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Challenges of Upgrading Urban Informal Settlements for Improving Quality of Life: Case of Rupsha Slum, Khulna

Sk. Kabir Ahmed[1] and Sarder Shakil Ahmed[2]

There remains a severe scarcity of urban housing for the poor, which are sufficient, safe, and affordable, and assures a good living environment. In today's global context, this is particularly relevant for 330 million urban households which would increase to 440 million, or approximately 1.6 billion people by 2025. This study aims to identify the challenges resulting from participatory slum upgradation projects that have attempted to improve the quality of life in an informal settlement, in this case, the Rupsha slum in Khulna, Bangladesh. The fieldwork focused on accumulating information on existing threats and challenges regarding the socio-economic and spatial contexts, living condition, local building process based on indigenous adaptive measures, and upgrading scopes of the settlements. On the other hand, the secondary data obtained from literature review focused on relevant policies and frameworks. As found, housing condition in the study area is dismal, leading to poor quality of life in terms of ownership, dwelling condition, health and hygiene, utility services, spatial negotiation etc. This paper proposes Quality of Life (QoL) framework as a means of addressing these challenges by adopting a participatory approach to up-gradation of informal settlements.

Keywords: *Quality of life, Informal settlements, Upgradation*

INTRODUCTION

Increasing urbanisation has been an enormously complex issue for developing countries. Urbanisation includes not only the entrance of the newer cities from the developing countries in the list of the world's megacities but also the turning of the smaller cities into larger ones. Additionally, the traditional rural areas are also being urbanized at a faster rate. The crux of such problem is the spontaneous, ad hoc and unplanned urbanisation. This being one side of the spectrum, on the other side, there is a policy-induced and culturally infused urban-rural development disparity and climate-induced economic and social adversities. Together, these have been continually affecting internal migration – mostly toward urban areas. In the 'urban', the informal sector serves as the absorber – accommodating the incoming migrants economically and socially by delivering low paid jobs and informal settlement options. Actions for achieving the SDGs and tackling the discrimination in development hence requires a bottom-up approach. Improvement of QoL[1] of the urban slum dwellers can contribute to this process. Besides, the trend of increasing population, nearly 1.07% per year is alarming (Dave, 2011).

Due to high population densities, deteriorating urban environmental circumstances and their long-time consequences on Quality of Life (QoL[1]) have become substantial features of deliberation and considerations. These days, towns and cities in developing countries like Bangladesh are evolving rapidly (Sen, 2011).

1. (World Health Organisation Quality of Life Brief Scale (WHOQOL-BREF) is a quality of life (QoL) inventory of four domains: (1) physical health (2) psychological well-being (3) social relationships and (4) environment and social care (Simonelli et al., 2013)

[1] Associate Professor; Khulna University; Bangladesh; kahmed_ku@yahoo.com

[2] Lecturer; Northern University; Bangladesh; shakil.d5bd@gmail.com

Rapid urbanisation since the liberation in 1971 has continued to contribute to a 2.96% increase annually (BBS, SID and MoF, 2017).

Because of the higher cost of housing and lack of standard financing instruments, the growing population has been forced to settle in substandard housing and unhealthy environments manifested in an enormous number of informal settlements with a significantly poor quality of life (Mohit, 2012).

The number of informal settlements in Bangladesh are increasing. The ratio of people living in cities without access to civic amenities has increased to 60.43% during the last 17 years (BBS, SID and MoF, 2017); this is affecting every individual citizen's life and health. Slums and squatters have been suffering enormously in terms of quality of life measured against overpopulation, inadequate basic services, non-contextual housing scheme, and so on (Marans and Stimson, 2011). The urban poor has freshly become susceptible to natural hazards due to the location of informal settlements in peripheral zones. Besides, Bangladesh is considered as one of the most unprotected countries in the world with regard to climate change as 28% are vulnerable to the impact of climate change. Unplanned development has led to inferior housing and the loss of open space (ElMekawy et al., 2015). 31.5% of the country people live below the national poverty line (Asian Development Bank, 2016).

This research aims to find out the QoL[1] based policy initiatives, socio-economic circumstances, and the existing upgradation process in the aforesaid study area. First, this paper conducts a literature review on the living quality and interventions in the upgrading of informal settlements along with various relevant policies. Second, this study identifies QoL[1] factors of existing dwelling and socio-economic conditions, and overall scenario of infrastructure, basic services and utilities of informal settlements. Finally, it recognizes the building process of existing informal settlements and possible upgradation towards QoL[1], that would mitigate existing social, economic and environmental vulnerabilities.

