

Pond-centric Urbanism in Rajshahi

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Abstract

Rajshahi is a historical metropolitan city in the northern region of Bangladesh and Ponds (man-made freshwater reservoirs, locally known as Pukur) have been the centerpiece of urban morphology and culture, serving the city and its people functionally, socio-economically, environmentally and metaphysically, consecutively from its manifestation as a city. Yet, the alternatives to surface water and the lack of conscious augmentation to adapt with the progressing social norms and cultures have screened ponds from the urban fabric and human life simultaneously. They are filled up, abandoned, disused, encroached, left as negative spaces with stagnant toxic water or unused dump yards, causing socio-political dissension and environmental degradation. The remediation taken by the responsible authorities to save the dying ponds never matches the unprecedented urban growth. This research aims to rediscover the intrinsic pattern of pond-centric urbanism of Rajshahi through a brief historical overview with the qualitative spatial analysis, and the identification of these interaction suggests that ponds are linked to the city with two variables, Social Parameter and Physical Framework. The interrelation of ponds with the city and its people is discussed through these variables with supporting photographic survey and diagrammatic documentation followed by a series of suggestive solutions, applicable as a proper responsive manual for authorities or individuals to follow when redesigning a pond. The Project acknowledges the ponds and water as an admissible part of the city environment and urban design and intends to convert its underlying potential into environmental gain and contribution to socio-cultural upbringing.

Keywords: morphology; physical framework; ponds; social parameters; urbanism.

1 Introduction

1.1 Contextual background

Rajshahi is a divisional town and metropolitan city of Bangladesh and a major urban, commercial and educational center. Its history dates 300 years with a co-existence of different caste and creed, culture and belief. The impact of industrialization could not radically change its historical environment of the Barind region with a semi-arid climate and also for the backwash effects of Kolkata. Thus, the essence of the environment remains in many parts of the city. One of the major pieces of evidence and a key player of the its evolution is the numerous ponds scattered in the city. Ponds are man-made or designed element of the landscape containing water, a natural element of the environment. Humans are drawn to the microclimate created by ponds as a result of environmental behavior towards waterbodies. As a result, they gather around the pond and engage themselves into different activities. Thus, a pond-centric socio-economic culture is created. This culture of pond-centric activities forms the spatial pattern of the city and turns its surrounding spaces or void into place. So, the sense of place on and around the pond and water is inherited among the people and the culture of the city historically and metaphysically which creates a contextual background for the research purpose and study. However, due to the advent of various alternatives to pond water utilities, no remote thought was given them. As a result, the ponds lost their physical connection to the city. Gradually they became isolated from infrastructure or urban fabric, and became neglected. Simultaneously, with the evolution of social norms and cultures, there has been no adaptation through conscious development of the pond environment, for which the ponds became socially isolated from human life. In 1961, there were 4,238 ponds, canals, wetlands in the city, in 1981 the number was 2,271, in 2000 the number stood at 729 and now city has only 214 water bodies, In the last five decades, a total of 4,000 ponds have been filled because of the indiscriminate earth-dumping and unplanned urbanization as the authorities concerned have no control over the vested interested groups' activities (The Dhaka Tribune, 2014).

Currently, agencies responsible for the development of the city have taken initiatives to protect the ponds through various plans and proposals, most of which are physical. The High Court gave a directive to stop filling of all kinds of wetland in and around the city on December 13, 2010 following a writ petition (The Dhaka Tribune, 2014) Rajshahi City Corporation (RCC) has adopted a development project titled 'Natural Water Bodies Conservation and Development in Rajshahi City' to protect the ponds. The project is supposed to preserve 53 ponds and construct

embankments along the ponds and re-excavate those water bodies. RCC also has an initiative to conserve and renovate 22 natural ponds in the city aiming to retain its surface water resources to protect environment from further degradation (The Daily Sun, 2018). All these initiatives are limited to beautification of the pond. It also lacks the innate idea of recognizing the pond as an active natural resource of the city. At the same time, it does not regard ponds as a valuable social, excluding the possibility of transforming them into modern public realms or active urban spaces through placemaking to achieve a Quality of Urban Life through Public Space (Garau, 2015). Thus, although the existence of the ponds is physically visible, it does not seem to fit in the context of the city. Besides, there is a lack of voluntary approach towards establishing social connections of the pond with the people so, the ponds are likely to remain as ineffective open space. The proposal recognizes the ponds as an admissible part of the environment and urban design by transforming its underlying potential into environmental gain and contribution to socio-cultural upbringing.

