

Dhaka Slums: Existing Low-Income Settlement Morphology May Provide a Community Inclusive Mechanism for Slum Redevelopment; Case Study: Korail and Beribadh Low-Income Settlements

Urban slums typically generate from distress migration from rural to urban areas as a consequence of financial crisis; the displaced population takes refuge in saturated poverty stricken slums referred as informal settlements. Slum dwellers have low living standard and are deprived of basic human rights. These are sporadic organic developments erected from daily needs and could be termed as, “rural settlement in the urban morphology”. Despite being prone to harsh environmental conditions slums display resilience through their coping mechanisms. Their building types may instruct the contemporary architecture to use minimal services and encourage multiple uses of individual spaces through the practice of optimum space usage. The study tried to give the existing grammar a direction where it will evolve with community participation without imposing an expected end. Their lifestyle may dictate on how to effectively implement the development with their adaptability and affordability.

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INTRODUCTION

The expansion of slums occurs due to rapid urbanization, as the rural population expects to eliminate poverty by joining the informal urban economy. As stated by UNICEF (2010, November) by 2015, due to urbanization, the population of Bangladesh in urban areas is expected to increase to approximately 50 million people. Due to poverty they suffer from malnutrition, unhygienic living

conditions and health hazards. They are deprived of health services, financial stability, education and basic human rights. Despite all these their existence is now a defacto in the urban society. They are primarily tolerated due to vested social, economic and political interests. Due to shortage of land, low-cost housing and infrastructure the unplanned areas result to be the breeding ground for slums. As stated by UNICEF (2010, November), the situation is precarious with an approximate five million slum population in the six largest cities of Bangladesh. These slum dwellers live with a daily threat of eviction as they have no land tenure security. They illegally occupy abandoned government and private land. It is estimated in CUS et al. (2006), that the informal settlements in Dhaka are located on 25.7% government land, 70.3% private land and 4% on other types of land.

OBJECTIVE

The objective was to analyze the synthesis of slums which may aid us to relearn innovative building and planning mechanisms. This paper attempted to unfold the lifestyle of the urban poor and acknowledge the coping mechanism they have generated from their limited opportunities. The study tried to comprehensively observe the settlement scenario of two low income residential sites, Beribadh housing and Korail slum, to learn the approach to sustain in their prevailing poverty.

METHODOLOGY

The field survey, conducted in 2011, of both Korail slum and Beribadh area required site visits to observe the house typology, social connections, their preferable commute to work, infrastructural deficits and economic constraints of the urban poor. The survey conducted informal interviews to gather daily life information. These interviews covered areas such as their education, occupation, health, expenditure, violence, basic infrastructure, coping mechanisms and housing information. Digitalized maps of the study area were made to understand the built mass-open space ratio and its integration with the entire neighborhood. A few case studies were selected randomly for three dimensional studies of building materials, zoning of facilities, day light availability, ventilation and the coping mechanisms they incorporate in the dwelling.

Considering the findings the paper proposes strategies and attempts to rethink an alternative slum upgradation approach for the urban poor.

LIMITATIONS

This paper is from a single perspective and requires view of other professionals to mature. Hence assumptions had to be made from the surveyed case studies. A proper study would include close observation of all the inhabitants, analyze each household and properly understand their integration with the social structure.

CASE STUDIES

KORAIL

Koral slum is a peninsula, encompassed by the Gulshan Lake, in contrast to the posh residences and commercial high-rise at the other side of the water body. It manifested in 1980 initially on the high ground and has grown rapidly ever since, expanding towards the low-lying areas and the water edge due to land shortage. The slum now covers approximately 80 acre area and perhaps more. According to the inhabitants, it now has a population of around 120,000 living in approximately 15000 household. Each room of the house is rented to a family of 5 members on average. The income range, per family, of Korail slum dwellers is 5000

to 17000. The house rent varies from BDT 800 to 1600. The house rent is much cheaper in the flood and soil erosion prone edge. The rents are higher for safer locations with good infrastructure (road, gas, electricity, water and sanitation). Typically most households in the slum are provided with illegal connections (gas, electricity and water). Limited infrastructure of drains, latrines and water points exists, which were made by some NGOs. NGOs are providing micro-credit assistance. Some NGOs are also working on environmental development and health sector. Apart from the various types of education institutes there are orphanages, mosques and marriage registration offices in the slum. Residents commute to work by boat as it is a cheap and quick mode of transport, if compared to the choice of using the busy roads with no pedestrian crossing.