LITERATURE REVIEW

Though urbanisation is an indicator of development, the harsh reality is that poverty also grows faster alongside in urban areas than in its rural counterparts. The condition is worst in developing countries like Bangladesh. Specifically, the slums of Khulna portray a dismal picture of life in slums. Social problems, quality of life, inequalities and well-being are the new territories of human geographic study in this post-modern era for these studies of quality of life benefit an inclusive development of society and country (Jha and Tripathi, 2014).

Quality of Life and Informal Settlements

Singh and Dixit (2010) speak of three key philosophical approaches to defining quality of life. The first approach underscores features of quality of life that are ruled by normative morals based on religious principles and doctrines (Winkler, 2011). The second approach describes quality of life, based on the gratification of choices within the limitations of the assets; people own to enrich their quality of life (Goswami and Manna, 2013). The third classification of quality of life is in terms of the experience of individuals connected with the individual well-being in the behavioural sciences (Wells, Evans, and Cheek, 2016). World Health Organisation's Quality of Life Brief Scale (WHOQOL-BREF) is an inventory of four domains: (1) physical health; (2) psychological well-being; (3) social relationships; and (4) environment and social care (Simonelli et al., 2013). Everyday life in informal settlements frequently poses major threats on health, education and well-being to its inhabitants. Limited access to health and other facilities and issues like congestion can contribute to hassle, violence and distended complications of drugs and other social complications. Service like the provision of water supply, sanitation, electricity supply, roads and drainage, schools, healthcare, and marketplaces are under least considerations. Separate water supply connections to households may be absent, but community standpipes are often supplied through Government or NGO sources. Provisions may be provided for electricity, drainage and sanitation services with low dependence on public authorities (UN Habitat, 2012).

The Community Participation Approach

In the 1980s, the failure of big-scale, state-driven and top-down approaches which overlooked the priorities and necessities of the poor initiating a debate on participatory progress with the idea of 'putting the last first' in the planning of development interventions (Chaiviberst, 1994). Community and democratic participation have still been an essential component of current mainstream development interventions (Rigon, 2014). The Community Participation Approach considers that communities identify their requirements and should be accessed and carried along in the decision-making phase. Participation will not be communicative if people's involvements have no control over choices taken by the organisation to which they fit (Abbott, 2013); active participation is attained through de-concentration and decentralisation. There is mounting demand from various sides for additional local involvement and community inventiveness in the planning and management of the surroundings (Ayers, 2011).

Government Intervention in Urban Upgrading

The extraordinary urban growth confronted with increasing poverty and social inequity in developing countries are posing a gigantic challenge for governments at all levels (Simonelli et al., 2013). The two standard methods applied by the public authorities have been settlement upgrading and sites-and-services. Settlement upgrading has been an alternative where negotiation is extended by the landowner and on an involvement basis too. In case of such land negotiations have not been probable, the squatters have been displaced, where changing levels of "sites"-and-"services" have been delivered with, again land rent or ownership. In terms of "enabling" approach, whereas an alternative of taking a conserved outlook, governments have attempted to generate an enabling setting, under which people, consuming and producing their resources, could discover exclusive indigenous solutions for their housing and shelter concerns.

Slum Policies in Developing Countries

Slums are typically considered and represented as institutional disappointments in housing policy, housing finance, public utilities, local governance and tenure security. Throughout the post-colonial period, mostly during the 1950s and 1960s, the concern for slums in developing countries evolved as a significant part of urban study and guidelines (Bredenoord and van Lindert, 2010). This section deliberates governmental approaches, strategies and policies towards slum since the 1950s. These variations can be considered into three major approaches: integrated control of housing, neoliberal approach and the emerging preventative approach. Besides, numerous policy approaches such as eviction, resettlement and upgrading were embraced to deal with informal settlements (Shams, Shohel and Ahsan, 2014)

During the 1950s and 1960s, urban experts in developing countries paid very less attention to rural-urban migrants who settled down in cities producing more slums. Later, slums concentrated on public housing (UN Habitat, 2012). This approach side-lined the majority of urban residents and overlooked the low-income group; thus, it is now clear that such exertions and resources focused on providing public housing have done with serving a minor portion of urban inhabitants and generally those who were mostly better equipped than the majority (Adeagbo, 2000).