1.2 Historical Overview

Ponds are an integral part of Rajshahi city from its outseting. It is possible to retrieve the evidence of recurring relationship of pond with the city looking into the historical evolution. It is believed that the foundation of the city was laid by Hazrat Shah Makhdum, a preacher of Islam in this region by 1400 AD. Though the presence of ponds and waterbodies was evident even before that. The connection of pond with the city with its evolution can be studied in four phases. (Figure 1)

1. **The Dark Age (before 1700 AD):** During this early period, it was a small settlement near Padma River ruled by mainly a 'Kapalik' community. The city's water demand was mainly met by the Padma River and its adjoining canals. However, there were several ponds occupied by the Kapalik and Tantric communities, which are said to have been used for other religious purposes, including human sacrifice. The Shah Makhdum later rescued the city from the Kapalik kingdom and built his arena there, which became a shrine after his death around 1400 AD. A pond still exists at this shrine on the banks of the Padma, which bears witness to the Kapalik period, although the size of the pond has been reduced to a quarter by filling it for various necessities. The ponds at this time instills fear, spirituality, mystery and narrative in the minds of the inhabitants.
2. **Outsetting of the City (1700-1800 AD):** At this stage, the city grows as a result of population growth and migration from the surrounding areas. History testifies that the largest migration took place in 18th century when a large number of people from neighboring Murshidabad came to Rajshahi after being expelled by Maratha bandits. During this time the size and population of the city doubled and the settlers started settling in the inner part of the city, as a result of which the rivers and canals failed to meet the demand for water and people resorted to the ancient culture of digging ponds here to retain water. But as Rajshahi was included in the Barind region, it was not possible to get water by digging. For this reason, they connect the holes dug for the pond to the canals and rivers with the help of channels so that the river water can enter the pond during the monsoon season and provide water throughout the year. Usually in a settlement there was a pond around which the houses were arranged. Thus, in the process of nucleated Settlement a settlement was formed here which later made its debut in the town called 'Para' or 'Mahalla'. It is to be noted that in these neighborhoods there was a well-established waterway communication system from one pond to another with the help of canals which extended up to the river. As a result, some pond banks became commercial, market and other socio-economically important places, marking the beginning and the most important chapter of the city's pond-centric outline. The junction of the pond and the canal was protected from crocodiles, gharials and other uninvited animals, which reflects the importance and sensitive attitude of the people of the region in pond planning.
3. **Socio-political Shift (1800-1900 AD):** When the divisional capital was shifted from neighboring Natore in 1825, Rajshahi became politically and administratively important. As an inclusive area, it came under the influence of British colonial rule as a potential place for trade in indigo, silk, jute and lacquer. As a

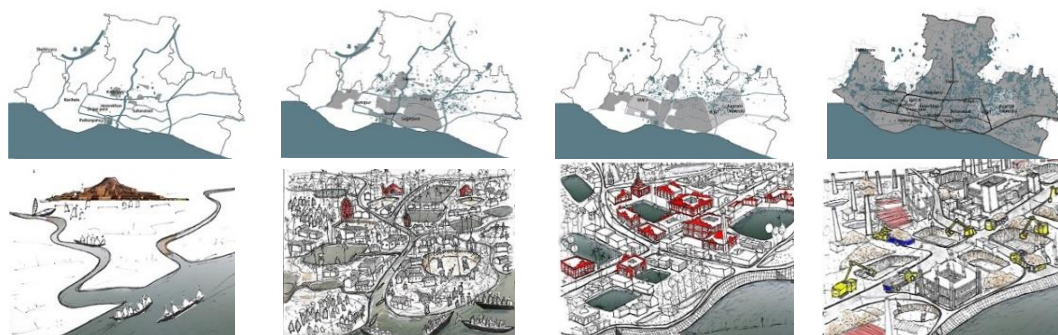


Figure 1. Morphological Development of Rajshahi City in reference to Ponds

result, many social and political dignitaries arrived in the city at that time. These important individuals and organizations at different times used to dig ponds for various purposes such as land acquisition, charity, social services, socio-economic development of the area, etc. and manifests individual and social power. Which adds a new dimension to the influence of ponds in the formation of cities by establishing examples of the social and political impact of ponds on cities and people.