BERIBADH HOUSING

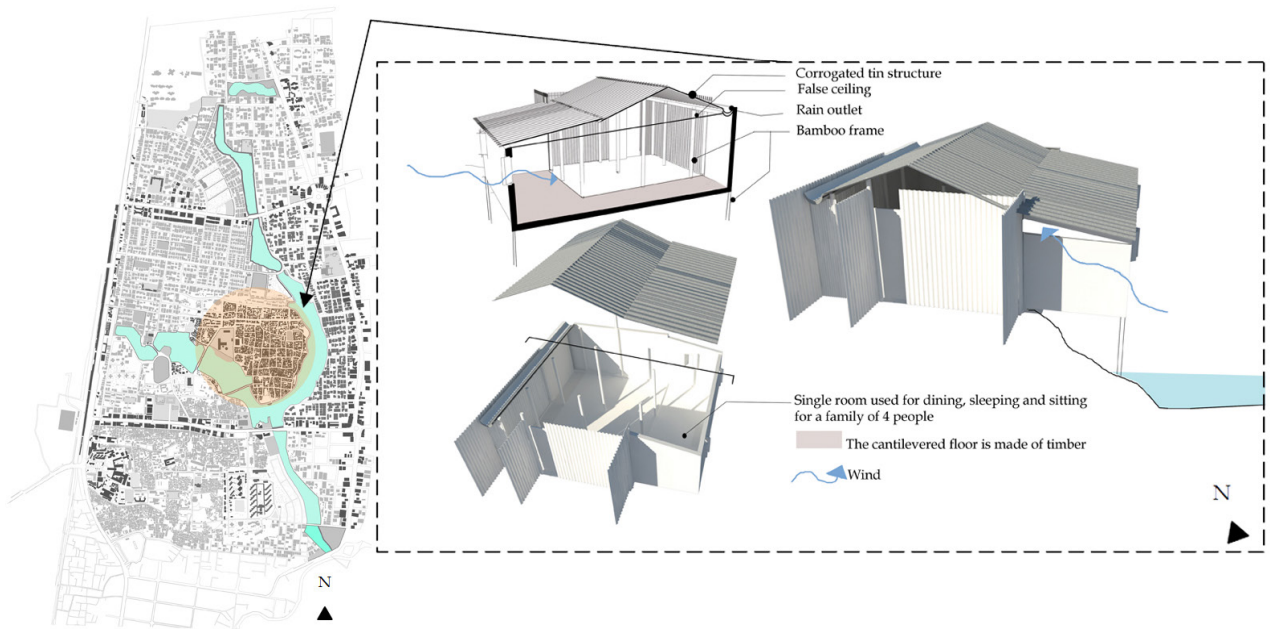
The Beribadh community, like any typical low-income settlements, is located adjacent to a natural water body the Turag canal. In Mohammadpur middle-income residential area many housing have emerged due to an existing neighborhood infrastructure. Since they are accommodated legally the distribution of electricity, water and gas are from legal sources. The health, education and religious services are availed from the surrounding locality. But the road network is not well maintained with inadequate drainage, which floods the area during monsoon. As seen in Korail slum this community also suffers from unhygienic sanitation and improper waste management. The children have no play fields and has only access to street nodes, roof and cluster courtyards for recreation.

The study was concentrated on Turag, Dhaka Uddan and Nobodoy housing. These three areas, though they are not slums, exhibit typical characteristic of informal settlements. The permanent structures are made of brick with tin roof. They were made on private land for rental purpose. As in slums, each room of these houses is rented out to a family of five members on average. The kitchen and washroom facilities are shared by all the dwellers in the house, typically ranging from 30 to 60 people. Their average income, per family, ranges between BDT 4500 to 25000. Their rent varies from around 2000 to 7000 BDT. If the unit has two rooms for each family with separate wash room and kitchen 6000 to 7000BDT is charged. They pay about 40 to 50% of their income in rent but prefer this housing over slum. Hence it can be deduced that all low-income groups do not reside in slums.