In the 1970s, most governments in developing countries selected for a direct and integrated (State) arbitration, performed through World Bank initiated programs like the site and services scheme. This fixed scheme endorsed the sanction of centrally located slums and their repositioning to freshly serviced plots commonly outside the existing built-up zones. This policy was motivated by affordability and cost-recovery approaches. This scheme highlighted the participation and the contribution of the recipients to the resettlement procedure. Equally, the package recognized and capitalized on the capability of low-income dwellers to organize informal resources. Conversely, local governments were no longer performing as providers rather than as the facilitators, which provided them with some resources (Pugh, 2001).

Largely, the implementation of site and services schemes failed to deal with slum management issues

and there was habitually no facility made for avoiding or reducing the future extension of slums. In the late 1980s, the upgrading strategies highlighted the development of community infrastructure and services surrounded by the established slums (Plummer, 2000).

In short, the upgrading schemes focused on the improvement of basic services (e.g., sewage, water, sanitary, waste collection, electricity) and infrastructure (e.g., road, market, healthcare and education centres) which were decaying in slum areas (Archer, 2010). Upgrading schemes were to be executed with minor intervention of governments than in site and service schemes. The local upgrading approach was politically attractive because it avoided excessive demolition, which was economical per-unit cost than site and service approach and preserved social and economic systems. The upgrading program aimed to accomplish three key goals: affordability, cost retrieval and replicability. The uncertainty of tenure dissuaded slum dwellers' ambition and lifestyle to undertake housing developments or promote individual housing. The lack of a secured tenure also prohibited the actions of public and private service providers (such as electricity, water and telephone companies) to finance in unplanned extents. Furthermore, the upgrading scheme did not discourse the concern of developing slums, nor did it deliver a positive approach to the formation of future slums.

The CWS action plan does not make coherent what actions should be engaged or articulated to restrain the appearance of new slums or slum-based settlements. Equally, there has been no provision or sign of taking actions by various urban 'stakeholders' at all levels (local, national and international) to reduce the burgeoning of new slums. If not, these distresses are appropriately taken on panel, the aspiring 'City without Slums' slogan will have remained just a motto. Unbiased provision of physical infrastructure is a prerequisite for achieving the sustainability of human settlements. Infrastructure provision requires both the product (physical services) and the contextual process to be sustainable (Degert, Parikh and Kabir, 2016)

METHODOLOGY

This study follows a qualitative approach using a case study method because slum upgradation studies require explicit viewpoints, aspirations and motivations in their regular survival tactics of individual households. By inductive reasoning, this approach identifies the key factors regarding the vulnerability of slum dwellings and restoring diverse forms of upgradation of the community as a whole. From the socio-economic viewpoint, responses of the stakeholders through 50 unstructured interviews have been evaluated by content analysis.

The methodological framework is as in the following:

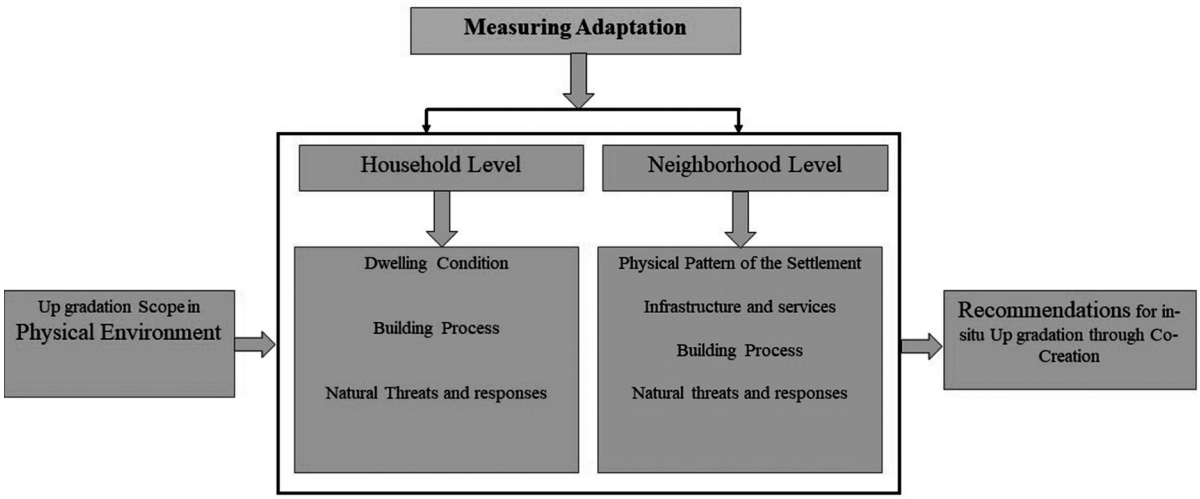

Figure 01: Methodological Framework phase (Source: MScHS Studio 2016-17)