4. **Urbanization (1900-onwards):** Although the effects of urbanization began in Rajshahi from the time of British intervention, it was in full swing after 1900. Consecutively, the city protection dam separated the Padma River from the city blocking the waterflow in the canals and gradually turned them into paved box culverts, dirt road for horse-drawn carriages as the communication system was restructured. The demand for additional land was met by filling up a large number of ponds. As a result, the connection of the pond with the physical infrastructure of the city was severed. But the contribution of the ponds as an open space of the city remains intact and it continues to be used as a place or medium of social communication. On the pretext of digging a large number of ponds in the suburban areas, soil was collected to fill various low-lying areas of the city. In the same way, the brick kilns built in the relatively underdeveloped areas to collect a lot of bricks used in the new construction techniques also started collecting soil on the pretext of digging ponds. However, some ponds still provide drinking water to the people as the use of tube wells is still out of reach. This continued till 1947 and no significant pond was dug in Rajshahi during this period. It is evident that the pond had and continues to have a profound underlying relationship with the origin and development of the city. Ponds are the inventors, bearers and carriers of the physical and morphological evolution as well as the culture and behavioral characteristics of the people residing here.

2 Pond-Centric Urbanism

2.1 Variables of Pond-centric Urbanism

From the discussion, it can be concluded that the pond is basically connected to the city by two variables. They are Social Parameters and Physical Framework. The shifting and drifting of the existing relationship between them at different times has caused the rotation and evolution of the relationship between the city and the pond.

Social Parameter: They are indicative of the socio-economic and cultural connection of the city and the people of the city with the pond. There are three parameters of this social indicator- Scale, Aspect, Quality.

- **Scale:** It defines the impact of a pond at different scales of the city according to the distance from it.
- **Aspect:** A pond is not only a vital source of surface water but also has an equal impact on urban, biodiversity, infrastructure and socio-economic aspect of a city onto different scales mentioned above.
- **Quality:** It is the accreditation of the overall environmental quality from only a social stand-point not any scientific quantification. It comprises of physical, water natural and social quality. This environmental quality is regulated by surrounding infrastructure and elements, the physical framework of spatial pattern.

Physical Framework: It Reflects the attachment and the interdependencies of pond and the surroundings from material or visible viewpoints. There are three types of interdependencies observed. They are land to water, land to built-form and built form to water. These interdependencies are studied through a framework of Spatial Patten consisting of built form and accessibility around pond.

- **Spatial Pattern:** Five types of basic Spatial Pattern is derived by studying over 80 ponds in old town of Rajshahi. The spatial pattern is formed with the pond water, the surrounding built-form and the accessibility to the pond from its surroundings.
- **Built form:** Mainly Three types of visible Built-forms within the old town.
- **Accessibility:** Five forms of accessibilities around the pond is sketched out.

2.2 Formulation of Connectivity Matrix

From this it can be concluded that the pond is basically connected to the city by two variables. They can be defined as Social Parameters and Physical Framework. The shifting and drifting of the existing relationship between them at different times has caused the rotation and evolution of the relationship between the city and ponds. (Figure 2)