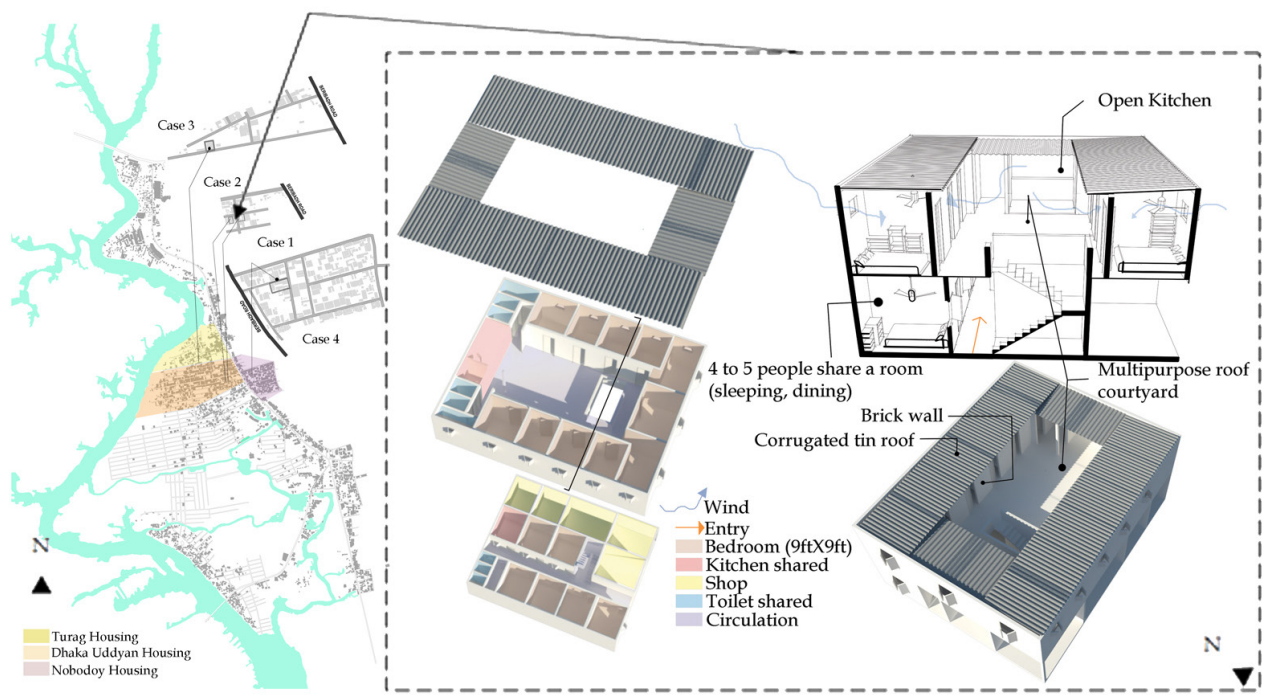


Figure 1: Location of Korail slum and Beribadh area in Dhaka city map.

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In case 1, shown in Figure 3, rent per room is BDT 2000. The average income per family is BDT 8000. The total number of occupants is 65 to 70 people in a land of 2800 sq. ft. Their density is, 1000 people per acre (0.02 people per sq. ft), same as Korail.

OBSERVATIONS

ARCHITECT GOPALAN NAIR SHANKAR (CHAIRMAN OF HABITAT TECHNOLOGY GROUP)

Architect Shankar explained to me his philosophies on slum upgradation as he have experienced decades of slum renewal challenges. He said it should be a

Figure 2: Plan of Korail slum (Orange portion) in Gulshan context and detail of typical dwelling at lake edge.

Figure 3: Location of Beribadh Housing surveyed areas and details of case 1 in Uddyan housing area.

city-whole approach diffused through social networking to comprehensively cover all its aspects. The strands he particularly mentioned were housing, infrastructure, community coping mechanisms, education, occupation, health, expenditure and threats which would aid anyone to know the exact circumstance of the slums. He said once their circumstance is perceived and their issues identified, through interview and group meeting, a comprehensive participatory plan might be developed. The entire team of professionals and beneficiaries has to be trained to determine an interactive transparent mission. The existing coping mechanisms should be utilized in the development strategy. Sustainability should be established purely from available, renewable and affordable materials and techniques. The slum population should be made independent through training, awareness and capacity building; this will help them reserve their own identity, but they will be aided whenever necessary. They should be provided subsidized loans to develop housing. These neighborhoods would then require water supply, sanitation, electricity, health care, educational institutes and religious facilities. Such neighborhood development can be designed during town planning revisions to ensure land tenure.