In terms of built environmental aspect, spontaneous physical renovation of the study is evaluated by participatory settlement mapping. Individual interviews were held to have user's opinions on the study area. Observation through site visits and detailed photography were used throughout the study.

OVERVIEW OF RUPSHA SLUM

Location and Geography

Rupsha slum is located within the administrative unit of Ward no. 22 of KCC, about 2.5 km south-east from the CBD of Dakbangla. It is on the west of the Rupsha embankment of Bangladesh and Water Development Board (BWDB) along with the western bank of Rupsha River. Comprising an area of 6.13 acres, the slum is confined by BWDB embankment (locally called WAPDA Road) and Rupsha River on it's east, CARITAS and LGED office premises on the west, Rupsha Notun Bazar on the north and Rupsha bus stand on the south. On average, the area is about 4.5' below the level of Rupsha Stand road (figure 2).

Social Structure

The total population of Khulna City is 6,64,728. Khulna covers a total area of 51 square kilometres. Population density (people per sq. km) in Khulna is measured in 1303. The number of households studied is 157486. The number of slum dwellers is 79827. The total population of Rupsha slum is 16800. The slum covers a total area of 6.25 acres. Population density is about 2688 persons/acre. Average household size is four in the study area (CUS, 2006). Consequently, this high density of population affects QoL[1] negatively.

