the absence of proper drainage facilities in the real estate projects, water logging is being created. Due to lack of proper solid waste management system in the real estate projects, degradable environment situation is being created every day. The solid waste disposal management of Dhaka City is major area maintained by DNCC and DSCC and cantonment area maintained by Dhaka Cantonment Board. Drainage facility management of Dhaka City is maintained by Dhaka City Corporations and Dhaka water supply authority (DWASA) and Cantonment area maintained by Dhaka cantonment Board. The inhabitants of the real estate projects are suffering from problems due to lack of necessary urban amenities. When carrying out real estate development projects, urban development rules and necessary urban amenities like solid waste disposal and drainage facility rules and regulations are not strictly followed in most of the cases. Solid waste and drainage activity is being hampered because the concern bye-laws are neglected by the real estate developers or owners. So the performances of the real estate services with regard to the living conditions are not satisfactory and this is causing environmental pollution & serious damage to the environmental stability.



### **3.7 Storm sewer**

Though the city is provided with separate storm sewer, these are not sufficient enough to hold heavy downpours. Paved streets and building rooftops send huge volumes of storm water very quickly into the storm sewer and the system overflows. The city goes under a meter of water almost after every heavy rainfall. The water carries fossil fuels, solid waste, silt, and domestic wastes and ends into the river. This results in contamination of water and generates water borne diseases, which affect the health of the people. In addition to that, the city encounters severe consequences of the stagnant water: damage to infrastructures, destruction of agriculture and aquatic habitats and disruption to traffic movement and livelihood. Every year, the city officials spend millions of Bangladeshi Taka (BDT) for maintaining the underground storm sewers. There lies a different scenario during the dry season, when people experience an immense shortage in water supply which results from the city's over-dependence on ground water. Dhaka Water Supply and Sewerage Authority (DWASA) - the sole provider of water in the city- primarily relies on groundwater extraction. A small volume of water supply comes from surface water by DWASA's two water treatment plants. According to DWASA report, more than 80% of the total supply of water comes from groundwater source and the rest from surface water. Groundwater extraction has increased over the last few decades resulting in groundwater mining and lowering of the water level. Due to over-extraction, groundwater table of the aquifer under Dhaka city is declining 1-3m per year, which results in water supply shortages (Rahman and Hossain, 2008). Water demand for Dhaka city is expected to reach 3200 million liters per day (mld) by 2025 (Rahman and Hossain, 2008).

### **3.8 Conclusion**

It is a great challenge for the Dhaka WASA to manage the drainage throughout the year because the population is increasing day by day. More treatment plants, more pipelines, more retention pond for treatment for the efficient management. To do that accomplishment there need more funds, manpower and technical assistance. WASA can be a successful organization in drainage management if all those checklist is done in a decent way. Next chapter will discuss the various methodological approach, which methodology is suitable for this research and how it will be integrated.

## **4 Chapter Four: Methodology**

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### **4.1 Introduction**

The fundamental reason for this section is to ponder various methodological means in connection to the exploration inquiries of the present study. To meet the reason, the momentum study depends on qualitative research. Besides, discussion is made on information gathering procedures and methodological results to clarify the utilization with regard to the present research.

### **4.2 Research design**

A several research traditions are found in social research: such as qualitative, quantitative and mixed approach. Qualitative and quantitative approaches are used to explore and understand the opinions of the respondents on social problem, make generalizations about the problem, and examine the relation among the variables used in research to test the theories, respectively, while both are considered in using mixed approach (Creswell, 2009: 4). This study is purely a qualitative research for finding the coordination gap among the various organization involved in drainage management system.

#### **4.2.1 Rationale behind using the qualitative approach**

Survey method is useful and conducted in a large sample to either experimental or to measure or assess the impact. But as the study is explorative, a limited sample has been used to get a deeper insight on a local phenomenon caused by the role of the several bodies. Therefore, a qualitative strategy has been adopted to take small cases. The goal of this research is to discover information on the research problem based on the respondent's perception towards it, rather than being confined by the structure of predetermined questions. Such approach allowed the respondents to express their opinions outside the questions asked. In qualitative research, the goal of researchers is to rely as much as possible on the respondent's views on the issue being studied (Creswell, 2014). In this respect, interviews with open-ended questions were used to collect information. Second, before visiting the area of study, there was no preconceived idea regarding the research problem. For example, the dependent variable of this study is inter organizational coordination. Under this dependent variable there are some independent variable like direct contact, resources, supervision, network,

institutional perspective which affect the coordination. Before the respondents were interviewed, no preliminary background research was done as to whether they have similar or different working procedures and norms. Specifically, this study is designed to understand the research problem as a process by addressing the questions. For example, it assumed that inter-organizational coordination may be problematic because of the lack of direct contact. On the other hand, how the lack of direct contact is translated into activities and consequently affects coordination can only be shown through qualitative research. Moreover, this study does not intend to test theories; rather the purpose of this study is to understand existing theories and to make generalizations about the research problem.

### **4.3 Research design**

Here, the coordination of drainage management policy was studied as a process to understand why and how coordination in the activities of various departments involved in drainage management system. In this connection, a field study was conducted in the Dania union (now ward no 50 of DSCC) of Dhaka District, approximately 5 km east of the capital city, Dhaka. Moreover, the scholars' views on coordination are highlighted in order to have a better understanding why coordination is absent and how this has come to be. Research as a process deals with the 'how' and 'why' questions; but the process of crafting the 'why' and 'how' questions were suited for this study lies in the research problem. Since the present research intended to analyses inter-organizational coordination and explore and identify factors that affect coordination, it was required to identify variables and the relationships existing among them. Accordingly, variables such as supervision were identified and studied. By doing so, the relationships between variables were established in order to understand the interplay of various factors in the process of ensuring coordination. The use of 'how' and 'why' questions made it possible for the author to establish relationship between variables. Another reason for studying this research as a process is the intention to identify and examine all probable factors that affect coordination. By examining this particular policy area, the analysis of data became easier. As such, all possible variables were identified to understand the coordination process more comprehensively and create generalization about the research problem more accurately.

### **4.3.1 The logic behind selecting particular policy area**

In the present study, water logging problem is very much acute and the drainage system is very much poor. There are various organization like RAJUK, DSCC, DWASA, Water development board, Roads & highway etc are involved for the drainage construction and the maintenance. Water logging is very common phenomenon in Dhaka city but this area is highly prone to this problem. Middle income people are living in this area and seems to be more high population density along with the region. To achieve success, however, the coordination among those who are involved in the drainage management process is highly needed for the better outcome.

### **4.3.2 Reasons behind the selection of the unit of analysis**

As the area of study, Dania union, located in Dhaka District, was selected out of 4554 unions in Bangladesh purposefully because of its manageability and controllability within a specified period of time. The second reason is its location; Dhaka District is located at the center of the city and the Dania union is situated at the east south periphery of the Dhaka city which is now under the DSCC (Dhaka south city corporation) ward 50. A relation may exist between the location of my area of study and the research problem. Another reason is the familiarity of the author with Dania union which is the author's residential area. A native understanding of this union is deemed significant in obtaining contextualized information. Except for the government officials, the author had an easy access to all the respondents who were residents of this union as well, generating spontaneous opinions. Furthermore, author's personal networks and experiences used during field visits were helpful in obtaining information on issues relevant to the research. Collecting similar information from an unknown union can be more complicated within the time period. Below, the location of Dania union map (Annex 03) is marked in the map of Bangladesh (on top from the left); the map of this District is shown elaborately. The area of the Dania union is around two square kilometer and the population is 2, 61,074 person (census 2011)

## **4.4 Methods of data collection**

As the study adopted a qualitative design, interview of cross section of people, participant observation has been conducted. Besides interview of selected officials from different

organizations have been done. The choice of interviewers and respondent are based on their knowledge about the subject or their access to that information.

#### **4.4.1 Interview**

Primary data related to research objectives were collected through comprehensive and detailed interviews with the respondents. An important source of evidence is interview, which allows researchers to interpret the events through the views of the respondents (Yin, 2014). Moreover, the perceptions of the respondents served as the major sources of information on variables collected through interview. To interview respondents, open-ended questions were asked because first, open-ended questions allowed the respondents to give opinions from their own points of view, and second, responses to one question led to another question and this process helped author to study in-depth the research issue and map the respondents' perceptions towards the research problem. In this study, the question, 'How does coordination take place while multiple departments are involved in drainage management?' was asked. The response to this question led to another follow-up question, 'What in your opinion are the ways that may ensure coordination properly?' Such mode of questioning enabled the author to collect more data on issues to be addressed in this study. Moreover, establishing dialogues with the respondents enabled the author to utilize the comments or remarks of the respondents to substantiate the research arguments. The third reason for using open-ended questions lay on the fact that the comments or remarks of the respondents were considered important in qualitative research because personal views of the respondents on events can only be expressed through comments or remarks.

A standard questionnaire with some variations were developed and used to fit different groups of respondents. Two types of interview was held one is general people interview and another is official people interview. General people interview consists of different cross sectional people and official people consists of different organization who is really involved in the drainage management sector. The official people interview (Annex 06) consist of different professionals working in different government organization were interviewed to get an understanding about their perception on drainage management and why water logging prevails in the study area. Especially their suggestions regarding management of the drainage system and water logging issue are recorded. The discussion regarding drainage collected

from the official of the Drainage Department of Dhaka South City Corporation (DSCC), DWASA, RAJUK, Water development board, Roads and Highway, Dhaka DC office, Ministry of housing and public works etc One of the sample questionnaire and answer is given below. The variation of questionnaire may be a point of argument; although the author categorized the respondents into four groups (i.e., governmental, people's representative, contractor, and general public). The general public do not have any function or involvement with regard to research problem, but they have general views over the functions accomplished by the above mentioned respondents. There were some common questions for all types of respondents except for the general people, although they were also asked several questions addressed to the contractors, members and chairman of union parishad.

#### **4.4.2 Documentation**

Documentation as a source of secondary data was used in this research to supplement the data collected through interview. Various internal and external documents on coordination were collected. As internal documents, information on various issues related to the present research problem (e.g., why inter-organizational coordination does not take place properly, how inter-organizational coordination affects, what are the consequences of the lack of inter-departmental coordination in policy implementation, and so on, was collected. Internal documents on issues mentioned above have not been recorded and preserved in concerned offices, whose only documents are those about the completion of projects known as progress reports. Such progress reports only stipulate how much money was allocated and the dates of completion. As regards external documents, attempts were made to explore data on various issues, including the lack of manpower and the untimely disbursement of funds for policy implementation. Likewise, the impact of these aspects on coordination, identification of cases or examples of poor implementation and the reasons behind these, why implementation of projects remain unfinished for long time, and so on, were determined. To do so, various published and unpublished books and journal articles relevant to the research, various field administration manuals, research reports and some national and local newspapers, were used. In addition, as an attempt to collect external documents, the Internet was used for browsing relevant websites including the LGED, the Daily Star, the Daily Prothom Alo, and other national newspapers containing secondary data.

## **4.5 Reliability and validity of data**

### **4.5.1 Validity of data**

Reliability refers to the consistency of data over time. It indicates that similar result is produced when similar procedures are applied in the same way (King, 1994). The primary data for this study was collected from various types of respondents to attain validity. Data generation is claimed to be from relevant sources, cross section of people who are aware and suffers of the problem. The respondent was selected in order to have a better understanding about the impact of coordination on policy implementation. In order to check the consistency of data, the similar questions were asked to various types of respondents, and even the similar questions were asked to the same respondents at different times during interview session. In addition, quite a number of respondents were interviewed in order to ensure the reliability of data. One of the strengths of qualitative research is validity, determined based on whether the findings are accurate from the standpoint of the researchers, the participants or readers of an account (Creswell, 2014). Validity refers to the trustworthiness of data, which is subject to the measurement of phenomena (e.g., research problem); therefore, it depends largely on the degree to which how accurately phenomena are measured. Moreover, in order to enhance the trustworthiness of data, various documents were collected to substantiate the data collected from the respondents. Thus, the data collected from this source helped measure the phenomena more accurately, thereby enhancing data reliability.

## **4.6 Conclusion**

The purpose of this chapter was to discuss various methodological approaches in relation to the research questions. The present study is an analysis of inter-organizational coordination among departments at which is responsible for drainage management in Dhaka city, for which a case oriented qualitative research was employed. For collecting data, interviews as well as documentation were used as source of evidence. During policy area selection, the drainage management policy of the WASA is reviewed and ward no 50, Dania was selected as the unit of analysis. Next chapter will discuss the analysis of the dependent and independent variable and how these variables are interlinked. Moreover, next chapter will also discusses the impacts of the lack of inter-organizational coordination on policy implementation.