THE EIGHT BASIC STRANDS WHICH MAY AID TO DICTATE THE SLUM INTERVENTION ARE:

An Observation On Urban Slum Housing Noted From The Studied Areas

The ubiquitous characters of these situational slums are that they are sporadic, substandard, illegal and unsupervised in plan; with high population density residing in the saturated slum area, with dwelling units placed in close proximity. They often settle randomly near natural resources, such as water body, to depend on. Their dwelling layout though resemble rural plans is rather modified according to their urban socio-economic context. These structures typically contain a naturally illuminated courtyard. The open courtyard, shaded by the surrounding structure, is a multipurpose space for cooking, playing and socializing with visitors. The central opening also provides ventilation access to the encompassing rooms. The enveloping rooms include rentable rooms, shared kitchen, shared washrooms and shops. Each family, of four people on average, resides in a single rented room; performing activities such as sleeping, dining and socializing in that limited space. Usually the room size is between 100 feet to 150 square feet. It is a situation where a definite dimension of a space is optimally used through various functions performed at different time.

They have innovatively reestablished their indigenous construction methods to sustain life in adverse conditions employing affordable, locally available, renewable and environment friendly materials (as shown in figure 4). These makeshift dwelling can be easily made within a short span of time with reused materials if it collapses.

Slums are vulnerable to some probable disasters such as fire, earthquake and structural failure of building. The structure does not follow building codes and are often constructed on hazard prone areas. These ad hoc settlements are poorly maintained due to financial constraints and may collapse due to heavy wind, thunder storm, soil erosion, flooding and earthquake. The flammable materials risk fire hazard; and since the structures are in close proximity, one ignition is a threat for the entire community. Due to the congested settlements and insufficient green fields heat is generated.

Infrastructural Deficit An Agent Against Slum Upgradation

The slum locality lack essential infrastructures necessary for daily life. Slums have inadequate drainage, sewerage disposal, sanitation, garbage collections, legal gas

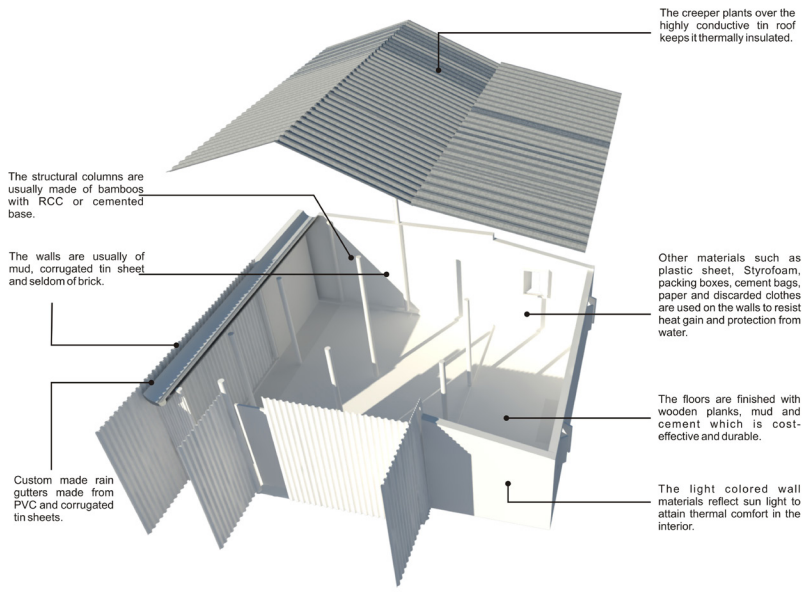
supply, clean water and electricity connections. To avail television cable network, gas and electricity services illegal connections are made from the surrounding areas. Gas is sometimes substituted with cheap fuel hazardous to health. Due to water shortage bathing and laundry is mostly done by lake water consequently polluting it.