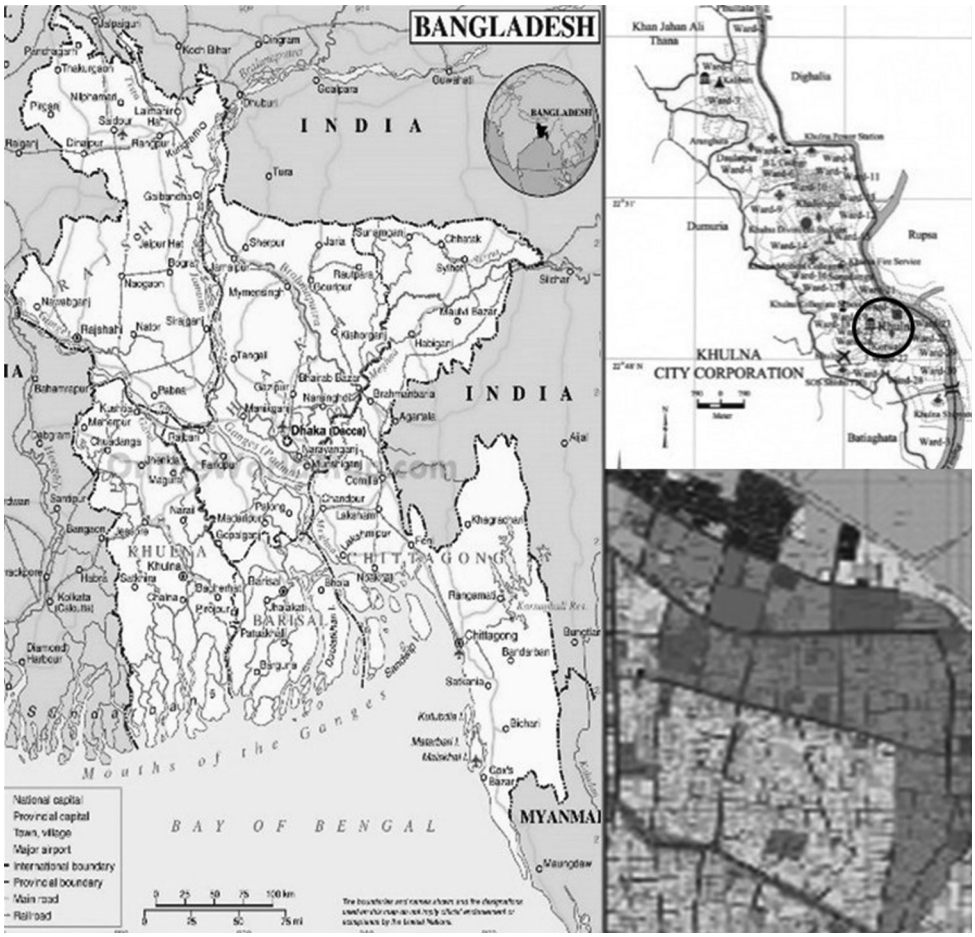

Figure 02: Location of the study site: Three Scale (Source: Adapted and updated from the base map of KDA, 2014)

Urban Functions

In the later phase of the 1980s, Khulna developed itself as a vital node for export-oriented industries, and Rupsha area became the centre of fish processing activities. The settlement is almost covered with built forms except for a large pond at the rear middle part of it (figure 3). There are few clusters of houses found in the comparatively larger single plots within the row houses, which are developed around a minor common service space. The settlement itself is mostly of residential use with a lack of adequate community facilities, infrastructure, vegetation and open spaces leading to poor living conditions.

Economic Activities

In the study area, most of the slum dwellers are day-labourer. A majority work in fish processing industries; others work in shipyards, building construction, saw-mills, while some being self-employed. Unlike the common trend of the society, most of the female members (70%) of the slum are involved in income-generating sources predominantly in the fish processing related works (Haque, Dodman and Hossain, 2014). Some of the householders use their dwelling space for income-generating activities, such as tailoring, fish processing, Katha sewing, carpentry, handicraft etc.

Figure 03: Land use map of the study area (Source: Adapted and updated from the base map of KDA, 2014)

DWELLING CONDITION

Tenure Security

The Rupsha slum is partially owned by the government and partly by a religious organisation – the Khulna Baptist Church Association (KBCA). There has been an ongoing dispute about land ownership between KCC and KBCA. Land ownership has been claimed by both these bodies. In 1985, KBCA recorded the land right from the Settlement Office and formed a Mission Charitable Trust comprised of five members who declared non-transferable ownership for the dwellers. While since the 1990s, KCC has started awarding holding rights and collecting holding tax from different size of plot owners. Lately, KBCA has leased-out part of the land for private use (to develop a park). Concerning this conflicting status of ownership, there exist constant fear of eviction among the tenants. The status of land tenure is a key factor behind the amount and range of adaptation. Impulsive and expected planned adaptation takes place only in case of a comparatively secure tenancy. Tenure insecurity creates a barrier towards a better living environment.

Built-form Condition

One finds both row and clustered type of dwelling units are built on the inner lanes and bi-lanes without any setback from the pedestrian (and also non-motorized vehicle, e.g. van carrying goods) or from adjacent built forms on its three other sides. The built forms are mostly of three types: single-story, double-story, and built form on stilt (Figure 4). Such a built environment with houses erected directly from the common circulation space has contributed severely to the living condition of the slum, combined with lacks in basic hierarchical spaces to support different socio-spatial and cultural requirements of any healthy dwelling environment. Two-storied houses have been found to be better adaptive to disaster situations, for being able to shift accommodation to the upper floor during needs.

However, lane oriented dwelling units face trouble intermittently. There is no scope for climatic consideration. Most of the houses facing west become very hot during summer months. Materials of the built form are largely brick, mud, tin and *Golpata* in the roof

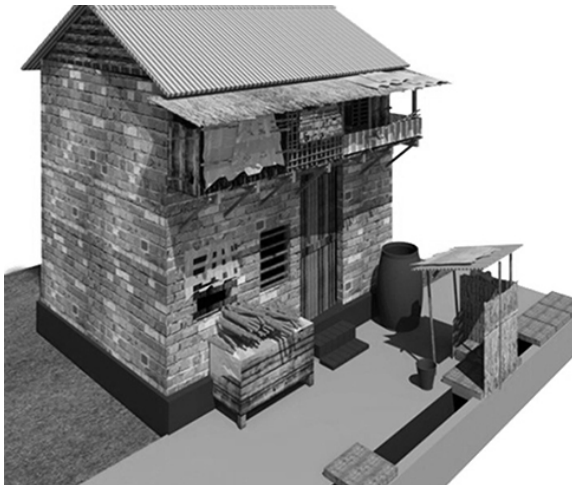

Figure 04: Existing built-up form of Rupsha slum
(Source: MScHS Studio 2016-17)

creates an indigenous appearance. RCC roof is hardly found in this settlement. Brick walls without plaster have been found to be very weak in structural terms as it becomes easily susceptible to natural disasters. Earthen floors have also not found particularly useful for the dwelling units.