## **5 Chapter Five: Presentation and Data analysis**

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### **5.1 Introduction**

This chapter attempts to explore causes of the drainage management in the Dania union. Some information has also been collected from primary sources through informal interviews of experts of different development agencies. Then change has been made to a descriptive recording into a categorical one through analysis and classification. In addition to the observation itself, where researcher generate information, the information is also collected through other methods such as informal interviewing, in-depth interviewing, group discussions, previous documents, oral histories. This research use of multiple methods will enhance the richness of the information collected by participant observation. As a researcher get involved in the activities of the group, create a rapport with local people and then, having sought their consent, keenly observe the situation, interaction, site or phenomenon. Then a detailed notes has been made of what the researcher observe in that situation The purpose of this chapter is to present to what extent to which direct contact, resources, supervision, network, institutional perspective affect the coordination. To achieve this goal, the importance of coordination when multiple departments are involved in policy implementation is discussed. Afterwards, the roles and the ways through which direct contact, resources, supervision, network, institutional perspective are analyzed. Moreover, this chapter presents some examples of coordination problem among various agencies at the field level.

### **5.2 Local interview:**

As part of the research strategy explorative case study method was formed. A total 15 individuals belonging to the cross section took part in the interview.

#### **5.2.1 View of local resident on water logging – A view is from below**

In order to get views on water logging by the local residents, the question that was asked is to what extent they see water logging as a problem in the Dania union of Dhaka city.



### **BOX 1 : Sufferings of the local resident.**

**Case 1:** This is a case of Dania Union, Jatrabari Thana, in Dhaka city. Dania union has a history of severe water logging for the half decades. People in that area are living in miserable condition. This is the story of Hazi Sawkat Ali Roke who is a local resident of the Dania area lives in the back side of A.K high school. He is a land owner and he regret that if he would be a tenant he will leave that area for that water logging problem. He lived in that area for the last 17 years and had a long experience of water logging in that area. In his opinion, this type of problem was not before. Recently five or six years the problem is very much acute. Needs more time to drain the rain water from road. when he was started to live in there are more canals and open ditches but everything is filled up that's why water prevails in the road. In previous, during the rainy season like July, August, and September water logging found but now days except in winter it prevails for 08 months he said.

**Case 2:** This is the story of Mrs Jarna Begum, who is a housewife, lives in the Goalbari intersection of Dania union. She has two sons and his husband is a private employee of an organization. She narrates the picture of the sufferings of water logging. Oh! Brother it's a tragic history. My children does not go to school, coaching for the stagnant water of the road. The rickshaw puller raise the fare. Problems facing for doing shopping in katcha bazar. Rain water and the drain water mixes up and the odor takes place and the water turns into black pattern. Mosquito problem increases. My younger son moving that stagnant water on the purpose of school and coaching and fell sick. His legs are found to be skin problem and now staying at bed for treatment. In some cases in the road side the manhole cover is not there accidents take place. Sometimes the rickshaws capsized and people are wounded. Another problem arises of supply of the drinking water. Drain water and the supply water mixes up in some places and the supply water is very much unhealthy for drink. That's why I am dependent on mineral water. My younger brother deals in the small grocery shop and earn his livelihood. Through the stagnant of water people are not so much frequent in the road side. So he faces difficulty to maintain

The above interviews indicate evidence that water logging is major problem of that area. This problem is prolonged for several years and nothing is done in visible to solve the issue. In his speech encroachment of natural bodies leads the problem to the present state. The case finds a clear evidence that Disruption to the livelihood pattern, is a vital influence which rises during the time of water logging. Some social impact, environmental impact, health related issue is concerned. Storm water is not able to drain out and various forms of puddles is formed. This situation is not just troublesome for the pedestrians but sometimes dangerous for the road users.

### 5.2.2 Maintenance of drainage

Maintenance of drainage is needed in regular basis because sedimentation occurs when the direct sewerage line from home entering to the main drainage. To get that point of view a question was asked to the local resident hat to what extent the maintenance of existing drainage system is contributing to the problem. The view is as follows:

#### BOX 2: Present situation of drainage maintenance

**Case 2:** This is the story of Md Hadiuzzamamn who lives in the kazirgaon of Dania union. He lives here for the last 11 years. He had a bitter experience regarding drain maintenance. In a close interview, he portray the internal picture of drain maintenance. The drain is not well maintained. Every time the influential person of the area came and collect the subscription in the name of drainage management. But nothing improves in reality. The situation does not improves because some big shots of the locality are engaged with the construction material business like, cement, sand, Bricks, Reinforcement etc. When the truck came up with sand and felt in the road side. When the rain comes sand washes and filled the drain and the drain loses its capacity. This area have surface drains but the capacity of the drain is not sufficient. Drain overflows and fill the road. At present the population is so high and the pressure continues. For the reason of Jatrabari Flyover huge migration takes place for the convenient transportation. In previous there are some vacant land but now a days nothing is found vacant. No organization like WASA, City Corporation is found regarding the drainage maintenance of this area.

On the basis of the above interview it may be inferred that coordination among the local resident and the organization like WASA and Roads and Highway Department regarding drainage maintenance. Local influential people have a big role to solve the problem rather than they have some intentional activities which make the delay of the drainage management. Coordination among the political influential people, elected personnel, local people, and the relevant organization can change the situation.

### 5.2.3 A Problem with no cure

In order to gauge the gravity of the problem of water logging local residents are asked “to what extent they view water logging of Dania union as a perennial problem perhaps with no administrative cure?” Interview of a local residents are presented below:

### **BOX 3: A problem having no solution.**

**Case 3:** Md Abu Raihan, who is a school teacher of the Sheikhdi Abdullah Mollah High School, in Daina Union. He lives in this area for the last 25 years. He has an opportunity to close look at the water logging problems. He mentioned, several time meeting is held to solve that problem. People are found in various manner and many minds. They are in different groups and sometimes they came up with political banner. In the name of solving the problem they made more complex and enlarge the problem. In previous there is a canal name Zia sarani which had a link to the dholaikhal and the buriganaga. Some risen political leader built some grocery shop beside the canal and day by day they grab the whole canal which is completely unauthorized. WASA is the prime responsible to maintain that canal but this organization completely failed to do that maintenance. For that reason the rain water cannot drain properly to that canal and makes water logging. Another fact is that, there is a large pond in front of the Dania College which carry a large amount of water. In flash rain this reservoir help a lot for solving the water logging. Some big shoulders backboned by the local MP filled up that large pond and made 83 (Eighty three) makeshift shop. People have to pay advance around tk 3-4 lac for getting that shop. Huge business take place in that area and which is totally in the Govt khas land owned by the Roads and Highway department. At the very beginning, they made a small mosque and then built the semi pucca building behind that mosque. During the caretaker govt in 2007 the land was recovered by the WASA but after that the situation worsen. Water logging is found to be very severe when this pond was filled and the local drains are not capable to channel water through the zia sarani khal. Who is to bell the cat? Police and the local administration favor them. Sometimes in newspaper, this situation is highlighted and make some recommendation of dismantling that semi pucca shops. No one pay heed to the situation. Influential people take money to the land owners for the cleaning of drain but nothing improves. Some political leaders make some advice to elevate the house but it will not solve the problem.

This story clearly shows complete coordination failure regarding non-responsiveness lead the problem of the drainage management which resulted sever water logging problem. Economic involvement, political interest, local biasness is involved. So everything should be in fine tune to solve the water logging problem of the area.

#### **5.2.4 A Problem of coordination**

Different organization working for the drainage management such as WASA, DSCC etc but their coordination is very weak for the solving the drainage problem. For that reason to find

the real scenario a question is asked to what extent this problem is seen as an organizational lapse.

#### **BOX 4: An example of coordination problem**

**Case 4:** Md Jumman, who is a chairman of Dania union has a vast experience of water logging problems. He faces a lot of complains everyday regarding water logging. In a close interview session he mentioned, we some land owner met with the local MP for solving the problem and he assured us that he will do necessary action within 15 days. But situation remain the same. Just few days ago he inaugurated the zia sarani drain excavation work but the contractor face difficulty while working because local grocery shop make resistance in the name of their business loss. Without complete eviction of that shop the construction of drain work cannot be going on. Authorized officer from WASA came different times to make the eviction drive but the political influential people make the resistance. Lack of coordination is there between the Roads and the highway department and the WASA. Roads and highway department is the owner of the large pond and WASA is the owner of that zia sarani khal. Without fine tune between this two organization problem cannot be solved. I heard that the local MP told that the WASA has not pump that can drain that water properly.

**Case 5:** Md Shahidul Islam Bipu, who is a member of Sheikhdhi area under Dania union share his experience. He faces a lot of complains everyday regarding water logging. In a direct interview session he mentioned, People have experienced unimaginable sufferings associated with the delayed construction of a drainage in Dania. As a result of severe lack of coordination among the departments or offices involved. The DSCC was supposed to construct a 3 km-long drainage, but construction was suspended half-way for five months upon realizing that the land on which drainage was under construction fell short of the required size. The office of the AC Land Motijheel was responsible for resolving the land dispute in Dania. Moreover, it was the collective responsibility both of the DSCC and the office of the AC Land to make sure that there is ample size of land for the construction of the said road before issuing construction permit.

This story is very much common in all through the Dania union. It is proven that more time is needed to solve the problem. In DND area no house is constructed according to the law. Most of the cases they flout the law of the Building construction regulation. He emphasize the coordination among the local people, WASA, Roads and Highway Department, local political leaders, City Corporation, Chairman, Union parishad members etc. Everyone have to come forward without interest. Local MP should take the lead. The above example demonstrates that coordination among departments is of great importance toward policy implementation

as the action of the DSCC depends on the action of the AC Land, and the discrete contribution of each entity leads to successful drainage construction.

### 5.3 Views from the officials

A total of 24 professionals were interviewed to get an understanding about their perception on why water logging prevails in the Dania area of Dhaka city. Especially their suggestions regarding management of the drainage system and water logging issue are recorded. The drainage data has been collected from Drainage Department of Dhaka South City Corporation (DSCC), WASA, RAJUK, Water Development Board etc the past and present data on natural drainage system has been collected from different land use maps prepared by RAJUK.

#### 5.3.1 Coordination of existing natural drainage to manmade drainage

In previous years water logging is not seen as pertinent problem in the Dania union. Some people believe that there are three or more canals in the Dania union which is connected with the Dolaikhal canal. To find out the real gap between the natural drainage and the manmade drainage a question was asked to the senior official of WASA to what extent the coordination is done between the of natural drainage and new man made drainage.

#### BOX 5: Destroying natural Drainage

**Case 6:** A high official, the Drainage office (O & M) circle, had a long working background of WASA. The characteristic sewerage framework in the Dhaka city contains a few maintenance and confinement ranges including canals (waterways), which are connected to the encompassing streams. The city precipitation spillover is collected in the maintenance and confinement zones and released to the encompassing streams through the canals. The Dhaka West has 13 canals having an aggregate length of more than 31 km while the Dhaka East has 27 canals of aggregate length of around 60 kilometer. In the Dania union, there are four main canals closely associated with these canals. For example, lakes and low laying lands which work as maintenance zones. Among the city trenches, the Dholai Canal which once used to be the conduit of a vital navigational practically vanished because of four many years of wrong arrangements of the city organization to develop streets by shutting the channel.

**Case 7:** Had a chat with Executive Engineer, Drainage Department, and Dhaka south City Corporation have a long experience regarding the drainage management. In a direct interview session, he shared his personal experience in Dhaka city drainage history. His favorite pastimes was to spend time with his father near the bank of Dholai Khal. He along with his father used to sit together in the afternoon, enjoy fresh air and watch boats gently glide over the canal. "It was a huge canal even in the 70s," recollected an excited Aslam,

From that above interview is taken from the DSCC and other official, it is clear evident that all the natural canals are destroyed and encroached. All these projects have changed the original purpose which the old network of canals was meant to serve. The changes have drastically reduced the carrying capacity of these canals. Dhaka WASA faces a number of challenges. These include unplanned city development and informal settlements, transitioning to using surface water instead of groundwater, and large investment funding. But Dhaka WASA has a number of notable achievements including significant increase in water production and productivity, improved service quality, increased revenue, reduction of non-revenue water, and provision of water supply at low cost. The clear coordination gap of making the drainage construction in accordance with the natural drainage. In the previous discussion natural canals are vital for the natural drain but unplanned development and no clear coordination among the agencies of construction of drainage. If proper planning is taken to consider the natural drainage like canal etc. make coordination this water logging problem can be solved. Destroying the canals and filled over that is the prime reason of water logging. No clear coordination of development control and that results the situation now prevails with the failure of the drainage system.

