

Analysis on Slum Housing Situation in Rajshahi and Dhaka City and Proposal for Decent Shelter

S. A. SHANTA¹, S. AFRIN², M. KAMRUZZAMAN³

¹ Graduate Student, Department of Urban & Regional planning, RUET, Bangladesh (shabrinaurp@gmail.com)

² Graduate Student, Department of Urban & Regional planning, RUET, Bangladesh (s.afirin.anna@gmail.com)

³ Professor, Department of Civil Engineering, RUET, Bangladesh (kzaman93@gmail.com)

Abstract

In Bangladesh lowest land person ratio with high land price leads to more densely populated housing like slum. But there is no new housing development project targeted for the urban poor by private sector and the current low income housing approaches of the government seem to fail to reach the poor. The study aims at analyzing the existing housing situation of slums for planning decent shelter with required financial planning within the affordability of the low income people. Study areas have been selected on the basis of density variation from Rajshahi and Dhaka city. The scenarios of occupied space, rent and monthly income of Dhaka slum differ remarkably from those of Rajshahi. Financial planning has been proposed concerning the estimated cost of proposed housing and cost recovery. The unit planning, design materials and costing was proposed in such a way so that it remains within the affordability range of the target people of the slums.

Keywords: Slum, Rajshahi, Dhaka, Affordable housing, Cost recovery

1 Introduction

In developing country like Bangladesh, the rapid emergence of slum results not only from shortage of housing but also from low earning of poor classes for their involvement in less productive activities. The basic factors those are responsible for the acceleration of slum growth are immigration, industrialization, informal sector policy, policy of government and others (Das and Meher, n.d).

Due to lack of easy access to housing finance and basic services, the disadvantaged urban population living in slums have continued to increase in the cities of developing countries (UN-Habitat, 2003). For this reason compared to the increased demand, the supply of housing, basic services and other facilities is far from being adequate in terms of both quality and quantity (Bari and Efrogmson, 2009). In our country most conventional housing institutions serve only middle and higher income groups as a result poorer class are deprived from affordable decent shelter facility (Kamruzzaman and Ogura, n.d.). The government of Bangladesh undertook some housing programs in order to rehabilitate the low income people such as the Vashantek Rehabilitation Projects in Mirpur and Dattapara Rehabilitation Project in Tongi (Begum and Amin, 2012). But unfortunately these two projects could not reach to the target population and failed to produce desired outcome in terms of cost recovery and affordability (Nawaz, 2004). As a result, more practical approach is required to find out to rehabilitate the low income people in a most efficient way. For research purpose three hypothetical study areas have been selected on the basis of density variation where two slums of Raipara and Srirumpur from Rajshahi and one slum of Geneva camp from Dhaka city.

2.1 Objectives and Methodology

The aim of the research is analyzing existing housing situation of slum dwellers on the basis of occupied space, rent and affordability, proposing a range of decent shelter model for the target population and finally deriving an efficient financial planning for the shelter models. Following the formula of Miller and Brewer (2003) a total 270 sample size has been determined from three study area. Primary data has been collected for the study through structured questionnaire survey using random sampling technique. Some basic information relevant to the research like the occupied space for dwelling, amount of rent, affordability, condition of utility services, community facilities and some other information were collected. Statistical analysis has been performed basically based on collected primary data.

2 Current Housing Characteristics

2.1 Typical Layout and Ownership Characteristics of Housing

The typical layout of the dwellings of the three slums shows the unplanned and congested housing pattern. The study identified that in Raypara and Srirampur respectively 74% and 67% slum dwellers own their housing structure among which 4% and 24% own both land and structure. In case of Geneva camp 42% of the slum dwellers own their housing structure in public land. About 51% of the slum dwellers are tenant in Geneva Camp which is greater than the other two areas. In Srirampur and Raypara these are respectively 28% and 22%. About 7% of the households interviewed in Geneva Camp are freely occupying their dwellings.

2.2 Type of Dwelling Structure and Occupied Space for Housing

The study revealed that majority of housing structures are katcha in Raypara and Srirampur which are constructed with common materials such as mud, bamboo, etc. Only 4% of houses are pucca in the slum of Raypara. In case of Geneva Camp majority (65%) of the houses are pucca which are multi-storied buildings and only 26%, 8% and 1% respectively semi-pucca, katcha and jhupri. Average housing unit size and occupied space per person in each study area have been depicted below (please see Table 1).