VENTILATION AND LIGHTING

The row house layout of dwelling units in this slum produces poor ventilation and lighting here. A limited number of households have windows at their front facade, while no side windows have been found. The entry door on the front façade is often the main medium of light and air for the dwelling units (Figure 5). Normally, the absence of adequate ventilation and lighting makes dwelling units suffocated in all seasons, particularly in summer.

SPATIAL ORGANISATION

The settlement is shaped by a series of row houses with few clustered houses located along the rows. Insufficiency of domestic space has constrained the creation of a better living environment in both configurations. Nonetheless, dwellers have maximized the social logic of both typologies discovering vibrant arrangements of multiple activities. For instance, in row houses, the circulation spine is used as an extension of their house where they perform semi-private activities

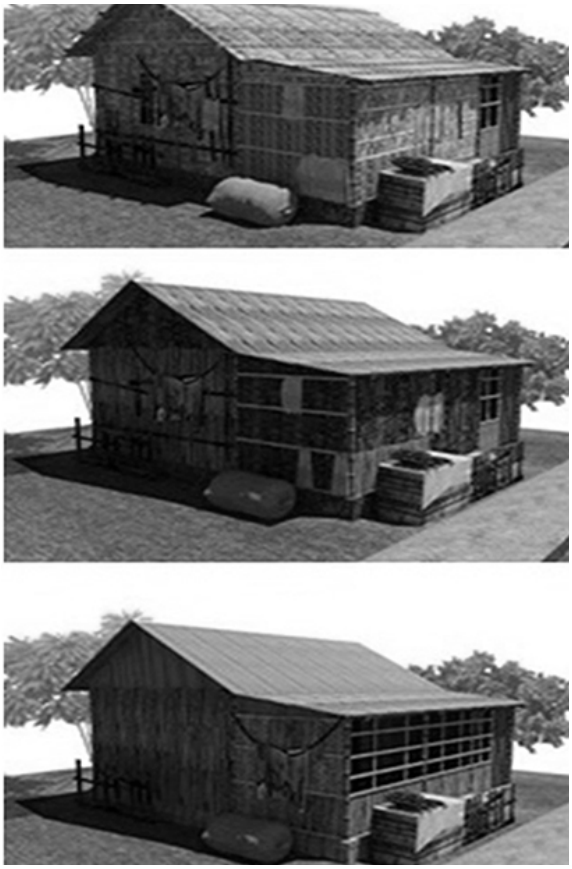

Figure 05: a. 1st phase, b. 2nd phase, c. 3rd phase (Source: MScHS Studio 2016-17)

and neighbourhood social contact. But in clustered house, the shared space is used for private, semi-private and public purposes. Again, regardless of having single space, individual households have formed varied spatial arrangements for diverse indoor space-use within the limited space (Figure 6).

In a single-story dwelling, the service space is found mostly in the front part of the unit. Keeping kitchen outside the house at the entrance permits the female members doing kitchen related works (cutting, washing) (Figure 7) right on the doorstep. While in some cases the kitchen is found outside the house, by the side of the lane.

(a) (b)

Figure 07: (a) Outdoor space used as a kitchen and (b) income-generating space of Rupsha slum (Source: MScHS Studio 2016-17).