### **5.3.2 Box culvert is the wrong planning decision.**

A box culvert is a structure that permits water to stream under a street, railroad, trail, or comparative impediment from one side to the opposite side. Commonly inserted in order to be encompassed by soil, a duct might be produced using a pipe, strengthened concrete or other material. A structure that conveys water above land is known as a reservoir conduit. Ducts are generally utilized both as cross-channels for dump help and to pass water under a street at common waste and stream intersections. In case of heavy rain box culvert have not the enough capacity to collect the water and channel to the natural river. During the interview every key personnel express the limitation of box culvert and this box culvert is the wrong planning decision taken in two decades ago causes water logging in severe. In a direct interview session, a question was asked that water logging is seen as the coordination of making the box culvert without any future effect. His view is as follows:

## BOX 6: Box Culvert Issue

**Case 8:** While talking with the high official, sewer rehabilitation and development circle, WASA, a renowned architect, and professor of water resources engineering had a long experience of storm and sewer management. He shared his own involvement in Dhaka city drainage history. He began with the box culvert and the idea of box culvert came after the 1988 surge when the vast majority of the city went under waterlogging. A powerful board of the administration, framed around then to relieve the issue, presented a report in 1989. After that in the 90s the development of the container courses and streets on the channels began essentially. In Dania territory these water sections stay stopped up because of absence of maintenance. A portion of Dholpur waterway was topped off for building a street while the rest was transformed into a duct. A bit of Zia Sarani trench was topped off for a street, while the other bit is still open for water stream, said an authority of Dhaka Water Supply and Sewerage Authority (WASA). Dhaka City Corporation (DCC) and WASA built the box culvert in the 90s and early this decade, said authorities of two City Corporation and WASA.

**Case 9:** Architect Iqbal Habib, joint secretary of Bangladesh Paribesh Andolon (Bapa), said development of box courses is totally off-base. These culverts stay clogged, as these are not maintained properly, bringing about water stagnation, he said.

**Case 10:** A Professor of the department of water resources engineering, of Bangladesh University of Engineering and Technology, in a close interview, he said a box culvert have not the sufficient flow of water and proposed evacuating them and giving back the waterways to their prior state.

From the above three cases it is clear that no future plan is there and the present acute water logging is the major engineering failure of making the box culvert. If the proper coordination is taken with the previous planning scheme this situation can be tackled. Construction of box culverts usually results in gradual reduction of the flow as sedimentation continues due to a lack of regular maintenance. Box culverts are suitable only for places where fresh water flows through them and maintenance work is done regularly. But the main purpose is not satisfied due to human excreta goes through the box culverts of the city and the maintenance work is very irregular.

### 5.3.3 Maintenance of Box culvert: Another Coordination problem

Different organization in related to the drainage management build the box culvert after 1990. But there is a lack of coordination about maintenance. To find out the real scenario a

question was asked that non-responsiveness is the main causes regarding maintenance. His view is as follows

### **BOX 7: Maintenance of Box culvert**

**Case 11:** A senior level engineer, who worked in the drainage circle of WASA for long said once there was a 200km canal network in the city and one could easily go to Sadarghat by boat from Gabtoli using different canals. He said these box culverts not only destroyed the network but also have become a headache for WASA since they cannot clean them properly. Most of the portions of the box culverts remain filled with solid waste which reduces water carrying capacity, he said. “If the authorities concerned clean the box culverts properly, the water logging problem of the city would reduce dramatically.” Regarding the maintenance, different organization started maintenance in different times. He said if they started maintenance in a coordination basis there will be much improvement in the box culvert channel.

From the above case it is quite clear that, regarding the maintenance process there is no coordination among the related agency who are responsible for the drainage management in Dhaka city. They have to year round plan to work together how to make good maintenance of the drainage. It is quite evident that there need an authoritative agency who can monitor the whole maintenance process. It is found that they started working when they get fund for the maintenance process. In addition, the box culvert is not clean properly. In the case of Dania union, the kutubkhali<sup>10</sup> culvert is cleaned to the open end and the tail end but at the middle portion remain unchanged. As a result there is nothing improvement in the drainage flow and water logging remain unchanged in the Dania union. In that response they give explanation that they did not get the fund at the same time. Different organization are under the different ministry and they are given fund in different time. As a result, they have nothing to do without wait for the financial budget.

#### **5.3.4 Loosing wetlands, clear coordination gap among authority**

Previously in the Dania union there are many open ponds, ditches, large ponds found which is a good source of water and fish cultivation. After the time being the water body is becoming destroyed by filling and grabbing by the local people. In this respect a question is asked to the

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<sup>10</sup> Kutubkhali is a name of the place where the box culvert is built above the Zia sarani channel.



professor of water resources engineering that to what extent losing of wetlands is the major causes of present water logging in Dania union and what are the coordination gap among agencies to save that open spaces. His views is as follows:

#### **BOX 8: Loosing of Wetland**

**Case 12:** An elderly professor of Water & Resource Engineering, BUET said At the season of segment of Bengal in 1947, around half of present Dhaka was low lying water bodies. Dhaka depended on the gravity sewerage framework in view of "khals" and 'wetlands'. Generally, wetlands and water bodies in Dhaka were the primary wellspring of water. As indicated by him Dhaka must have no less than 20 lakes of Hatirjheel size to handle the monsoon water. Dhaka Metropolitan Development Plan (DMDP, 1995) considered holding no less than eight surge stream zones undisturbed—Dhaka West; DND Triangle; Eastern Fringe; Narayanganj West; Dhaka NW; and Narayanganj East (Nagarjo Prokoton, 1995). He mentioned that around 1,000 lakes, which were in the city, have now been completely crushed. He specified that 800 sections of land of land in 5 waterways including Buriganga and Sitalakkhya were wrongfully snatched disregarding the Wetland Protection Act, 2000. In the Dania union of DND area four major canals are almost filled up and it loses the flow of water. The truth of the matter is that the contemporary arranging process never took water frameworks as the main impetus in any physical arranging in this delta. In the event that the present rate of loss of wetland proceeds, before the year 2031 every single brief wetland of Dhaka will vanish. This is disturbing for seismic tremor situation, every one of these terrains are consistently being changed over into urban land through landfill and these filled grounds are helpless against liquefaction impact. The land filling movement of engineers got to be distinctly compelling amid the later 50% of 90s. Indeed, even after the institution of the Water Body Conservation Act 2000, the city has lost gigantic measure of wetlands. There is no coordination among the agency to follow the Water Body Conservation Act 2000 and sometime they themselves flout the rules and regulations.

From the above box it is now clear that Water bodies also offered highly valuable environmental and recreational asset for the area. But in course of time this natural water supply and drainage system is being almost destroyed. Due to the urban development pressure in the city. There is a tendency of filling up of water bodies and flood plains resulting in the reduction of water retention capacity, diminishing public spaces and increasing water logging. In Dania union there is no any difference. Manmade drainage and sewerage systems are not sufficient enough for this growing metropolis. Many of the roads in Dhaka are developed by filling the water bodies or by making box culverts, thus shrinking the water carrying capacity as well as reducing ground water replenishment. Gradual increase of city will eliminate all wetlands through continuous filling up for urban development. With regard to wetland management, no effective coordination takes place across the relevant

organizations. Therefore, conservation of natural wetland and rain water is hardly possible. Consequently, this negatively contributes to the existing water logging problem.

### 5.3.5 Lack of coordination to control the development of Dania union

Development control in the city must needed for the future existence. But it is matter or regret that several organization are involved in development control regarding this issue but there found no effective coordination. In this respect a question is asked to the professor of Urban & Regional Planning, BUET that to what extent development control is done in the Dania union by the different organization which affected the drainage management. His views is as follows:

#### BOX 9: Lacking of Development control

**Case 13:** While talking with the professor of Urban & Regional Planning, BUET, had a working experience with the WASA and the City Corporation. In a nearby meeting he said when rainfalls on to undeveloped land, the vast majority of the water will douse into the topsoil and gradually course through the dirt to the closest waterways or groundwater. A little extent of the precipitation, as a rule 15 to 20 percent, turns out to be immediate surface keep running off that more often than not depletes into waterways gradually in light of the fact that the ground surface is unpleasant (e.g. due to vegetation). Waterways are destroyed in the Dania union. The water development board is solely responsible for the development of that area. But they are failed to do that. RAJUK made master plan and made Detail area plan DAP (2007) that covers the zone of DMDP, 1995 did not take after the arranging rules gave in it. In the year of 1995 this area is under the RAJUK jurisdiction but they only limited with utopian plan which is not take affect into the practical ground. WASA is failed to make a drainage plan they sometime give the responsibility to the Water development board as they are the main custodian of the area. The study area is now under the DSCC but this organization is found very reluctant to solve the drainage management plan.

From the above box it is now clear that when natural catchments are developed, it is very much difficult to solve the flash rainfall induced water logging. A clear coordination gap among the related agency about the development control. Then again, the sewerage arrangement of Dania union is outdated. Dhaka WASA uses the current channels and sewerage funnels to gather the waste water from various ranges of Dania union, convey the profluent to arrange, the greater part of it, into encompassing waterway frameworks (or even lakes and water bodies in the region) with no treatment. Clear coordination gap among the

guidelines of DAP (Detail area plan), by RAJUK, and not to conserve open spaces, violation of CS, RS maps is the major fault by the authority to make a suitable drainage framework.

### 5.3.6 Lack of coordination doing plans and policies

To make the things effective plans and policies should be made accordingly. Generally there is a lack of coordination between the Dhaka Metropolitan Development plan and the drainage master plan. Different organization made different plans according to their needs. There finds a clear coordination gap among the agencies of making the master plans. To that point of view a question was asked what are the coordination gap among agencies and what your opinion is. The view is as follows:

#### BOX 10: Coordination regarding plans and policy

**Case 14:** A senior engineer worked for 27 years in the Institute of water modelling (IWM) had a vast experience regarding water logging. He said there are supposed to 150 feet open space to both side of the river in the master plan 1959 which is done by the British Town planner, Herbert spencer. That strategy was called the Barkland embankment strategy. Now the present situation is devastating, encroachment is done both the two side of the Buriganga river, filled the natural canals, and grabbed the all open spaces. As a result the water logging problem worsening. Sufficient pump is not available to the WASA in the area of DND that they can drain the water outside. So the water logging stays for long. He propose some high powered pump station is needed for draining the water. He added some important points, like forming the inter-ministerial investigation committee, forming a task force committee of Dhaka WASA, RAJUK, Dhaka district administration, City Corporation, DPDC, Public works department, Water development board etc. No drainage plans is yet done by the related agency that they can work in a coordinated manner. This committee is formed to take proper initiative and making action plan but there is a lack of coordination found in that committee.

From the above interview it now clear that no one follow the construction rules, wetland conservation act in the study are. There is a lack of proper planning of drainage management, mixing authority, non-responsiveness of the related organization is prime cause for the present water logging in the Dania union. Everyone is flouting the master plan and making building edge to edge of the area. Lack of coordination among the building construction, cleaning process, wetland conservation, drainage management issue is the prime causes of preset water logging in the study area.

### 5.3.7 Lack of coordination for the formation Urban Development Ministry

Regarding the drainage problem of the Dania union several organization is found active for the task. There found nothing coordination in their activities. Some people think that if the organization is working in the same umbrella the problem may be goes away. Regarding that issue a question was asked to the renowned water specialist to what extent the related organization is needed to work under the one umbrella. The view is as follows:

#### **BOX 11: Forming urban development ministry.**

**Case 15:** A renowned water modelling specialist, proposed that there should be a Ministry of Urban Development which will look into the matter. The Minister will be the head and make all the coordination among the city mayors, and the related organization. He said there found some chaos in the present situation and no one does not pay heed to another one. Meeting takes place by different organization, and some time they send different people to join. There is no consistency between the people who send before and who send after. Institutional memory loss, will aggravate the situation. Sometime some organization send letter just 6 hours ago to join that meeting but it was not possible for everyone to join because the personnel who is supposed to join may have another task. If the letter send one week before the situation may improve. In some cases meeting is held but no resolution is sent to the personnel who attended that meeting. As a result, next meeting the person who will join is blank headed and do not aware of the situation. So there should be a leader who will comprise all the situation and can call back to the head of all the related organization.

From the above box it is now clear that lack of coordination among the organizations either for holding meetings, decision, sending letter, and institutional memory loss is the major fault of making decision. No one is not interested to pay heed to one another. There is a head to head conflict to each other. Different organization working under the different ministry. In the case of ministry there is no coordination to solve that issue. Urban development ministry is a priority for solving the issue but there are lack of coordination about forming the chairman and the committee and who will be the head of that committee. That's why urban development ministry is not yet formed and the drainage management is not in a one umbrella.

### 5.3.8 Coordination among ministries to take any decision.

Drainage problem is caused by several factors. Different organization are working for the drainage problem in Dania union. But there is a question of responsibility and accountability.