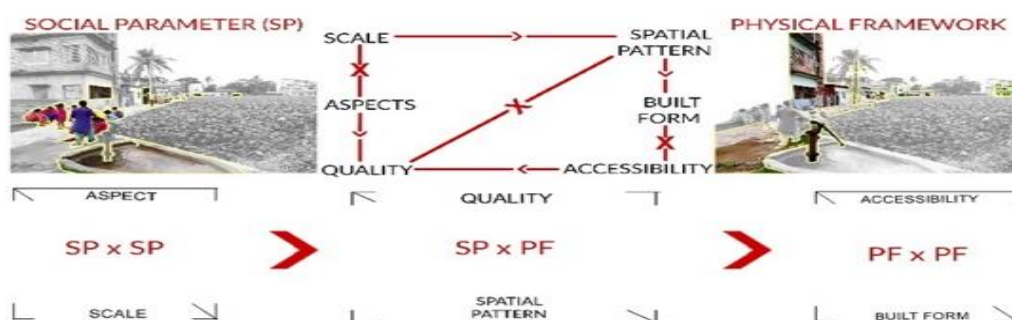


Figure 2. Concept and Formulation of Intrinsic Pond-centric Urbanism in Rajshahi City

3 Analysis

3.1 Existing Matrix

In this analysis section, the matrix of the existing relationship between the variables discussed in the research section has been applied to the city of Rajshahi and its ponds. In this case, the study has been done on the ponds of Rajshahi Old Town in the light of that matrix and the evidence has been collected and stored through photographic documentation. Subsequently, it is attempted to express the various information and figures obtained, through appropriate drawings and diagrams as required. This analysis is demonstrated in Figure 3.