Table 1. Average housing unit size and occupied space per person.

Name of the slum	Average housing unit size (sq. ft.)	Average occupied space per person (sq. ft./person)
Raypara, Rajshahi	344	93
Srirampur, Rajshahi	145	36
Geneva Camp, Dhaka	63	14

Source: Field survey, 2016

2.3 House Rent

The percentage of rental housing is comparatively very low in Raypara and Srirampur. Among the renters, majority pay house rent less than 2000 BDT. On an average they pay 14 BDT for per square feet space per month. But the scenario is different for the Geneva Camp, it has been observed that people are mostly renting rooms. Among the tenants, majority (51%) have house rents more than 3000 BDT including utility charge (please see Table 2)

Table 2. Amount of paid house rent by maximum household.

Name of the slum	House rent paid by maximum household (BDT/month)	Percentage (%) of household paying the amount
Raypara, Rajshahi	1000-2000	64
Srirampur, Rajshahi	1000-2000	72
Geneva Camp, Dhaka	3000-4000	51

Source: Field survey, 2016

Most of the rental dwellings are pucca in Geneva camp. So they have to pay high rent but few structures are semi-pucca and katcha. Though the monthly income for Geneva Camp is much more but at the same time a huge amount of income has to pay for house rent. The average house rent to income ratio for three study areas are shown in below (please see Table 3).

Table 3. The average house rent to income ratio.

Name of the slum	Rented shelter in study area (%)	Average House Rent to Income Ratio (%)
Raypara, Rajshahi	22	16
Srirampur, Rajshahi	28	19
Geneva Camp, Dhaka	51	21

Source: Field survey, 2016

2.4 Usage Types of Kitchen, Toilet and Bathroom

In Raypara and Srirampur most houses occupy a separate space for cooking in the yard. Almost 90% of the households use separate kitchen in these slums. In Geneva Camp most of the houses are single roomed houses and the cooking is done underneath the stairway or in the alley. Very few have provision for cooking inside the

house. All the three sites have no gas supply and 100% of the households use firewood, stove, and heater to pursue their cooking.

There are very rarely provision for common toilet in Raypara and Srirumpur. So significant numbers of slum dwellers use pit and water seal latrines, open latrine for defecation. But the scenario is different in Geneva Camp, only 9% households' use separate toilet, majority of them (79%) use common toilet.

3 Access to Utility Services

3.1 Sources of Drinking Water

Only in the Raypara slum there is adequate number of Ponds so the slum dwellers uses these ponds as the other purpose of water using like washing, bathing cooking etc. except drinking. But for the rest of the study areas the sources of drinking and other uses are same. The people of Raypara are solely dependent on Tube-well for drinking purpose. The people of Srirumpur and Geneva Camp in maximum cases are dependent on Public tap for drinking water. But the number of public tap is inadequate as a result it difficult for all parts of the communities to be properly served.

About 75% and 87% of sources of drinking water are provided by Government in the slum of Srirumpur and Geneva Camp. In the Raypara slum the contribution of NGO is much more than government in case of water supply.

3.2 Electricity Supply

Electricity supply in the slum communities is not reliable, though the study reveals that there is 100% electricity connection in Geneva Camp where as in Raypara and Srirumpur the coverage is 70% and 76%.

3.3 Access Road

The study reveals that there are about 28% and 17% of pucca access road in the slum of Srirumpur and Geneva Camp with smooth surface usable for pedestrian purpose only. But there is no pucca access road in the slum of Raypara and 48% of households claimed that there is no access road at all connecting their houses (please see Table 4).

Table 4: Type of Access road, Rajshahi, Dhaka.

Name of the Slum	Types of Access Road (%)		
	Pucca	Katcha	No access road
Raypara, Rajshahi	0	52	48
Srirumpur, Rajshahi	28	38	34
Geneva Camp, Dhaka	17	83	0

Source: Field survey, 2016

The access road in Geneva camp is too narrow for the movement of emergency vehicle. Moreover in the rainy season the katcha access roads become the causes of suffering of pedestrians for clay.