Different organizations accountable for different ministries and there is no coordination in decisions come from different ministries. From that point of view a question was asked to the senior level officials of the Ministries to what extent it is responsible for the drainage management in the Dania union. The view is as follows:

#### **BOX 12: Lack of decision making**

**Case 16:** A senior official of the Ministry of Housing and public works, who is a joint secretary to the Govt. Working this ministry for the two and half years, finds the clear coordination gap among the related agency which is responsible for the drainage management. He mentioned different organization is under the different ministries, such as WASA is under the Ministry of LGRD & Cooperative, RAJUK is under the Ministry of Housing and public works, DSCC is an autonomous organization, DPDC is under the Ministry of Power, UDD is under the Ministry of Housing and Public works, Water development board is under the Ministry of Water Resources, District Administration is under the Cabinet, PWD is under the Ministry of Housing and Public works. So different organization works for different ministries. Coordination is never possible in this manner. He noticed that WASA decline the responsibility of storm water management and give a letter to the ministry. The WASA authority said they have a huge pressure of supply of water and they have not sufficient manpower that they can work for water logging. Ministry of LGRD and Cooperative give proposal this responsibility should go to the two city corporation. But both the city corporation are not willing to take that responsibility. They said that WASA have the vast experience they should do that.

From the above box it is found that stretching rope between the two organizations the result is the severe water logging and the people of the city faces huge problem of daily movements. In any decision making the above organization have to depend on the line ministries. Within the organization the decision is much more prompt rather than the line ministries. Forming any decision between the two organizations, they sent their proposal to the line ministries. After that the ministries give their decision and sometimes it needs huge time to respond. After the response of the line ministries the organization deal with each other. There sometimes create a serious coordination problem. Some official made comment that if they bypass the line ministries then the process might be faster and the coordination will be better. In his opinion the organization should be independent to their decision making, bureaucratic interdependencies create a huge coordination problem in this regard. Different organization working under the different ministries. As a result too many crooks spoil the broth. Many men

many minds and not making any decision. So here one stop ministry should be formed that take all these into account.

### 5.3.9 Lack of coordination giving handover the responsibility

The competency of organization is always a factor. As the different organization is working for the drainage management they blame each other for that problem. After the problem worsen organization do not want to shoulder the responsibility and want to handover the responsibility to other. For that point of view a question was asked to the senior official of the ministry that to what extent the coordination of shouldering the responsibility of different ministries and organization.

#### BOX 13: Responsibility sharing

**Case 17:** A mid-level official of the Ministry of LGRD & Cooperative, who is a deputy secretary to the Govt. , working this ministry for the two years, finds the clear coordination gap among the related agency which is responsible for the drainage management. Since 1989, WASA is taking the responsibility of Sewerage and the Storm water management. Water channels through the underground drainage form city to outside. This drain is the major carrier both the storm and the household water. But drain beside the footpath is under the city corporation. City Corporation give the blame to the WASA that they do not do the regular maintenance of the underground drainage and the drain fill up. So that storm water which is carried by the small pit drains built by the city corporation. In the year 2013, 2014 when WASA is criticized for the storm water management, the WASA authority taken an initiative to hand over the responsibility to another organization and give the letter signed by the managing director Taskin khan to the Secretary of the Ministry of LGRD. They said in that letter that both the city corporation has more pipeline drain than the WASA. So why WASA take the responsibility. No coordination is found between the city corporation and the WASA about the annual cleaning of drainage system. When the water logging is found in the street side both the city corporation gives blame to the WASA.

**Case 18:** A retired engineer had a vast experience about the drainage department from Dhaka south City Corporation said that WASA should handover the technical instruments and manpower permanently to City Corporation. WASA develop the drainage management project under the help scheme of the World Bank and still now World Bank giving assistance to them. He mentioned again that WASA should handover all the beneficiary scheme and make the drainage system working in the previous state. Sewerage and drainage system should be under one umbrella.

From the above two case it is now clear that the city mayor is not ready to take the huge task of cleaning that drainage pipe line. The mayor in a statement agreed that if the WASA authority handover the whole drainage system after cleaning they will consider. The mayor added that WASA should not only give the responsibility but also should give the manpower and the instruments that WASA have for drainage maintenance purpose. In the world perspective the city corporation is dully responsible for the drainage and storm water management. Without any long term vision WASA take the responsibility and that is a burden to the authority. WASA have separate department for the drainage management. WASA ensure to the city corporation if City Corporation agreed to take the responsibility WASA will give one year support to them regarding technical there finds a clear coordination gap between the WASA and the city corporation of handover the responsibility. So in the case of Dania union it is also the same who will do the task. They are raising so many issues and making delay that increase the suffering of the dweller of the Dania union. Here finds some official gap among the organization and coordination is not there for the whole process.

### **5.3.10 Coordination regarding implementation.**

Regarding drainage implementation plan several organization like WASA, DSCC working for the mitigation of the present problem. DSCC and WASA had a meeting several times for the implementation. But nothing coordinated because in some cases WASA starts digging for the reclamation of the canal but after some days DSCC starts digging the road. No coordination regarding the implementation. In that point of view a question was asked to the WASA & RAJUK official to what extent the implementation of coordination. His view as follows:

#### **BOX 14: Coordination of implementation**

**Case 19:** An engineer having vast experience from WASA mentioned that box culvert is the prime responsible for the present acute water logging problem. The city dwellers is also responsible for the water logging because they through their waste to and fro and that household waste goes to the drainage and clog the pipeline. In some cases drizzling do not hamper the drainage pattern but when the rain comes cats and dogs then the water logging appears in the street. Around 7 to 9 mm of rain is enough to develop water logging. As a result the city people face severe problems for their movement in the road. City Corporation and the WASA department sit several times regarding the water logging issue and identified the 10 prime causes for water logging in Dania union.

**Case 20:** Chief Town Planner, Ashraful Islam, RAJUK have a 31 years' service experience regarding town planning. He mentioned that 26 service organization is now presently working. They begin their development works at any time of the year and the duration of the work from 3 months to 6 months. Road excavation during the rainy season makes the road muddy and this type of road is completely unsuitable for moving. In some cases one organization complete their work and make the road filled. Another organization came and digging the road again for their development work. No coordination is there for their development work. As a result, during the rainy season the digging portion is filled up with water and make accident to the city dwellers. If the service giving organization contact with each other and make coordinated then they excavate the road one time and then doing all their respective development work in a one stop manner. In that case the citizen of the Dhaka city get some relief. Water logging problem also can be solved.

Steps are taken in the written documents but no implementation is visible. In some case WASA and the city corporation making coordinated but in the implementation process who will do the implementation process. There is a clear gap between these two organization regarding implementation. No coordination is found in excavation of the road cutting. As a result there are huge loss of money the Govt. and people are suffered more.

### **5.3.11 Coordination of planning.**

Coordination of planning is not found in the different organization working for drainage management. Dania union is under the RAJUK jurisdiction and RAJUK is making master plans of that area.. In that case WASA blames to RAJUK that they did not notice but RAJUK official said they send letter to that organization. In that case of coordination a question was asked to the RAJUK officials that to what extent planning should be in done regarding the drainage maintenance in the Dania union. His views is as follows:

#### **BOX 15: Lack of planning**

**Case 21:** Deputy Town Planner, working in RAJUK for the last 10 years have an experience for the structure plan, urban area plan, and Detail area plan. He said proper planning standards is not maintained yet. There is a rule of Building construction act 1952, Land developer's act 2004, Wetland conservation act, 2000 but nobody pay heed to that rules. There is no enough open space that the water can get into the aquifer. Lack of coordination and proper planning is the cause for such situation. For planning Management City Corporation show their finger to RAJUK and RAJUK also show their finger to City Corporation for coordination. RAJUK made a DMMP master plan and detail area



plan for the Dhaka city but WASA, City Corporation do not make their drainage plan in relation to the detail area plan. He said that without the approval of RAJUK the utility line should not be given but WASA and City Corporation is violating the rules from the very beginning. In some cases this organization do not follow the detail area planning. On the other hand City Corporation give blame to the RAJUK for the approval of building code. Generally people make their buildings without taking permission from RAJUK. No eviction drive is not taken yet for that unauthorized building. In Dhaka city 80 % building do not follow the building code. In that case RAJUK is complete failure for controlling the development plan. An official noted that RAJUK is doing land business in lieu of doing the development control. So the image of the RAJUK is not up to the mark.

No coordination is found in the planning process considering the detail area plan and the master plan. RAJUK and WASA not have any coordination about following the rules and regulation. As the result the situation aggravate.

### **5.3.12 Coordination of Development control**

From above discussion it is clear that this present water logging problem in the Dania union is not a new agenda. This problem worsen from the time being and have an impact form pas policies. Development control is the main tool to curb the unauthorized structures that is built in the Dania union. Several agencies like Water development board, RAJUK, and WASA is working for that. From that point of view a question was asked to the professor to what extent coordination of development control is responsible for the water logging problem in the Dania union. His views is as follows:

#### **BOX 16: Development Control**

**Case 22:** Professor, Department of Urban & Regional Planning, BUET, regarding town planning, she mentioned that As RAJUK plays the key role for development of Dhaka, it is necessary to understand the status and structure of RAJUK. Till 1987, Dhaka Improvement Trust (now RAJUK) was comprised of a full-time chairman and 12 part-time trustees of the board. These part-time trustees represented different public and private organizations. This system was abolished in favor of five full-time members, who are selected government officials. There remains no scope of public representation in policymaking, planning and policy execution processes. As a result, RAJUK is only accountable to its higher tier of authority i.e the line of ministries especially to Ministry of Housing & Public Works. Bureaucratic nature and structure of RAJUK is never transparent in its activity and accountable to the city dwellers. It is quite difficult for RAJUK to carry on its prescribed jobs with its limited manpower and logistic support.

From the above context it is now clear that the development control is not done in the area of Dania Union. The urban affairs of Dhaka mega city involves as many as 20 out of 38 ministries of Government of Bangladesh (GOB) and 41 different organizations operating under those ministries, though RAJUK has prepared the strategic policies for development and has the authority to develop and control. Dhaka Metro area is comprised of Dhaka City Corporation (DCC) area, six municipal areas and adjacent rural areas which are administered by District offices, Thana Offices and Union at local level but RAJUK has failed to ensure proper institutional arrangement to keep coordination among these administrative bodies. Again the service agencies like Dhaka Water Supply and Sewerage Agency (DWASA) and Dhaka Electric Supply Agency (DESA), are of equal status as RAJUK. Bangladesh Water Development board (BVVDB) is responsible for management of rivers and flood and the Department of Environment (DOE) carries out the programs to ensure a livable environment. RAJUK is only accountable to its higher tier of authority especially to Ministry of Housing & Public Works. It is evident that involvement of too many agencies and ministries made a complex scenario, which results in lack of coordination, absence of accountability, and Overlapping of responsibility. Also Regarding the wetland management no coordination is there. So results is here there is no conservation of the wetland that the rain water holds on that. So complete coordination failure among the above related organization leads the present water logging problem.

### **5.3.13 Coordination of making drainage master plans**

Newzeland made a drainage master plan in the year 1923 and the system is working right now after the present state. Regarding the drainage management a master plan is very much needed for the future. But no organization is in a fine tune of making master plans. RAJUK is responsible for the Dhaka metropolitan development plan but WASA official said that RAJUK did that master plan without considering the drainage. RAJUK official said that WASA have not the capacity to make drainage master plan or should have a link with the DMDP (Dhaka Metropolitan Development Plan). In that point of view a question was asked to the WASA official that to what extent the lack of coordination is found of making the drainage master plan. His views is as follows:

### **BOX 17: Master plan of drainage**

**Case 23:** Assistant General Manager, Operation, Drainage department, WASA told that Drainage master plan is ready in few years back but no implementation is not taken yet. At present, around 30 percent of the area is under the present drainage coverage system. WASA is making master plan only the city area, which is total 400 sqkm. But the RAJUK official said the area of the RAJUK is 1528 sqkm. The RAJUK authority is making the allegation that while making the drainage master plan WASA is very much reluctant to consider the DAP (Detail area plan). The WASA authority just call the representative from RAJUK but they do not pay heed to what the RAJUK representative say. Another point of conflict of DSCC and DNCC said that they have an area of 230 & 185 Sqkm respectively. WASA does not take into the consideration of DSCC & DNCC representative and their proposal. So there is a clear coordination gap among the RAJUK, DSCC, DNCC, and WASA of making the master plan which costs a lot of money. Only doing the plans but not implemented yet.

From the above context it is quite evident that complete coordination failure of making the drainage master plan which should link with the WASA, City Corporation, RAJUK etc. So master plan project goes in void and making delay of the water logging solve project.