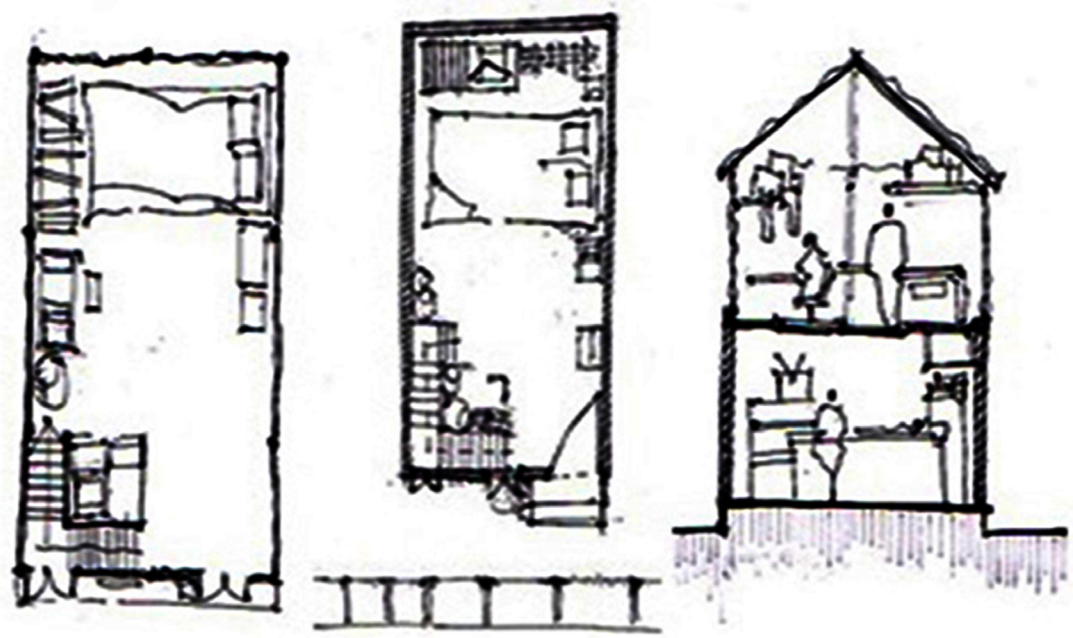

Figure 06: Spatial layout of a single-family household (Source: MScHS Studio 2016-17)

In some cases, the kitchen is located on the upper story with bed and storage spaces. These changing configurations are guided primarily by climatic considerations (comfort and hazards) as well as the cultural inclinations of individual households depending on the size of the family, age of the family members, values, and economic status.

INFRASTRUCTURES, SERVICES AND UTILITIES

Street Networks

The settlement is accessed directly from Rupsha Stand road through six narrow pedestrian lanes (*Goli*). Several narrow bi-lanes crisscross these primary lanes with dead-ends, which problematize emergency evacuation. The internal lanes are paved with low-quality concrete, while the bi-lanes are mostly of brick soling. Nevertheless, accessibility gets interrupted during heavy rainfalls and tidal flooding. The community people elevate walkways during waterlogging by putting bricks on the lanes.

Drainage

The internal drainage system of the settlement comprises of two types of drains: primary drainage lines i.e. box-culvert, and secondary drainage lines i.e. open drains. Narrow open drains on both sides of the primary lanes (Goli) run along the bi-lanes (mostly on one-side) in most areas of the settlement. Drainage systems are not well integrated nor have a proper hierarchy for effective drainage (Figure 8).

Water Supply

In the study area, a single deep tube well is the main source of drinking water at the neighbourhood level. It has been found that only a 600' deep tube well can pump out fresh water. But this practice has not been found at *Muslim goli*. Inhabitants, however, get water from the community mosque located outside the slum for drinking and cooking purposes. Bathing water is collected from shallow tube wells and municipal supply lines. Only two tube wells are located in *Muslim goli*, whereas a total of 42 tube wells are installed within the entire slum area. No private water supply line or tube exists in this area (Figure 9).

Figure 08: a) Covered drain and (b) open-drain used as wastewater discharge of the Rupsha slum (Source: MScHS Studio 2016-17).

Figure 10: Adjacent water body is used as household waste dumping zone (Source: MScHS Studio 2016-17).

Figure 09: (a) Water jar for drinking purpose and (b) single deep tube well is used as household chores (Source: MScHS Studio 2016-17).

Electricity

Electricity is delivered by PDB in this settlement. All dwellers have to pay electric bill per dwelling unit not every single household. The household which has no access to the meter, share the power connection with the next-door neighbour and share the monthly bill per household. The electric meter is not provided in accordingly. Most houses are equipped with electrical appliances like fan, light etc. On an average, each household spends around 300-400 taka/month.

Waste Management

Wastewater disposal system is somewhat suitably managed through the community provided drainage by UPPR (by UNDP) at the neighbourhood level. Household wastewater is discharged to drain and wastewater to the neighbour's pond. All the sludge and contaminated water from toilets, which are discharged to open drains create contamination (Figure 10). The community has its own committee to manage waste disposal by hiring sweepers in every six months for cleaning up sludge from latrines.