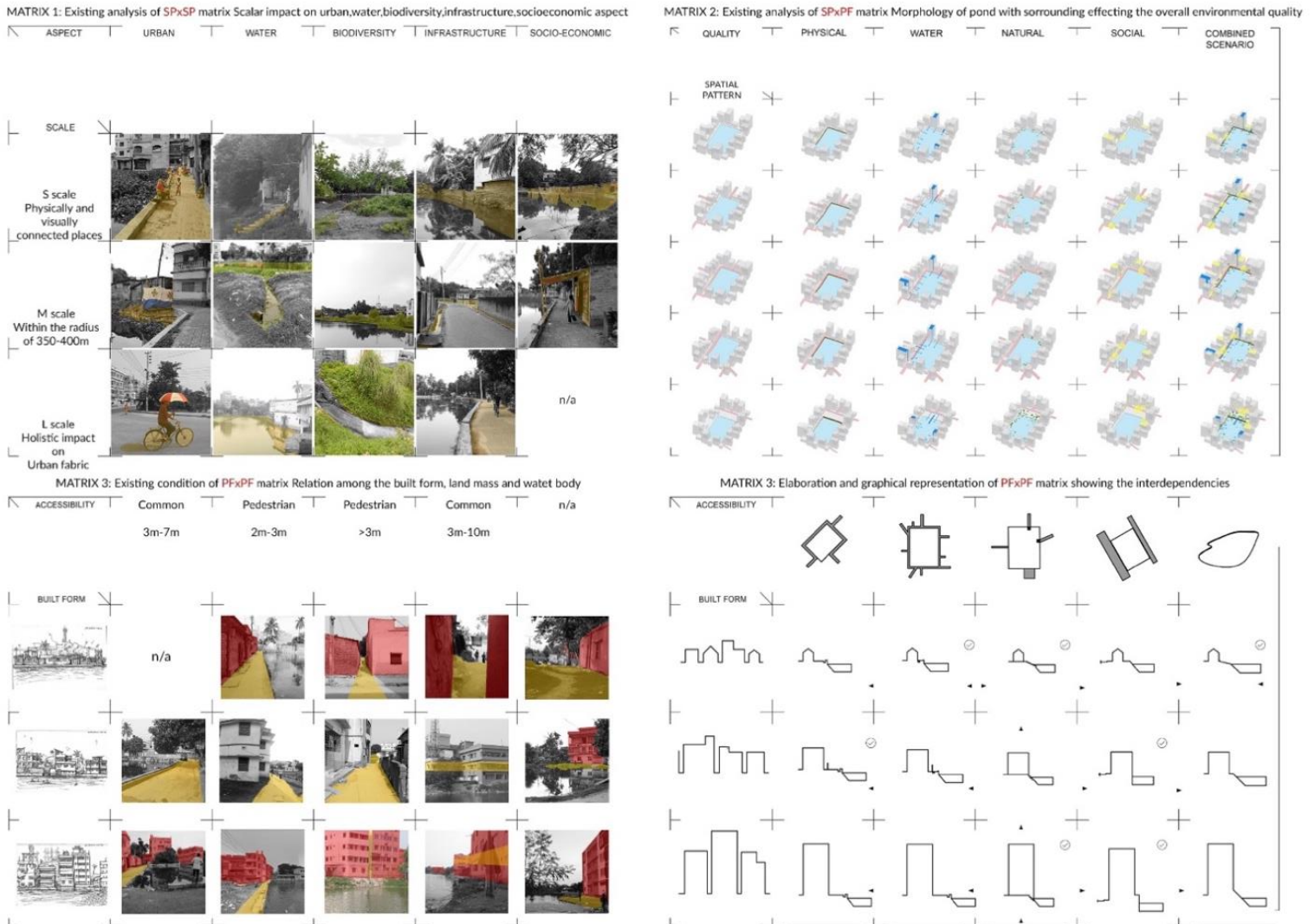


Figure 3. Formation of Existing Matrix showing Connection of the city of with the Pond

3.2 Design Matrix

These design matrixes basically serve as the outline of the design of a pond in the context of Rajshahi city, or as a manual in the planning of the whole city, complied with the combined effects of the ponds and assist the responsible agency in making policy or entitled individuals with design decisions (Figure 4). This will re-establish the physical and social relation between the pond and the city by which the maximum positive outcome can be achieved individually and collectively on social, environmental, environmental and financial issues.

4 Design Implementation

The Design Implementation is conceptualized in three different scales for a wholistic understanding of City Planning and urban design prioritizing and revitalizing the intrinsic and inherent Pond-centric urbanism of Rajshahi. For the large scale, Design direction for Town Planning and Masterplan Design for Rajshahi old town indicates the necessary information and pertinent directions for updating of soon to be expired RMDP Masterplan 2010-2024. In the medium or secondary scale Ward based development plan is proposed. As a conceptual adaptation the layout of Ward no. 23 is showed the setback areas of the buildings and properties are reclaimed to enhance sidewalks zones and introduce Hybrid Zone to grow and nurture belongingness and ensure safety and