## **5.4 Participant observation**

Participant observation is another strategy for gathering information about a social interaction or a phenomenon in qualitative studies. This is usually done by developing a close interaction with members of a group or 'living' in the situation which is being studied. In qualitative research, an observation is always recorded in a descriptive format. It can also be a combination of both some categorization and some description or categorization accompanied by a descriptive explanation.

### **5.4.1 Making signboard to avoid liability.**

Bengali text displaying in the signboard which is stand upon the Zia Sarani canal at the Dania union. The text meaning in English "Name of the canal is Zia sarani canal, Owner Government of the people's republic of Bangladesh, custodian-Dhaka WASA. To make the flow of the canal water normal please avoid yourself encroaching and make resistance to another person to make the area free from water logging". WASA is making signboard in different place of the canal but it is a matter of regret that beside the signboard the encroachment is going on. No one is there to look after on. WASA official said they will making the boundary wall beside the wall but at the very beginning of the working process the people of political banner they resists. WASA said the owner of the canal is custodian by Dhaka DC office and WASA sent

consecutive letters to the DHAKA DC office for the removal of encroachment. But the DC office does not make any response. While talking with the AC Land Demra circle, sometimes DC office give them to the execution order to the removal of the encroachment and save the Govt land but the political masters send their goons and they make resistance to the drive. So there is a clear coordination gap among the WASA, Dhaka DC office, Political masters and the local people. Every organization giving responsibility to others and the real sufferer is the local resident of that area.

#### **5.4.2 Coordination regarding saving the existing canals**

At present 4 canals is existing in Dania union and the encroachment process is going on those canals. WASA giving letters to Dhaka DC office to removal of illegal structures from that canals. In the study area in Dania union three canals are vital for the drainage management. Those canals in the Dania union are on the way of encroaching. DC office is now working that progress. WASA said that after the removal of illegal structures WASA will digging the canals again and making a boundary wall to save that canals in Dania union. DC office said that they have not enough manpower to take the operation all on a sudden. It takes time need the consent of the political master. So there is a clear coordination gap between the Dhaka DC office and the WASA for saving the canals from the encroacher.

#### **5.4.3 Coordination regarding delimiting canal boundaries.**

At present drainage system is maintained by the WASA, DSCC, DNCC, Water development board, RAJUK. There is no clear mentioning boundary of that drainage system. The RAJUK official said they only make drainage which they make housing project like utara sector, purbachal etc. WASA said that the RAJUK authority is not making any concern while making drainage to that housing area and for that reason WASA have to face problem to link with the main drainage. In the Dania union area DSCC made some small scale drainage beside the road footpath but city corporation authority also did not take any concern to the WASA. Water development board also make some drainage system in the Dhaka city but they have no funds for maintenance. Water development board sent letter to the WASA for the maintenance but WASA neglects to do that maintenance because of the ownership goes to the Water Development Board. WASA official said they have only the responsibility of 325 km drainage line but he total drainage line of the Dhaka city is 2400 km. From that point of view WASA

official said that the DND project is taken by the Water development board but that organization doing nothing regarding the drainage management. The water development board official said that they have no fund for the drainage maintenance of the Dania union. Besides the WASA, the city corporation and the water development board holds that responsibility. WASA also mentioned that the people and the media only give blame to the WASA but the real fact is that the coordination failure among these organization is the result of acute water logging in Dhaka city.

### **5.5 Box culvert: The Major Causes of water logging**

Canals are filled up or turned into box culverts over the years, leading to the waterlogging. The people of the Dania union area blamed the authorities concerned for not properly maintaining the drainage system. The senior official are making their consensus that the box culvert is the prime cause of water logging in the study area. In some cases in the name of maintenance the fund are collected but they are not maintained in full basis. The authority said that the contractors only clean the opening side and the closing side of the canal but the middle portion of the box culvert remain unchanged. As a result it loses the capacity to channel the rain water directly. Some factor are clearly identified in the box culvert system and some found that no cleaning process has not been done after the construction of the box culvert. The box culvert was made in the kutubkhali area of Dania union in the mid-1990 and day after day it loses the capacity for the lacking of maintenance. It remain clogged year after year but no authority is not yet to come for the cleaning process. The study found that in the zia sarani box culvert is totally responsible for the water logging and the while making the zia sarani box culvert the construction was not done in gradual flow direction. As a result there increase the sedimentation process and day after day the box culvert is hydraulically inefficient. In there are coordination in the drainage maintenance process the box culvert will serve to drive away the acute water logging of the Dania union.

### **5.6 Important canals in the study area**

Canals are the natural channel bed that can carry the rain water during the excessive rainfall. It can channelize the water from the roads to the river body. These canal was used for natural drainage system. Some important canals found in the Dania union are filled up by the local influential people and some canals are totally vanished. For that reason water logging is very

much severe in the Dania union right now. Survey found that most of the respondents agree with that if these canals can be retrieved the water logging must go away.

### **5.6.1 Zia Sarani canal**

It was an important canal of the Dania union. It is quite difficult to believe that boats used to ply this canal, Zia Sarani canal, in the Dania union a few years ago. It has almost lost its identity as a water body due to ruthless encroachment and erection of bamboo structures under the sponsorship of local influential, while the authorities are playing a silent role to save that canal. This canal had a direct link to the Buriganga & the Shyatalakhya through the Dholaikhal canal.

### **5.6.2 Dholaikhal CANAL 1, 2**

This canal had a major impact regarding the water logging of the study area. The tributary of the Dholaikhal channel goes in the Dania union and associated with the Dholpur canal through kutubkhali waterway. The DSCC official transformed Dholai canal 1 and Dholai channel 2 into box culvert in the 90s. Dholai waterway 2 used to stream into the Buriganga from Dayaganj Bazar by means of Dholaipar, Sutrapur, Gendaria, Dayaganj, Wari and Shahar Dhaka Mouja while Dholai canal 1 began from Dholai channel 2 and discharged into the Buriganga close to the second Buriganga Bridge, said a WASA official.

### **5.6.3 Dholpur canal**

This canal had a direct link to the kutubkhali canal which is under the Dania union. WASA developed a box culvert from Syedabad Bridge to Maniknagar Pond and a street was worked from Maniknagar Pond to Rajarbagh on the channel in the 80s. Mohammad Babul, an inhabitant of Dania said the trench was swung to a pipe deplete as a street was built from Model School to Manik Nagar Pond, which is associated with Sayedabad street. The water of the trench was spotless around 20 years back and individuals used to catch fish of that waterway. This channel is currently in the people groups memory and in charge of the water logging of the range.

#### **5.6.4 Golapbagh canal**

The canal had a link with the Dholai canal canal and the Zia sarani canal (a reach of an old river channel bed) behind the bashpotti area, said elderly Jahangir Alam, a resident of Dania union. The canal was turned to a road in the 90s, he said. The canal was huge and had a link with Segunbagicha and Arambagh canals. Many people used to come to Dholaipar using boats, said Mokhles Mia, a shopkeeper of the Dania union, which now exists like a pond behind Bangladesh Bank.

#### **5.6.5 Shyampur-kadamtoli canal**

This canal passes by the dania union and a connecting canal to the Dholaikhal canal and the zia sarani canal. Once 1.28km long, Shyampur-Kadamtoli canal was also filled up partially; the DSCC built a road there in the 2000s. Contacted, Dhaka South City Corporation Mayor Sayeed Khokon said the box culverts have already been built and it is not possible to turn them into canals again as it will make a huge chaos in the area.

### **5.7 Effects of Water Logging**

Local rainfall occur in the built-up areas of the Dania union several times a year. These water logging are mainly caused by inadequate existing drainage paths and their improper coordination and maintenance. The severe water logging was caused by blockages of the drainage system due to huge volumes of garbage and poly-bags. The areas of Dania union which include many of the important business suffered most. The study area Dania union is suffered for this type of problem from a decade. From that point of view, the question was asked to every local people and the official people to what extent the water logging effects the daily life. The major findings are as follows:

#### **5.7.1 Disruption of Normal Life**

Water logging extremely unsettles normal life and it has straight impacts on the poor at the Dania union area. As they often live on unsuitable, low-laying and unstable sites, have high-density housing, poor urban planning and control and lack of investment in urban infrastructure. The low income people in Dania union mainly suffered most from this type of water logging. The poor bear the brunt of bad drainage, pollution of water supplies and the aquatic environment, the breeding of vectors and soil erosion, leading to direct financial

costs, loss of income potential, as the home may also be the workplace, and adverse health effects.

## **5.7.2 Physical Problem Damage of Infrastructure**

Most of the roads of the Dania union are damaged due to water logging. Water logging make the road leads to ground heave, subsidence, dampness and other damage of property. Water logging causes the damage to roads of Dania union during the rainy season leading to the movement problem. When the water logging prolonged for several days the pitch of the road loses its capacity and the movement through vehicle is much more difficult from that situation.

### **5.7.2.1 Damage of Structures**

In Dania union, the main structure of the building in the low laying zones stays submerged because of water logging. The foundation of bricks loses its life span by being influenced with destructive impact of saltiness and moistness is the delayed consequence of water logging. In low income settlements like slums and low pay ranges, a large portion of the general population live in transitory (kutcha) and defenseless structures. These structures turn out to be gravely harmed amid the time of water logging. At times the tenants can't utilize the structures and need to move to different ranges, which make mental and financial headache for the destitute individuals.

## **5.7.3 Environmental Impact**

### **5.7.3.1 Water Pollution**

Hypothetically, Dhaka WASA keeps up two separate sewer frameworks: one for residential wastewater and another for domestic water. But in the Dania union are there are no separate network. The local household supposed to build a septic tank to their houses but the people are very much unaware to do that. In most of the houses there are hardly any septic tank than can deposit the sludge and sent through only water to the pipeline. Be that as it may, in all actuality storm sewer likewise get local wastewater, which causes undesirable decay of the domestic water releases. These releases thus contaminate the water bodies including the lakes, streams and confinement territories. Storm water created from the catchments regions convey noteworthy measure of contamination. The level of contamination in the domestic



water and in the accepting water bodies is for the most part a matter of concern, Increase of Water Born Diseases

In Dania union, the most negative effect of water logging is the rate and extensiveness of different infections. In inadequately depleted territories, urban storm water runoff blends with sewage from flooding restrooms and sewers, bringing about contamination and an extensive variety of issues connected with waterborne infections. Here and there, the destitute individuals need to depend on surface or shallow groundwater sources that are contaminated, as they don't have the capacity to use such type of water amid the time of storm. Intestinal sickness, respiratory issues, eye and skin infection are additionally normal in water logged zones.

#### **5.7.3.2 Damage of Vegetation and Reduce Aquatic Habitats**

Water logging is the eventual outcome of unseemly management of drainage. In Dania union, Stagnant water for quite a while and persistent arrival of wastewater harms the trees and vegetation in and around the ranges. Litter, dregs develop and oil sheens on the water surface are basic unmistakable impacts of urban contamination on surface water, which result in the diminishment in the quantities of amphibian plants and creatures. The expanded spillover came about because of ordinary seepage frameworks antagonistically influencing sea-going living spaces. Dissolved dregs are kept downstream in slower moving compasses of the waterway, harming amphibian territories in these zones and expanding sedimentation in wetlands.

#### **5.7.4 Economic Problem Increase of Construction and Maintenance Cost**

Natural drainage in Dania union area are encroached day by day because of uncontrolled quick urbanization. Water logging is a definitive impact of not just the physical, social and natural issue, it is a monetary weight also. Water logging builds the development and support cost since it decreases the life expectancy and harmful to streets and metalloid channels of different underground utility services, for example, water, phone, sewerage and so forth. It needs an immense cost to supplant these offices and expands the maintenance cost. Shortage of Water. Water logging due to the increase of impermeable urban areas also leads to a lowering of the ground water table under a construction site. This has not only environmental

impact but also economic impacts, as it contributes to water shortage, and may cause soil subsidence and consolidation problems.

#### **5.7.5 Loss of Income Potential**

Most of the people in Dania union made complain about their income. Due to water logging the income is becoming less day by day to the people of that area. In some cases, water goes into houses and the floor and the wall remains wetted for a long time and it harms the family household products, put away grains and so forth. The impacts of water logging likewise prompts to coordinate monetary costs, loss of wage potential, as the destitute individuals may utilize their home for work environment. Water logging hampers activity developments; in this way, makes a hindrance for correspondence and convenient supply of merchandise, which implies the loss of time, decreased creation and financial loss.