Sanitation System

All the neighbourhood toilets are provided by UPPR, NABOLOK and CARITAS (NGOs). Now there are four to five toilets on every street. One toilet for approximately ten households creates a long queue during morning hours, while day labours are in a great hurry. Personal toilets, however, is very rear. Only four to five families have personal toilets with inadequate space and unhygienic surroundings. Septic tanks are almost non-existence in this slum. The *chari* system is used for taking sludge from toilets and disposed the polluted waste to adjacent water bodies and drains.

BUILDING PROCESS

Finance

A community fund has been developed by the dwellers of Rupsha slum, which is known as a community bank. Community development committee (CDC) plays a vital role in forming the group by selecting the members

Figure 11: Self-repair process of a slum dweller (Source: MScHS Studio 2016-17).QoL

from the community. Many individuals also provide personal loans to the residents of the slum. On the other hand, the personal fund is used in the construction of their own house. Moreover, the self-build process supports to reduce construction cost.

Construction

Households deploy a wide variety of construction materials for building houses depending on: availability of materials; affordability of the family; climatic hazards; and climatic comfort. Most of the dwelling units are temporary (*Katcha*) construction built with organic materials such as bamboo, wood, golpata, thatch, mud, and found materials such as plastic sheets, jute sack, hardboard, paper etc. As well as, during the survey, it was found that, twenty energy-efficient cookers were being used by the slum dwellers who are the members of the community clusters directed by the concerned NGO.

Maintenance

Anticipating disaster effects, and based on affordability, households prefer more permanent building materials. Commonly, the households have unique ways to reduce heat through the use of maximum perforation in walls, open windows without shutter, partially open ceiling and roof to allow sufficient cross-ventilation. They also make use of heat-absorbing materials. At the lower level, they use durable materials like brick so that it could withstand floods and waterlogging. They use a sloped roof for better runoff of rainwater. Usually, individual skills about construction support them to the maintenance of their house that includes the plinth, partition wall, roof etc. (Figure 11).

APPROACHES and FRAMEWORKS

A lack of adequate and affordable housing has often been the major problem of informal settlement inhabitants. Therefore, any effort to attain a habitable and healthy informal settlement must address the housing issue. This means that there must be a strategic effort concentrating on the establishment of adequate and affordable housing for the poor at a reasonable rate. This can be accomplished through diverse approaches and frameworks such as site and services, comprehensive housing, cooperative and participatory housing and other 'bottom-up' or 'top-down meets bottom-up' approaches and schemes. Besides, there is a grave concern for land tenure, as land is a key element of housing provisioning. It is difficult to deliver adequate and affordable housing and basic facilities to the poor, where the tenure of land is volatile.

Furthermore, dwellers of informal urban settlements can be motivated to improve housing quality and general micro-climatic settings of their settlement by involving them through a co-operative approach. Besides, intervention at the policy level would benefit tenure security and the provisioning of basic facilities. Upgrading their living environment support the poor in their vulnerabilities to social and climatic issues as well as improving their economic condition. But at the same time, the security of housing and land tenure is expected to support the poor, overwhelmed by the problems of urban living. Settlement and unit design should also allow autonomous, self-funded and incremental development. Consequently, strategic planning should be conducted and implemented to develop the livelihood of this class of people. Their means of employment which is focused on the informal sector should be acknowledged and conserved through proper policy-making and implementation.

If a prescribed urban planning system is considered to improve the overall facility of informal settlements, the strategy and implementation proficiency of government and the housing sector, and the array, accessibility and affordability of urban housing to be advanced, this research recommends the execution of necessary policies and planning, physical infrastructural improvement, socio-economic development, improving government monitoring of all organisations accountable to improve informal settlements. So, the informal settlement cannot be deliberated as an aberration but rather as a reaction that truly represents in terms of the needs and requirements of the poor to access the urban services and amenities.

This study recommends extensive efforts on mitigating the poverty of the slum inhabitants, upgrading the level of infrastructural facilities and socio-economic circumstances to warrant a healthy, habitable, thriving and maintainable human settlement leading to the inhabitants' overall quality of life. From the literature review and empirical observations, we recommend that relevant changes in policy-making, shifting from a top-down approach in planning and housing policies focused on community development should be implemented to reinforce upgradation of the settlement assuring QoLi by the community, of the community and for the community.

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