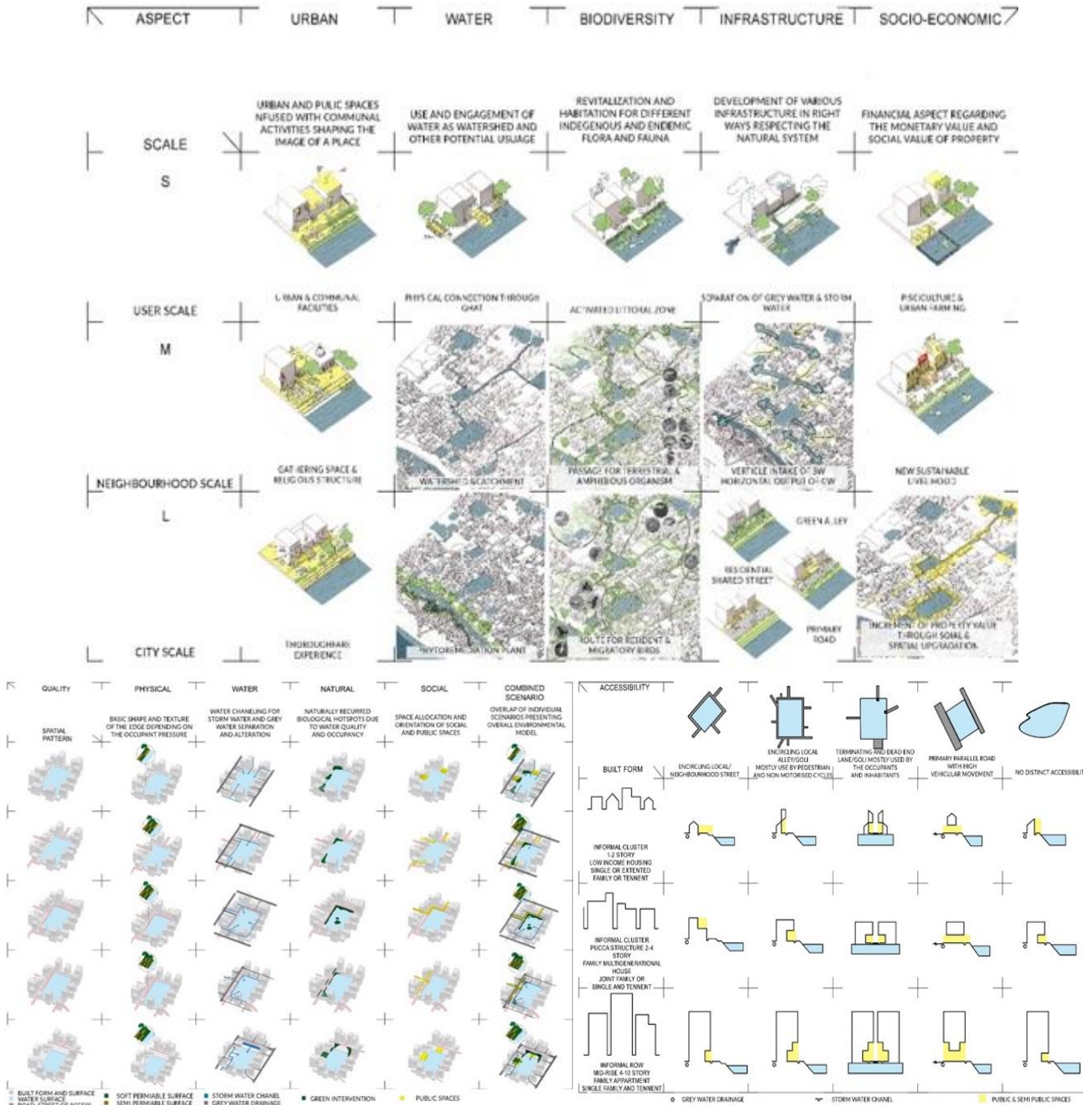


Image 4: Design Matrix Reconnecting the Ponds with the City

security through the amplification public-private interaction in the street (Figure 5) (Karssenberget al., 2016). In the intimate scale design of Individual Ponds is proposed. As a conceptual demonstration the 200 years historical Taranbabur Pukur is shown. It is also important due to the position of the pond surrounded by different communities and being a center point of their interaction though it is decaying gradually. There is also an old 'math' (मठ) which is a part of its history. The location of the pond with another two adjacent ones creates a unique environmental feature that is explored and tried to make best out of it. A demanded community space is provided acquiring the ground floor of a private residential building establishing a direct connection with the primary road that run along the city, uplifting its socioeconomic value and increasing exposure and thoroughfare experience. Figure 5 shows the process with the existing condition of the pond and surroundings with no sense of place or spatial hierarchy then how it is reformed by modification of spatial connection, reclamation of buffer and setback according to masterplan in, socio-spatial axis creating social corridor connecting two parts of the city and sensible restoration and approach to protect the design elements and keep it working by merging it with the urban fabric of the city and co-exist with social life of people.