#### **5.8 Findings:**

In many cases term "coordination" appeared as buzz word but its implementation is not simple as we said about this. Coordination is acknowledged as essential phenomenon of public administration, but its scope cannot be delineating within premise and jurisdiction of public administration only. From the above survey there is poor level of communication among the different organizations and the people of the Dania union. Direct contact is the factor for the above coordination. This survey also unveils that resources is a big issue for solving the coordination problem in the Dania union. All the organization really do not know about their strengths and the weakness. There is no optimum use of their resources. Supervision is a big deal found from the above survey findings. Every organizations found reluctant to supervise the drainage structure. There is a lack of leadership also who guide the organization in a decent manner to improve the drainage system in the Dania union. Some reciprocal factors like internal conflict is a big issue in every organization that make the major hindrance for managing the drainage management. There are some power and the authority that also make some difference to achieve the better coordination. All the organizations are found leaders oriented rather than an institutional form. Every prior decision is dependent to the leader. Here the institution is not strong enough to follow its own direction. After taking the interviews there are severe problems of coordination found and every respondent

showed how the coordination lacking and give the emphasize that if the coordination is doing better there should be improve of the present drainage congestion of that Dania union.

## **5.9 Conclusion**

The purpose of this chapter was to gather data for exploring and analyzing the issue of coordination in drainage management in Dania union. In doing so, literature on coordination has been reviewed briefly and attempts have also been made to establish a relationship between coordination (dependent variable) and factors (independent variables) affecting coordination. Various organization are working for that drainage management. There is no level of coordination among the agency to control that issue. The people of the study area are very much unruly to follow the guidelines. The local big shoulder make a major impact to that type of changes. Coordination in the top level and the bottom level is very poor that lead to that type of problem to severe condition. The above discussions suggest that there is a lack of informal communication, resources, supervision, coordination etc among the organization. There is likely to be better coordination in the activities of the organizations involved in policy implementation. Next chapter will discuss how the findings will come, is the objectives full filled, how the variable can solve the issue and what the main connections of this type of findings are. How the study can be implemented for future research will be focused in the next chapter.

## **6 Chapter Six: Findings & Conclusion**

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### **6.1 Introduction**

The main purpose of this chapter is to present findings of this study and draw overall conclusion of entire study. More specifically, this chapter give the answer the questions like Does this study meets its objective? What was found after the analysis of data and hypotheses? Whether the plans were accepted or refuted by the survey findings? How and to what extent, findings of this study can be generalized? What will be the step ahead or future discourses of the research and how does it contribute for this? In this chapter, researcher also tried to review the theories and methodologies applied in this research.

The main objective of this study is to examine the state and effectiveness of the inter-organizational coordination in drainage management system. Based on theoretical review some variables were selected to test the interrelationship between dependent and independent variable. Based on these variables, this study developed some assumptions and tried to test their relationships as per the empirical analysis of data. For this, effective inter-organizational coordination in drainage management system is considered as dependent variable. Whereas, direct contact, understanding resources in early stages, continuous direct supervision, understanding reciprocal factors and institutional perspective were selected as independent variables of this study. More basically, this research conducted on explanatory single-case study design with qualitative approach to test the impact of explanatory variables i.e. independent variables on dependent variable. Independent variables of this study were derived from the Mary Parker Follett (1866-1933).

### **6.2 Major Findings and Theoretical Implications**

This section attempts to present the summary of the research findings under the study variables chosen for the analysis based on pre-defined theoretical frameworks and operational research questions: 1. how and to what extent coordination is exists in different organization to facilitate drainage management? 2. Does coordination among different organization will improve the drainage management in Dhaka city? This study is conducted based on complementing strategy of choice of theory. Different theories were reviewed to get insight and enrich the theoretical understanding of the study phenomenon. In theoretical

review Mary Parker Follett (1866-1933) theory of coordination were reviewed. Study variables were selected from that theory which is an essential part in the field of administration, emergency management and inter-organizational coordination. One hypotheses were formulated to assess the relationship between the variables and are also put for test based on empirical findings of the study. These are discussed under the respective headings of study variable below.

### **6.2.1 Direct contact**

Direct contact as an essential tool of coordination. It is revealed that coordination become problematic due to the lack of direct contact. In most of the cases, it was observed that organizations are reluctant to share information they have.

#### **6.2.1.1 Nature of interaction**

The format of interaction is very formal regarding any decision. This is basically due to lack of communication culture and very weak informal communication. A question was asked to the senior official of WASA that what the forms of contact with the ministries are. The forms of contact lies within the letters and proposals in written form. The WASA official said that the ministry have not enough time to deal with the issue of drainage management in the Dania area. When WASA tries to discuss with the matter of the Dania water logging, the ministry requested the WASA to made proposal what should be done. WASA several time made the proposals but nothing found visible in this issue. Water development board is the main custodian of the DND area. Regarding this issue water development board is completely failed to control the drainage management of the Dania Union. Water development board sent letter several times to the ministries of LGRD & Cooperative about the problem. The water development board sent letters several times to the ministry but the ministry is not responding to that issue. So there found to be a very weak vertical relation among the organization.

Sometime there is a conflicting issue of shouldering the responsibility of Dania area who will work for that. There is a debate between the Water development board and the Dhaka WASA. WASA said that the water development board is the main custodian of the DND area. Dania union is under that DND. The higher official of Water development board was asked about the issue. He said that the water development board sent letter several times to the WASA

but WASA did not give answer to the letter. No verbal contact was done between the WASA and the Water development board officials. There is a psychological barrier among the organizations that everyone is reluctant to contact another. Regarding a land dispute for the construction of drainage AC land sent letter to the DSCC Mayor but no one is responded. No direct contact is done between the AC land and the Mayor. The coordination will be improve if there is a direct contact between them and the drainage work will done in faster process. In the line of horizontal connection which is found very much weak in the line of drainage management in the Dania union. All of the respondents agreed that the more the frequency of direct communication then more effective will be the inter-organizational coordination. Empirical findings accept the hypothesis proposed to inter-relate direct contact an independent variable with the inter-organizational coordination a dependent variable of this study. Regarding any implementation like drainage construction different organization started working in different manner. There is no contact among them that they can work together in a harmonious manner.

#### **6.2.1.2 Psychological strength**

It is revealed that, in most of the cases junior employees failed to reach the senior colleagues due to some psychological barrier. Junior employees generally suffer from hierarchy effect. Any kind of mismatch found on any decision they generally hide the issue rather than making discussion with the senior officials. As a result the main purpose of the issue is not solved. This barrier is a main obstacle for coordination.

#### **6.2.1.3 Workers satisfaction**

Workers satisfaction is very much weak in the Govt. organization that effect the inter organizational coordination. It is found that, employee engagement to the organization is very poor. Employees do not feel passionate about their jobs, not committed to the organization, and put discretionary effort into their work. So there is found hardly any contact among the internal official about the issue for the solving the drainage management problem in the Dania union.

#### **6.2.1.4 Style of meeting and contact:**

There may be many different factors that hinder the frequency of contact among the related government organizations, ministries, donors, and general people. Most basically, this study

revealed that bossism and hierarchy consciousness of government officers, contact among the related organization effect the form of contact. In most cases, trust among the organization and reluctant attitude of donor agencies to work transparently in frequent attachment with government organizations were noticed down as major impeding factors. Lack of partnership approaches and practices between different government organizations to work in difficult situation is another factor that made distances between organizations which in turn weaken the frequency of direct contact. It is also revealed that similarities in personnel experience, academic background, gender, posting position and age also implicate its effect to establish direct communication. When any organization called a meeting sometimes other organization do not give much importance to that meeting and send junior employees to that meeting which has a less impact regarding decision making. Senior officials of different organization are found very weak in making any decision making. Talking about age, it is found that younger officers representing different organizations were more proactive and frequent in informal communication than that of senior officials of organization. Sometimes representative sent by different organization do not know about the meeting agenda and the previous one. There is a coordination gap is that the same person is not sent to the next meeting. As a result there are institutional memory loss to take any decision.

## **6.2.2 Understanding resources in early stages**

In this study, resource was considered as study variable under the theoretical grounds of Mary Parker Follett (1866-1933) theory. Based on this theory, this study mainly envisaged willingness to exchange or share resources to fulfill the resource gap and better up the inter-organizational coordination in difficult situation.

### **6.2.2.1 Internal resource**

It is revealed that in most cases the organization do not know about their internal resources. Regarding to that, WASA official really do not their capabilities and the strength about their management when they took charge of the drainage management of the Dhaka city in 1989. It is very much important how the organization use the strategic management process to create value and earn high returns. In that case WASA have no future plan how to give better service utilizing this resources. At present, WASA is trying to handover the responsibility to City Corporation. This problem is happen because there is no planning of resource in the

earlier stage that they can forecast the future plan. Water development board is the core custodian of the DND but this organization is totally failed to control the development because they have no resource or they do not know how they utilize the financial or manpower resource for the control of the area at the earlier stage. Another organization like RAJUK who is now responsible for the development control but the jurisdiction area is now 1528 sqkm. RAJUK has no enough resource that they can control the whole area. The ministry is unaware of the capacity of the organization working under them. The ministry is has not enough manpower to control all of those organization that they can working together in a fine tune. The role of the organization resources, capabilities, and core competencies to provide a foundation for creating strategies and the relationship amongst these concepts in developing sustainable competitive advantage are found very much weak in the drainage management.

#### **6.2.2.2 External resource**

Willingness to share resources like human, information, and finance, it was found that different government organizations were very much reluctant to share information than that of other resources. Not only this, nobody share about their resource capacity and also not transparent about them to share with each other. In this study, empirical findings show that weak state of resource exchange and sharing also weakens the effectiveness of inter organizational coordination. It was observed that due to greater lack of information exchange among the organizations working for the drainage management creates lots of duplication and waste of time and efforts in such a hectic and urgent time. In the interview with the researcher, every respondent talked about the importance of resources. They also evoked that they are ready to exchange and collaborate with others. But, in field observations, researcher did not notice any events or activities that took place in collaboration and resource sharing.

#### **6.2.2.3 Optimization**

This study identified some major problems regarding resource optimization and inter organizational coordination. Low level of faith towards counterpart organizations, lack of goal harmonization and crisis of credit sharing are some of them. It is no doubt that resources like human, information, technical, financial are regarded as function of capability to manage



water logging. Despite resource gaps and insufficiencies, it was observed that most of the organizations take part in drainage management in isolated manner rather than in collaboration. As a result, optimization is never done in a consequent manner. This indicates weak coordination in terms of resource optimization. But, all the respondents agreed that drainage management will be more effective in coordination among organizations rather than individual and isolated approach.

#### **6.2.2.4 Competencies and capabilities**

Capacity raises to an organization's capability to attain its task successfully. Capacity also make any organization sustainable. Capacity of individuals improves by skills gained by him. Like advocacy skill, leadership development, technical skills, speaking abilities, capacity buildings etc. improves the capacity of individual and that increase the capacity of organization. This research found that the competency and the capacity of the official people working the organization is found very much weak. Drainage management is a huge task and need efficient management. The official of the organization is nor are showing response and they very much clever enough hiding their responsibilities. A senior official to an organization told in an interview that when they are told something to do any plan or agenda they are very much reluctant. In most of the cases the authority need to take help with third party to do any development project proposal.

This research found that all the organization does not have any policy of training which can guarantee systemic human resource improvement. There found that unreasonable politicization and discontinuity of the work development negatively affects asset administration. Study also found that lack of understanding of capacity building is very common in all the drainage management related organization. There is no system, to training procedure at all. Job related training is not done and sometimes there is a biasness to selecting the policy training according to the criteria of politics and personal welfare. There also found that no systematic human resource policy, no human resource development done in a comprehensive way. The study unveils that there need sufficient budget, responsive programs, linkage in an integrated way to other organization, physical infrastructure etc. should be updated to improve the human resource management system.

### **6.2.3 Continuous direct supervision**

This research found that lack of direct supervision has a negative effect on the drainage management. Lack of supervision damaging the capacity, workforce stability, confidence, competence and morale. It is the prime task of the controlling authority to monitor the activities of subordinates. Supervisors are also important because they play a key role in maintaining group unity among workers and making sure all instructions are communicated and understood by each employee. For any development work supervision is needed. Without supervision, it can destroy the main purpose. In drainage management after the construction of box culvert maintenance is not done in a routine basis as a result the clog appears in the drain and make an obstruction to the natural flow. As a result, the drainage line overflow and causes the water logging. After the eviction drive of the organization there is no supervision to maintain the situation. Lack of supervisions the situation goes to previous state and nothing outcome but the draining congestion. Water development board making the project DND for the agricultural demand to the Dhaka city. But there are spontaneous growth to the Dania union which is inside the DND area failed its outcome due to proper supervision. All the structures are built inside the study area without following the rules and regulation. All the organization is failed to control development for the lacking of supervision. Maintenance of natural canals is needed for the area but encroachment is done in front eye of the organization but no supervision is done. As a result the natural canal are grabbed by the encroachers. Some factors that affecting the supervision while taking interview of the key informant:-

#### **6.2.3.1 Leadership skill**

In most of the cases key respondent of the organization are mentioning about the leadership skill for efficient supervision. Supervision is not functioning for leading, coordinating and directing the work of others to accomplish the objectives. Leadership gap is found in most of the organization. Top officials are failed to coordinate, control and supervise the subordinates effectively. Every respondent emphasize the leadership qualities in order to achieve the supervision which effect the coordination.