3.4 Waste Disposal System

A huge amount of waste is generated daily in the slums but there is no proper waste disposal initiative from both the RCC and DCC. Moreover due to lack of proper knowledge most of the household dispose their daily domestic waste in the nearby drain or nearby pond. As a result this waste impacts on the physical environment and pollutes the pond water that people use for many purposes and create some diseases such as dysentery, diarrhea, cholera etc.

4 Economic Characteristics

For the two study area of Rajshahi, the income has been categorized into four ranges from <4000 to >10000 BDT. About 4% and 9% respondents of Raypara and Srirumpur earn less than 4000 BDT. For the rest study area of Dhaka the category was between <10000 to >30000 BDT. Maximum percentage of respondents of Rajshahi earn monthly about 4000-8000 BDT. In the Geneva Camp the maximum monthly earning is 15000-25000 BDT. Though the female member of household cannot contribute directly to the economy their indirect contribution through home based income generating activities cannot be denied. A large number of household of the three study areas are engaged in home based income generating activities. The activities include the handicraft, rearing domestic animals etc.

5 Planning and Design of Proposed Housing

5.1 Population Distribution According to Income Group

The monthly earning of maximum 74% and 68% household of Raypara and Srirumpur slum is between BDT 4000-10000. So considering the present economic condition of these population of Rajshahi the target group is fixed within monthly income range of BDT 4,000 to BDT 10,000. But for the Geneva camp the scenario is different where the maximum monthly earning is between BDT 15000-25000. So in the context of income level of population of Geneva camp the target group is fixed between BDT 15000-25000 (please see Table 5).

Table 5: Affordability level of target group.

Name of the Slum	Income group	Affordable rent (% of monthly income)	Affordable rent (BDT)
Raypara and Srirumpur	4000-8000	20	800-1600
	8000-10000	30	2400-3000
Geneva Camp	10000-15000	30	3000-4500
	15000-25000	30	4500-7500

5.2 Design of Individual Units and Whole Buildings

Three types of Building plan for Study area 1 and Study area 2 of Rajshahi including the individual unit are shown below.

“Type A1, B1 and C1”

A1 type of building is designed for the household having <3 members in case of Rajshahi where each household occupy 100 sq. ft. for dwelling purpose. B1 type of building is designed for the household having 3-5 members in case of Rajshahi where each household occupies 110 sq. ft. for dwelling. The total occupied space of building is 1102 sq. ft. which can accommodate about 60 persons.

C1 type of building is designed for the household having 6-8 members in case of Rajshahi where each household occupies 320 sq. ft. including the attached toilet, bathroom and kitchen. The total occupied space of building is 1102 sq. ft. which can accommodate maximum 120 persons (please Table 6).

Table 6. Design components of Building types for Rajshahi.

Design Components	Building types for Rajshahi		
	A1	B1	C1
No. of household member in each unit	<3	3-5	6-8
Total area of building (sq. ft)	1035	1102	1836
Total occupied space in each unit (sq. ft)	100	110	320
No. of Storey	3	3	3
No. of Kitchen	1 per 5 HH	2 per 4 HH	1 per 1 HH
No. of Toilet	1 per 5 HH	2 per 4 HH	1 per 1 HH
No. of Bathroom	1 per 5 HH	2 per 4 HH	1 per 1 HH
Width of Veranda (in ft.)	2.5	2.5	2
Total population capacity	30	60	120

“Type A2, B2 and C2”

A2 type of building is designed for the household having <3 members in case of Dhaka where each household occupy 80 sq. ft. for dwelling purpose. The total occupied space of building is 1537sq. ft. which can accommodate about 100 persons.

B1 type of Building is designed for the household having 3-5 members in case of Dhaka where each household occupies 200 sq. ft. for dwelling. There is attached bathroom and toilet and kitchen for each household. The total occupied space of building is 1537sq. ft. which can accommodate about 150 persons.

C2 type of Building is designed for the household having 6-8 members in case of Dhaka where each household occupies 300 sq. ft. including the attached toilet, bathroom and kitchen. The building is 5 storied accommodating 4 household in each storey (please see Table 7).

Table 7. Design components of Building types for Dhaka.