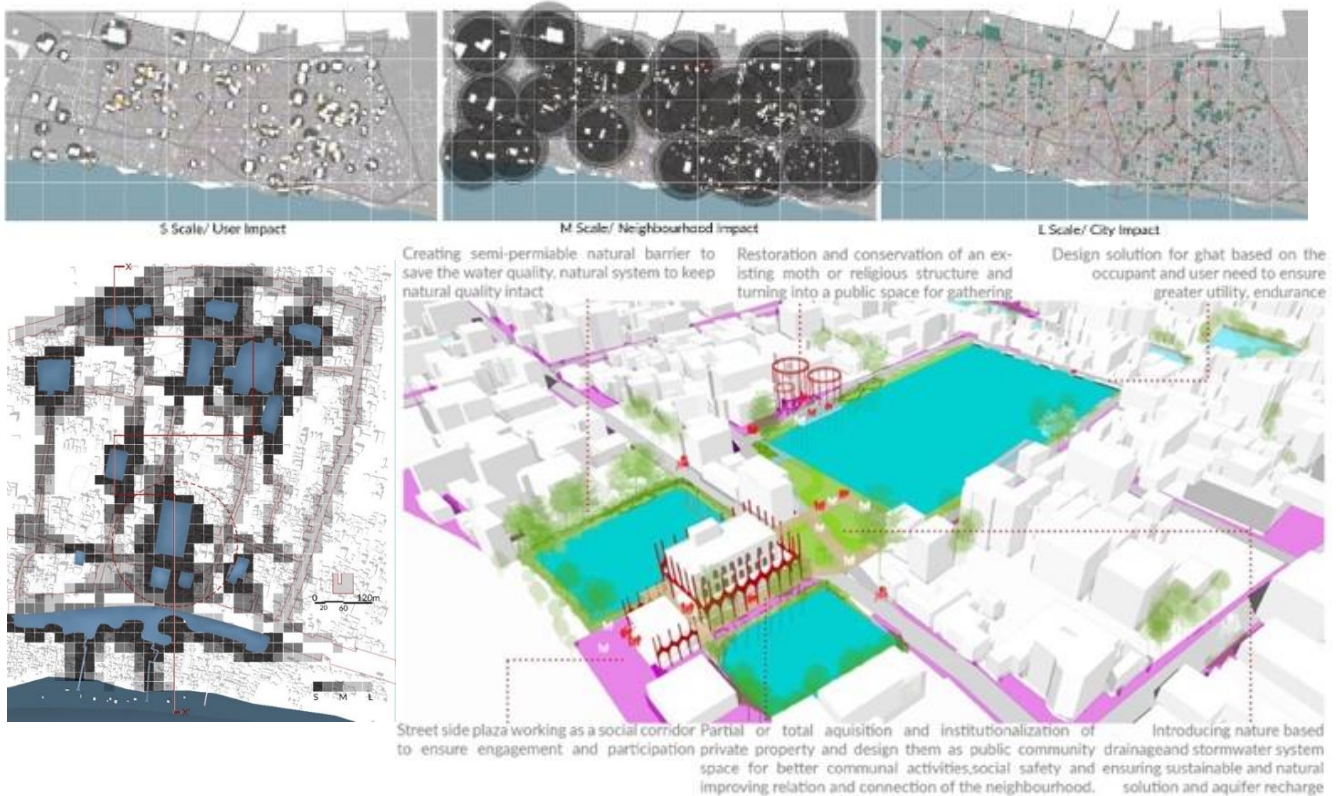


Figure 5. Conceptual Design Implementation in Based on Scale

Conclusion

To remain pertinent in the present context, the cities are in a continuous process of change, readjustment and evolution. Rajshahi city is no exception (Doza, 2008). Transformations, aligned with the innate characteristics and morphology of the city leads to a sustainable urban development. It is notable that Rajshahi has already earned global reputation as one of the cleanest cities and has got the "Environment Friendly City of the Year 2020" award on national scale for its healthy environment and efforts to make the city greener owing to various development initiatives by the RCC. (Harrison and Doshi, 2016., The Business Standard, 2020., The Independence, 2017). It proves the sustainable and environment friendly outlook of the people toward the city. The idea of intrinsic urbanism which is compatible with the inherent ambience of livability is expected to be well accepted and nurtured by the people and the community around the city. The idea of achieving quality of life through the pond-centric urbanism can derive new and appropriate outcome by restoring the intrinsic culture and innovative infrastructure (Figure 7). It can solve the long-term problems of heat dust and water-clogging efficiently to attain sustainable living environment and physical and socio-economical resilience by choice and not by force.

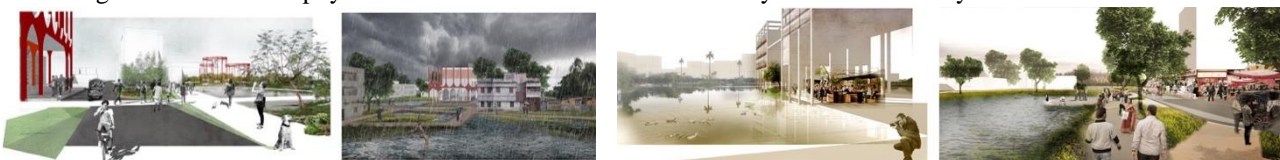


Figure 6. Conceptual Visuals of Pond-centric Urbanism in different spaces of Rajshahi City

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