Some attempts have been made by NGOs, in collaboration with Dhaka water supply authority, to build water points with tube wells, latrines, bathing and laundry facilities. Hanchett, Akhter and Khan (2003, October) provided description of such similar settings by WATERAID. The limited scales of such attempts are primarily due to sudden evictions which discourages large investments.

The roads, accessing slums, remain unpaved; which with time narrows down due to encroachment by lower-income group housing. During monsoon slums are inaccessible through these narrow, slippery roads hampering commute to work, education and health care. The flood water accumulates, inundating the settlements due to inadequate drainage. The water edge is not secured with dyke allowing water inside slum area during rain. There is inadequate open green space, to absorb flood water. The available green space is primarily used to grow eatable vegetation.

Tracing The Community Coping Mechanisms And Social Network In The Unplanned Settlement

Their coping mechanism is evident due to their persistent efforts to survive through hard work, hope and community bondage. These people exhibit resilience during financial hardships and environmental hazards by their social networking and climate resistance adaptability (as shown in figure 5). This existing community cohesion in the form of savings or loan group, social mitigation, moral counseling, voluntary participation and sharing of services in multifunctional spaces may all be put to use in mainstream urban planning and policy making.

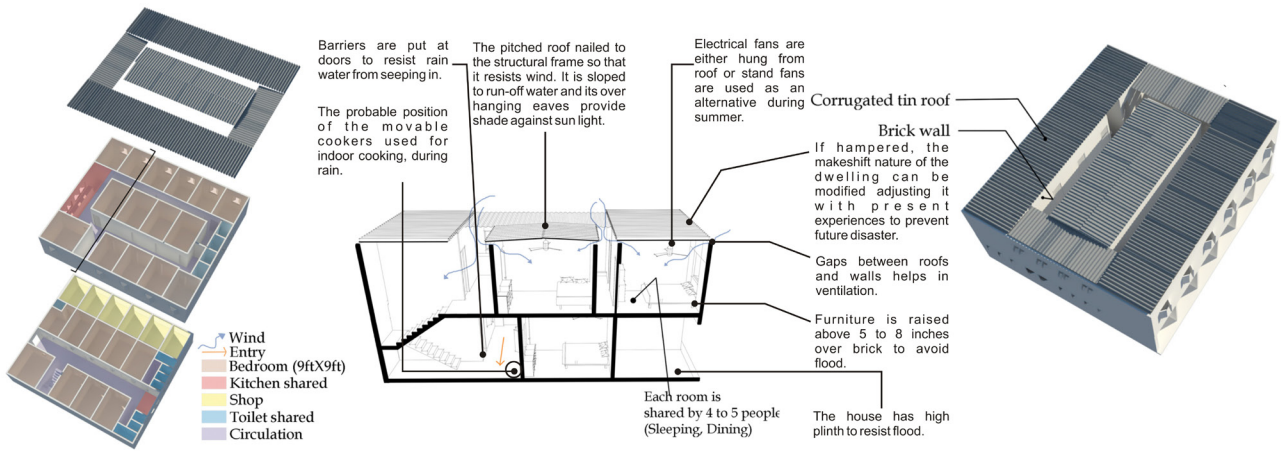


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Education

Illiteracy prevails in the lower income group as they think education is luxury as the class room theories can never be applied to work. Rather they prefer that their children become earning member of the informal economy. According to the

Figure 4: Illustrates the choice of materials in slums.



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Labor code, children may start working at the age of 14 provided certain working conditions and hours are followed; but the policy is not followed in most cases.

In Rashid (2004) survey, the average age of a girl to get married is 13.5 years due to poverty, fear of gang violence, sexual harassment, male dominated society, tradition and that dowry were small for younger brides. UNICEF (2010, November) indicates that the net absence ratio, drop-out and repetition are highest among slums if compared to rural and urban percentages.