### **6.2.3.2 Operating skill**

It is found that senior management have not the operating or technical skill that makes the supervision more effective. Here the official do not know how to understand about the working procedure of the organization. When the top management is unknown about working procedure of the organization the senior official cannot supervise effectively

### **6.2.3.3 Managerial knowledge**

Lack of managerial knowledge is found weak in most of the organization. Here the officials are found weak in knowledge and skill of management that helps to make the policies, planning, rules, regulations and other objectives. Most of the time senior officials are not able to handle the problems of subordinates.

### **6.2.3.4 Communication skill**

Communication skill is found very weak in most of the organization. There is a psychological barrier of making contact to another organization. Every respondent ensure that communication is the important factor that ensures effective supervision. Study revealed that senior official sometime give order in such a way that demotivate the employee. In the absence of communication skill no effective supervision is possible in the organization. The supervisor must the capability of communication. When the top management is not able to convey the information or do not understand the information supervising cannot be effective

### **6.2.3.5 Motivating power**

It is found that all the organization have different individuals that have different emotions, statements and attitudes. Study found that it is very much important to realize the human emotion and sentiments. The higher official must treat the subordinates as human being and must develop good human relations. The higher official must have the skill of motivation and must be able to motivate the subordinates and subordinates effort are effectively used for the organization

### **6.2.3.6 Proper working conditions**

Study found that proper working condition is not found good in all the organization that are responsible for the drainage management. This issue is very much necessary for effective

supervision. The top officials have nothing to do when there is lacking of proper working condition for making the supervision effective.

#### **6.2.4 Understanding reciprocal factors**

A familiar concept in management literature today is that of the 'stakeholder', that is to say, interdependent groups or individuals who affect or are affected by govt. decisions. Concern for stakeholders, usually related with organization responsibility and strategic management. However, Follett, to some extent, was a pioneer in speaking of stakeholders, although she never used this nomenclature. In fact, in Follett's theory understanding reciprocal factors are considered. For instance, a number of groups related to the drainage management to whom the manager has to pay heed and with whom he has to maintain human relations. Apart from personal relations between the local people and the organization who is responsible for the drainage management. More specifically, Follett theory showed how to deal with different interest groups. In the sectors of drainage management there are different interest groups like the local people, local representative, service organization, donor agencies, controlling organization, and similar type of organization. The chief job of business is to find a method for integrating the interests of these classes". In Follett theory it is generally admitted that the manager has to be aware of the interests of stakeholders and to try to balance these interests. Follett presents a different approach. Integration is the way proposed by Follett to solve conflicts. The survey also finds that every respondent clearly mentioning about the integration and coordination of the agency who is responsible for the drainage management. Follett theory considers there are three ways of dealing with conflict: domination, compromise, and integration. Domination is the victory of one side over the other: it is not usually successful in the long run. Compromise means each part giving up something in order to have peace. Integration is looking for a solution where the desires of both parts have a place, and neither side has to sacrifice anything. Survey also found that there is a domination factors among the agencies related in drainage management, compromising is a vital issue in different organization and finally integration is very much needed to make a fine tune of the objective which states the way of improving the drainage management system in Dhaka city. Follett's ideas on solving conflicts by integration could be applied to stakeholder theory. With this approach she goes further than many current authors, who propose balancing stakeholder interests. Survey found that Follett's ideas both deepen our understanding of the

reciprocal factors and provide direction for the extension and implementation of how to solve those factors.

### **6.2.5 Institutional Perspective**

Christensen and Laegreid (2008) introduced two dimension, one is instrumental and another is institutional. Research found that all the organization is instrumental type. Decision is dependent by the leader. No institutional culture is yet to be developed. The organization have no rules and regulation they can move forward to their own way without depending the head of the organization. All the organization have higher dependence on ministries and they are so called autonomous body but very much dependent to line ministry to make any decision. There is mismatch of activities among the organization and all the organization have no institutional attitude for making any decision. There is no complete citizen charter and sometime no one follow the citizen charter but displaying in front of the organization. There is no routine based activities that they can performed in a regular basis. Routine work is very much needed for any institution. Some kind of non-responsiveness of the organization found every organization. Every organization related to drainage management do want to shoulder the responsibility to minimize the issue. Institutional gap is found in handover the responsibility and the ministry is quite failed to formation of urban development ministry for the lacking of institutionalism. This formation is totally dependent to the leaders who are at the apex of that organization.

Above all else, govt. organization have political leader chosen by prominent vote. Notwithstanding whether a govt. organization is near or far expelled from the political initiative, there is a justly chose political leader at the top to whom the organization is responsible. Govt. organization are mindful to a justly chosen administration that is, thus, responsible to the general population through general races. In this way govt. organization are a piece of a parliamentary chain of administration and face distinctive difficulties. Govt. organization are multifunctional. This implies they adapt to incompletely clashing contemplations, for example, political directing, control, representation and interest by influenced parties, co-assurance of workers, affectability opposite clients, straightforwardness, reputation and understanding into basic leadership forms, consistency, unprejudiced nature, impartiality, and nature of administrations, expert freedom, political

dedication, proficiency and adequacy. Political-authoritative frameworks in agent popular governments are construct neither with respect to unadulterated lion's share control nor on immaculate expert frameworks; are they not commanded exclusively by influenced gatherings or administered just by run of law or the organization. They consolidate these types of administration.

### **6.3 Theoretical Implications**

Theoretical framework developed in this study was based on the research works done by the different scholars in the field of inter-organizational coordination. This framework consist of five independent variables viz. direct contact, resources, supervision, reciprocal factors and the institutional perspective and proposed its relation to dependent variable effective inter-organizational coordination. Proposition of hypotheses based on the theoretical arguments and test of these research questions by the empirical findings tried to establish relationships between independent variables and dependent variable. This two theory have been helpful in explaining the study problems. Hence, this study revealed that more direct contact, willingness to exchange resources, continuous direct supervision may lead to the effective inter organizational coordination.

This study also establishes that reciprocal factors and institutional perspective factors also matter for the better up of effective inter organizational coordination. Empirical findings proved that high level of understanding reciprocal factors amongst the organizations also enhance the effective inter-organizational coordination. But, state of coordination from the reciprocal factors aspect also found very weak. Hence, under the institutional perspective variable found very weak in all through the organization. Every organization is work under the guidance according to the top leader. But every organization have their own boundary of their working arena. In case of DND area which is developed for the agricultural prupose clearly losing its objective from the time being. The water development is the main custodian from that area but failed to control the development. Here the institution does not work to his own pathway. Institution is mainly dependent on the leaders will but it hampers the coordination process. These implicate that institutional perspective matters to enhance effective inter-organizational coordination.

## **6.4 Further research in future**

Future research should be possible on between hierarchical coordination and intra organizational coordination between the government and non-government organizations in crisis circumstance with the goal that it would include more knowledge in this subject. It would intrigue if numerous contextual analysis inquire about plan received and contrast distinctive cases with evaluate the marvel i.e. between hierarchical coordination. It would be smart thought to contract down this exploration topic and concentrate on specific single variable to evaluate its relationship to inter organizational coordination widely in quantitative technique.

## **6.5 Conclusion**

At the sum up point of research finding, study revealed that state of inter-organizational coordination among the government organization found weak in the drainage management system. Plan, activities, design and the working coordination among the related agencies is not effective so far. A qualitative research was esteemed more proper for the sort of issue being managed in this examination, considering the benefits of conveying a bigger number of discussions over less cases instead of less talks over more cases. As needs be, a specific arrangement region as the main case was chosen so as to decide the degree of the interrelatedness of the comparing factors. To accomplish such target, a top to bottom and bottom to top investigation of factors was led, instead of the distorted presentation of factors and their interrelationship in a qualitative research. As empirical findings accepted the hypotheses proposed in this study implicate that variables direct contact, resources, supervision, reciprocal factors and the institutional perspective has had their positive impact to improve the inter organizational coordination in drainage management. This established some sort of relationship among them, which in turn open avenue for future further researches. While interviewing, no single respondent put their views against need of inter organizational coordination for effective drainage management. But, observations revealed weak state of coordination between different organization from government and non-government sectors. To study factors, inquiries were produced in a way that one question prompted to another subsequent question. For instance, a question asked under the variable assets about resources inside the organization which influence the coordination among

divisions. The reactions to this question drove this researcher to request that further how deep the resource issue which enhance the coordination among different organization. Such unconstrained process helped in following truths and in investigating and comprehension the respondents' feelings about the exploration issue. A legitimate drainage framework does not mean a couple of drains and sewerage lines just; it implies developing a system that interconnects channels and sewerage lines with the normal water bodies, and the management of them. So it can be concluded that if the proper coordination among the organization will improve the drainage management system of the Dania union which will completely meet the research objectives and questions.



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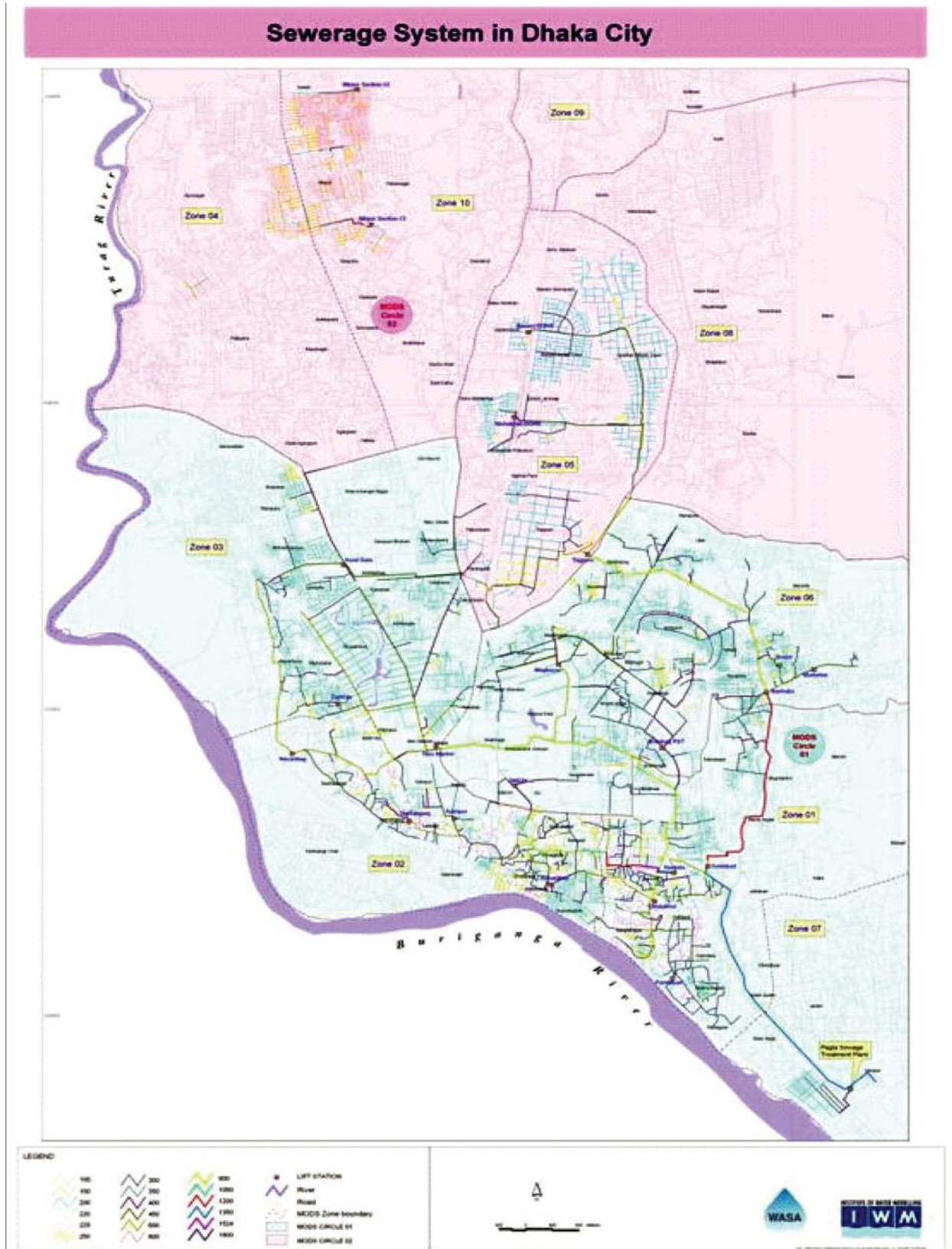
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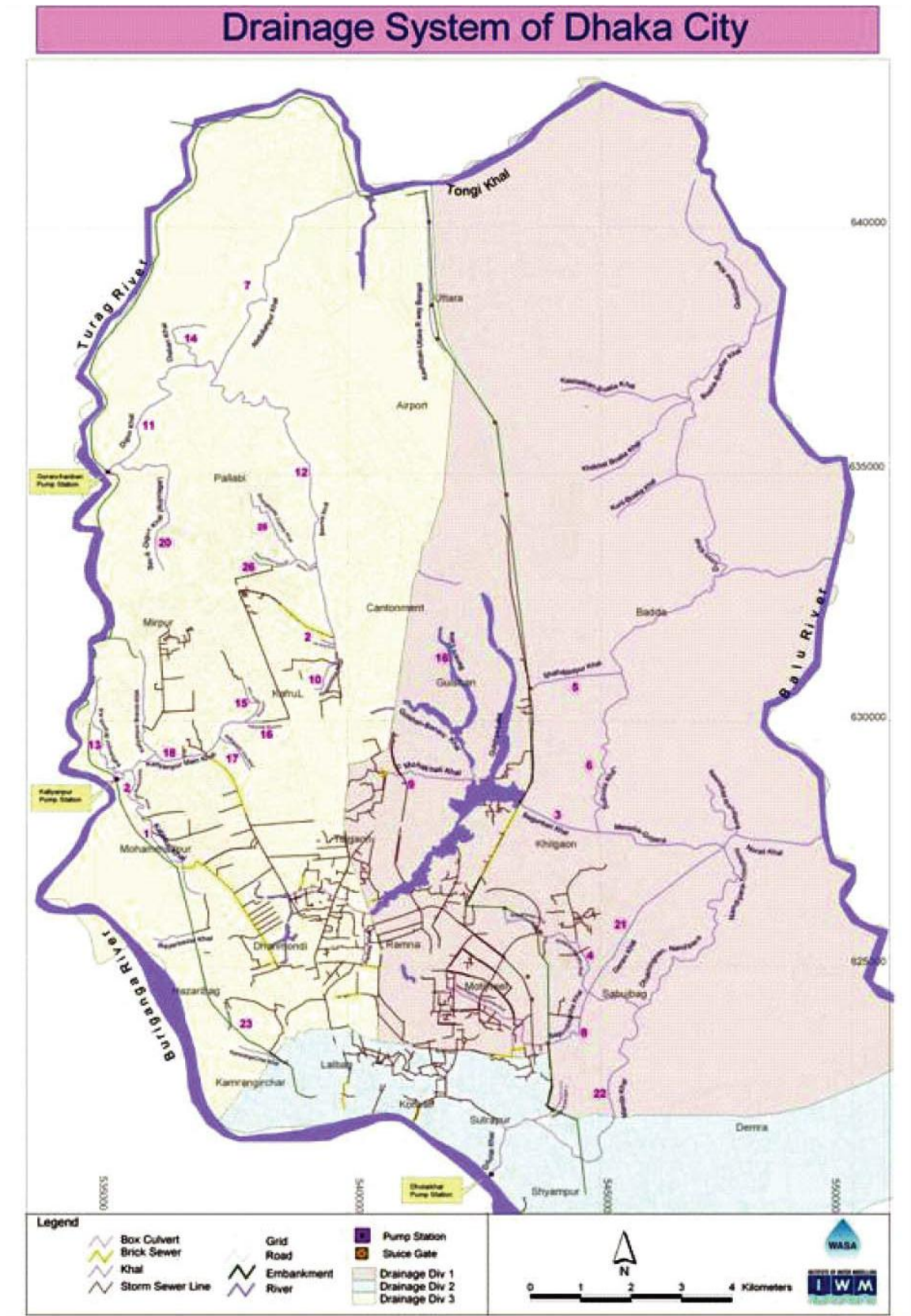
## Annex 01: Sewerage System of Dhaka city