Occupation

Slum residents are employed in hazard prone work environment, with minimal wage, no job security and in utter violation of labor right. They work with improper sanitation facilities and unclean eating areas, for more than twelve hours a day, which persistently deteriorates their health. Due to low literacy they get trapped by irrational business ventures and creditors, getting engulfed in a vicious cycle of loan repayment. High interest loans prevail in slums; the interest is so high that the principle amount is never paid. For example, 2000 BDT interest per month for a loan of 20,000 BDT for a family earning less than 6000 BDT. As stated by World Bank (2005, January), poverty line is estimated at an income of \$1.25 per person per day. The gross average income range of slum dwellers is BDT 4000 to 17000 a month per family (4 /5 members). The amount is around \$ 0.4 per person per day which is below the poverty line. As stated by United Nations Development Programme (2013, October 3), Bangladesh has an urban population of 40 million out of which 21% live below the poverty line. As mentioned by Islam (2005), 20% of urban population is "hard core" poor with less than 2500 BDT income per month. Approximately 45% of the slum populations are independent income earners with the other 55% being the dependent population.

Health and disease

Their condition compels them to live with factors such as inadequate infra-structural service, substandard living conditions, unpaid extra working hours, unhygienic working place, poverty, nutritional unawareness, lack of pure water, unhealthy diet practice, congested environment and improper sanitation-sewage-drainage-garbage disposal; these play a vital role in the persistence of the diseases. There is a practice of availing medical help from individuals such as pharmacists, traditional healers, home birth attendants, herbalists and homeopathic; as professional doctors have high consultation fees.

Figure 5: Case 2, in Uddyan housing area of Beribadh community, Illustrates various techniques to evade natural hindrances.

Expenditure

The Low-income slum dwellers spend a large percentage of their income on food, house rent and availing services (gas, water and electricity). Slum rents and service charges are higher, than non slum areas, due to tenure insecurity and illegal connections; supplied by the god fathers who exploit the poor. A small percentage of income is spent on health services and education. Other expenditures include soap, clothes, betel leaf, hair oil, transport and recreation. Their savings are sometimes spent on luxury items such as mobile phone, furniture, television sets, television cable networks and radios.

Violence and Threats

As mentioned by CUS et al. (2006), 77% slum population of Dhaka live in rented accommodations. The rented population in slums lives under the threat of eviction, which is sometime very inhumane in nature. This is the most severe threat slum dwellers live with. Gender-based violence is evident towards female members of the community. Such violence is mitigated by the landlords and neighbors. Female workers return home early due to threat of sexual harassment, hijack and kidnapping.

Sometimes men are arrested, without any valid reason, during political turmoil. Abuse during collection of service charges is also common.

IN THE PURSUIT OF SOLUTIONS

PROPOSALS TO ADDRESS THE VARIOUS STRANDS OF URBAN SLUMS ARE AS FOLLOWS:

(i) A government authorized tenure security has become mandatory, to ensure investors, for further infrastructural and housing development in the slum locality. As slum dwellers exist in their locality due to the connectivity of the site to the services they daily avail; and also that in the location they have a social network to aid each other at times of difficulty.

(ii) After achieving tenure security infrastructure can be developed through investments in various sectors. Shared facilities are advised due to acute space shortage. The illegal connections (TV cable, gas and electricity) should be legalized to reduce service charge. The sewage, drainage, garbage collection and water treatment system might be initiated through community participation.

(iii) Education Policies may include an alternative approach of practical skill training to enable them for independent small-scale businesses or to get involved in the job market. Education might be encouraged through other incentives valued by the slum dwellers. Such incentives may include stipend schemes, job availability, social recognition and self identity.

(iv) The slum population fear to avail professional health services due to poverty. The high density of slums requires more hospitals, pharmacies and mother-child clinic. Schemes to serve different income groups may involve lowered fees or free diagnostic test, affordable consultation by MBBS doctors 24 hours per day and subsidized medicines. The slum dwellers particularly insisted on all facilities such as doctor's chamber, pharmacies and diagnostic test to be in one place; to ensure quick treatment.

(v) Awareness has to be diffused in the slums about family planning services, timely vaccination and birth control measures. Attempts to educate about dietary needs, cleanliness, post-defecation measures, consumption of clean

water and the use of hygienic latrines are rudimentary. Awareness might change orthodox mindset on early marriage, overcome male dominance, prioritize education over informal part time jobs and inform about human rights.

DESIGN INTERVENTION

What might be the design process for the habitat of these influx informal economy workers? National Housing Policy 1993 ensures shelter for all, especially for the low-income and deprived people. The approach initiated is intended to give the inherent grammar a direction through community participation, user adaptability and their affordability. There are two basic possibilities. The initial one is to accommodate design strategies in the existing slum morphology. It would be a futile attempt if the existing morphology is replaced by environmentally insensitive forms alien to the urban poor. The latter is rehabilitation through relocation, by rebuilding an entire neighborhood with provision of rental or self-owned (through subsidized loans) housing. The investment for service infrastructure and housing can be recovered, free of interest or government subsidized, from the beneficiaries. Relocation is only mandatory in case slums are in hazard prone areas, when the lives of slum dwellers are threatened, but only with informed, deliberate compliance and unbiased compensation of the slum dwellers.

In the cityscape of Dhaka a gradient is formed with the high-rise apartments and the one storied squatter settlements usually adjacent to a lake. The focus of the gradient is in an urban void i.e. the slum situated in the concrete urban fabric. This space, if designed, might be a place for community recreation linked with various promenades of the waterfront. The water edge could be substantially treated with walkways, planter box and railings to discourage encroachment. This will then display the same slum scenario but with a different perspective; exhibiting a desired rural settlement in the urban morphology.

It is about prioritizing with existing needs and future circumstances when it comes to choosing materials for slum redevelopment. The new materials have to be available, cheap but also in accord with durability and easily repairable in absence of professionals. The skills required to undertake such construction might be taught during the community participation process. The existing community bondage and saving groups might be promoted to gather fund for natural or health emergencies, incremental development of surrounding and education. The slum community already possesses skills, taught from their rural family lineage, which might be utilized on field for a cost effective implementation.

The new neighborhood would ensure shops, education institutes, religious facilities, health care, playgrounds, housing for different income groups, proper infrastructure of roads ensuring convenient access, amenities such as water reservoir and distribution, rain water harvesting, water treatment plant, electricity substation, solar based electricity, sewage discharge and treatment are equally vital to the master plan. There should be ample green for water retention and recreation. An urban planning perspective is strongly required during slum upgrading or rehabilitation. A proper ratio of built area and void unbuilt area maybe maintained for playfields, community spaces and courtyards; offering variety of function at different times of the day. Such open space would provide a green relief to the urban cityscape, repeating the existing city gradient in the neighborhood. The subsidized self-reliant housing, considering user affordability, would evolve incrementally in phases; giving liberty to the dweller to choose from a variety of proposed modules. Variations in housing type may come from considering growth

pattern of population, functional requirement, need of different income groups and family size.

DISCUSSION WITH ARCHITECT KHONDAKER HASIBUL KABIR (SENIOR LECTURER AT BRAC UNIVERSITY)

As I tried to know more about slums I started appreciating the work of Architect Kabir, who has been diligently working to develop slum communities and their aspirations. To him slum renewal is not only about architecture, rather if it is to

be designed, we should initially address their primary needs and their respective issues. In case for In situ upgrading of slums their situation should be upgraded in their existing morphology rather than uprooting them from their daily set of activities, networks and services. The initial step is to communicate to know their situation, demands, needs and issues. Then there should be a housing plan which will give them incentive to save money; provided there are subsidized housing loans and legalized land for low-income settlements. This participatory approach should not be confined within a zone; rather the skills have to be diffused to other slum localities, so that others might also want to improve their condition of living. According to Architect Kabir everything is a building material. He suggested if they already have any stored building material, a house should be made with it than to invest on new materials.

CONCLUSION

In future, slums can be prevented through effective land monitoring measures. Any new low-income housing settlements and the existing ones may follow a certain building code for an incremental development. This will cease unsafe sporadic settlements, ensuring a proportionate built-open space ratio. The proposed diverse settlement, of alternative output, will have to consider the urban strata. It might become a symbol of rural life in the cityscape and a space of relief in the concrete urban jungle. The expanding slum will merge in the cityscape through the incremental development. But it must be acknowledged that these self-sustaining settlements and its users have much to teach. They are designers of optimum space usage; and the builders of sustainable abode using environment friendly, available and recycled materials. They exhibit resilience through their persistence in adapting to climate. They do not hesitate to remake their habitat in case of natural calamity, readjusting prior flaws.

ENDNOTES

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