(Source: IWM)



## Annex 02: Drainage System of Dhaka City



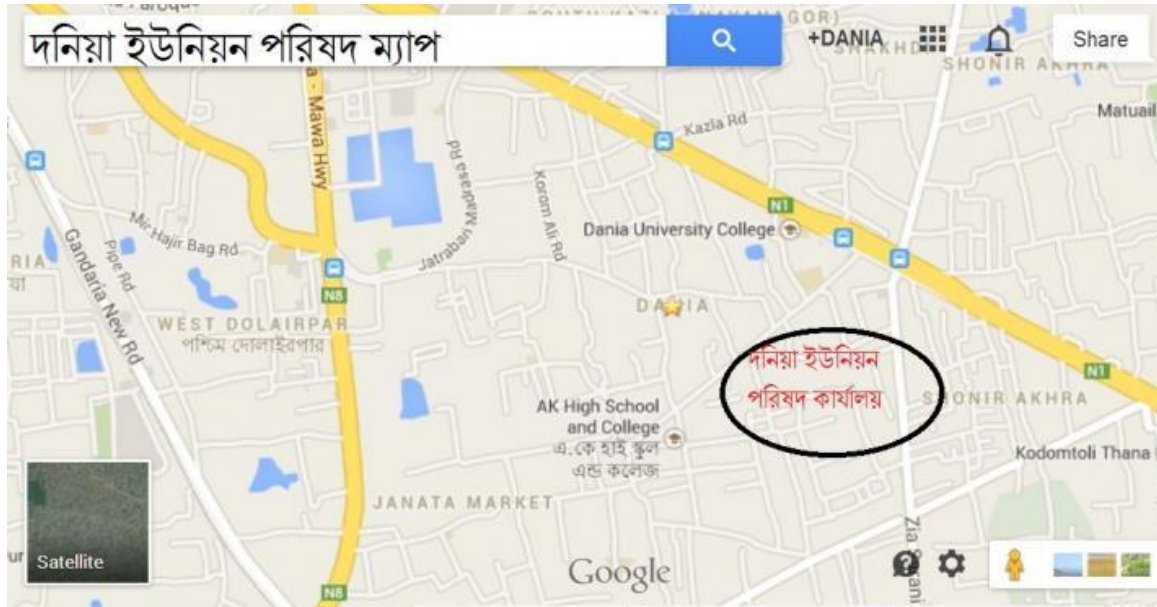
(Source: IWM)

### Annex 03: Description of the study area

The field research was conducted in the Dania union. This union is divided from the Syampur union in 1993. The name of the chairman of the Dania union is Jummon Miah. This union is divided into 09 wards. Survey was conducted in all wards of the Dania union. The entire population is 2, 61074 no (Two lac sixty one thousand and seventy four) according to census 2011. The area of the Dania union is two square kilometer. The population density is very high like 1, 30, 000 no (One lac thirty thousand) per square kilometer.

(Source: <http://daniaup.dhaka.gov.bd/node/1454174>)

### Map of the Dania Union



Source: <http://daniaup.dhaka.gov.bd/node/1488854>

## **Annex 04: Questionnaire to Local People.**

### **Questionnaire for the inhabitants of the waterlogging area in the study area**

(This academic research on inter-organizational coordination of the Drainage management system (A case study in DND). This interview is highly confidential; name of the respondent will never be associated with his/her answer. Researcher is highly grateful to the respondents for their opinion and valuable time.)

1. Greetings (Assalamualaikum)
2. How are you?
3. What is your name?
4. Where do you live in?
5. Are you land owner or a tenant?
6. How many years do you live in this area?
7. What is your business?
8. The road condition of your area is weak and stagnant of water is found. Is waterlogging prevailing all the year round?
9. Is water logging a new phenomenon in your area or an old one?
10. How many months of the year remain water logged in this part of your area?
11. Is it because of the drainage system water logging becomes inevitable?
12. Is there any renovation and maintenance of your drainage in the area?
13. Do you think new drain should be constructed for the present state of problem?
14. What are the problems you face for water logging?
15. Is there any initiative taken by your local people for solving the water logging?
16. Do you complain to any organization for solving the water logging problem?
17. What are the present state of capacity of the organization related to water logging management?
18. What are the initiative you think that will solve the water logging problem of your area?
19. Do the people of your locality made communication with the local MP for solving the problem and what is the initiative of that representative?
20. Thanks for giving the time, thanks once again

**Respondent list:** Students of school and college, Male teacher, Female teacher, Day laborer, Housewife, Member, Grocery shopkeeper, Garments labor, senior citizen of the area.



## Annex 05: List of local Respondents

|                    |                          |
|--------------------|--------------------------|
| Md Safayet Hossein | A male student           |
| Meherunnesa Mukta  | A female student         |
| Md Abu Raihan      | A male teacher           |
| Jeba Akther        | A female teacher         |
| Mohammed Eusuf     | A day laborer            |
| Farzana Haque      | A female garments worker |
| Jarna Begum        | Housewife                |
| Md Hadiuzzaman     | A grocery shop owner     |
| Bipu               | A running member         |
| Md Jummon          | Chairman                 |
| Arun Kumar Sarker  | A journalist             |
| Md Bayazid Arafin  | A service holder         |
| Rasel Ahmed        | A businessman            |
| Pintu              | A Rickshaw puller        |
| Md Mostofa Mollick | the general public       |

## **Annex 06: Questionnaire to official people**

### **Questionnaire to official people who are working directly to the Govt. organization for the water logging management of the study area**

This academic research on inter-organizational coordination of the Drainage management system (A case study in DND). This interview is highly confidential; name of the respondent will never be associated with his/her answer. Researcher is highly grateful to the respondents for their opinion and valuable time.

**Question 01:** Water logging is one of the major problem in the Dhaka metropolitan city. What is your opinion regarding this issue and the study area of Dania union?

**Question 02:** What type of sewerage and Drainage system should needed for the modern and growing cities?

**Question 03:** How many organizations do you have to coordinate for the water logging management?

**Question 04:** How do you make the administrative connection to other organization about any decision?

**Question 05:** In some areas of Dhaka city is found acute water logging and the Dania union is one of them. What do you think about the prime causes of water logging?

**Question 06:** In some areas of Dhaka city is found acute water logging and the Dania union is one of them. What do you think about the prime causes of water logging?

**Question 07:** Many people give the liability to the lack of coordination of different organization of the Government. What is your opinion regarding that issue?

**Question 08:** Generally, experts identified two types of problem for the water logging; one is structural and another is lack of coordination. Which one do you give more emphasize regarding the Drainage management issue?

**Question 09:** Non responsiveness of the organization related to drainage management is responsible for the present water logging? What is your opinion?

**Question 10:** What are the limitations you face of your organizations?

**Question 11:** To what extent political will is needed for the present water logging problem. What do you think?

**Question 12:** The water logging condition in DND area is complex, time consuming and expensive as per the comparative problem to another area. Is there any short term, midterm and long term planning for solving that issue?

**Question 13:** Give some recommendation to increase the coordination about solving the water logging problem in DND area?

**Thank you**

## Annex 07: List of official Respondents

| Name of the Respondent | Designation   |
|------------------------|---|
| Komol Sikder           | Joint Secretary, Ministry of Water Resource                                 |
| Md Shafiul Hasan       | Joint Secretary, Ministry of LGRD & Cooperative                             |
| Md Safayet Hossein     | Deputy Secretary, Ministry of Housing & Public Works                        |
| Md Vhekharuddoula      | Deputy Secretary, Ministry of Road, Transport & Bridges                     |
| Amit Debnath           | Joint Secretary, Ministry of Land   |
| Dulal Krishna Saha     | Director Administration, RAJUK  |
| Md Hasibul Kabir       | Deputy Town Planner, Detail Area Plan, RAJUK.                               |
| Md Aminul Kaium        | Deputy Town Planner, RAJUK  |
| Md Ashraful Islam      | Deputy Town Planner, RAJUK  |
| Md Ashraful Kabir      | Chief Architect, RAJUK  |
| Md Masudul Karim       | EXEN, WASA  |
| Md Habibullah          | EXEN (retd), WASA   |
| Kyaw Ching             | Director, WASA  |
| Md Nasir uddin         | Add chief engineer, WASA  |
| Md Jakir hossain       | EXEN, WASA  |
| Md Shohag Howlader     | Assistant Engineer, WASA  |
| Md Musleh uddin hasan  | Professor, Urban & Regional Planning, BUET                                  |
| Mrs Ishrat Islam       | Professor, Urban & Regional Planning, BUET                                  |
| Md Manjur Morshed      | Associate, Professor, Urban & Regional Planning, KUET                       |
| Md Mujibor Rahman      | Professor, Water & Resource Engineering, BUET                               |
| Md Aslam Uddin         | Sub divisional engineer, Drainage Department, Dhaka South City Corporation. |
| Md Jakir Hossein       | EXEN, Dhaka South City Corporation  |
| Md Asaduzzaman         | EXEN, Dhaka North City Corporation  |
| Md Iqbal habib         | Architect, BAPA   |