Design Components	Building types for Dhaka		
	A2	B2	C2
No. of household member in each unit	<3	3-5	6-8
Total area of building (sq. ft)	1537	1537	1537
Total occupied space in each unit (sq. ft)	80	200	300
No. of Storey	5	5	5
No. of Kitchen	1per 5HH	1per 1HH	1per 1HH
No. of Toilet	1per 5HH	1per 1HH	1per 1HH
No. of Bathroom	1per 5HH	1per 1HH	1per 1HH
Width of Veranda (in ft.)	2	2	2
Total population capacity	30	60	120

6 Cost Estimation and Cost Recovery Mechanism

6.1 Cost Estimation

Considering price hike, inflation, and variation of labor cost in different area for the study construction cost of the building has been considered BDT 1000 per square feet for Raypara and Srirampur and BDT 1200 per square feet for Geneva Camp. The total cost of the proposed building type and individual units has been showed in the following tables (please see Table 8).

Table 8. Construction cost of proposed building type in Rajshahi and Dhaka city.

Name of the Slum	Building Type	No. of family in one building	Total Floor Space (sq. ft)	Construction Cost per square feet area (BDT)	Construction Cost of one building (BDT)	Construction Cost of individual Unit (BDT)
Raypara and Srirampur	A1	15	3,105	1,000	31,05,000	2,07,000
	B1	12	3,306	1,000	33,06,000	2,75,500
	C1	15	5,508	1,000	55,08,000	3,67,200
Geneva Camp	A2	50	7,682.6	1,200	92,19,120	1,84,382
	B2	30	8,041.6	1,200	96,49,920	3,21,664
	C2	20	9,118.6	1,200	109,42,320	5,47,116

6.2 Planning for Capital Recovery and Adaptability

The construction work will be done through public- private partnership where construction work will be done by private developer and GoB would act as a facilitator In case of rental housing range of rent per month per household is BDT 1000 to BDT 3000 and 1000 to BDT 4000 (please see Table 9).

In order to initial cost recovery, some of the apartments would be sold to the target group at their affordability level. For this reason, option of ownership of housing will be provided. Here monthly installment is calculated by “present value of an annuity method” (please see Table 10).

Table 9. Cost recovery of housing for rent in Rajshahi and Dhaka city.

Name of the Slum	Building Type	Occupied Floor space per household	Construction Cost of individual Unit (BDT)	Price of individual Apartment(BDT) (construction cost+10% profit)	Rent (BDT) per sq. ft	Rent (BDT) Per household	Duration of payment (Year)
Raypara and Srirumpur	A1	207	2,07,000	2,27,700	8	1,656	12
	B1	275.5	2,75,500	3,03,050	8	2,204	12
	C1	367.2	3,67,200	4,03,920	8	2,937.6	12
Geneva Camp	A2	153.65	1,84,382	2,02,820	8	1,229.2	14
	B2	268.05	3,21,664	3,53,830	8	2,144.4	14
	C2	455.93	5,47,116	6,01,828	8	3,647.44	14

Table 10. Cost recovery of dwelling units for sale in Rajshahi and Dhaka city.

Name of the Slum	Building Type	Occupied Floor space per household	Construction Cost of individual Unit (in BDT)	Price of individual Apartment(BDT) (construction cost+10% profit)	Payment (BDT) per sq. ft.	Payment (BDT) Per month	Interest rate of Bank	Duration of payment (Year)
Raypara and Srirumpur	A2	207	2,07,000	2,27,700	10	2,070	5%	13
	B2	275.5	2,75,500	3,03,050	10	2,755	5%	13
	C2	367.2	3,67,200	4,03,920	10	3,672	5%	13
Geneva Camp	A2	153.65	1,84,382	2,02,820	10	1,536.5	5%	17
	B2	268.05	3,21,664	3,53,830	10	2,680.5	5%	17
	C2	455.93	5,47,116	6,01,828	10	4,559.3	5%	17

6 Conclusion

The first objective of the research has been fulfilled through social survey in the slum of Raypara, Srirumpur of Rajshahi city and Geneva Camp in Dhaka city. The second and third objectives have been fulfilled through the proposal of decent housing plan considering the income, affordability, living customs and expectations of the target people and financial planning. Through the planning of decent rental housing, cost estimation and cost recovery process within the affordability range of the target people the study reaches to its goal satisfactorily.

Both the governmental and non-governmental sectors can undertake low income housing projects in khas lands to provide affordable housing for low -income people following the methodology of this study with necessary corrections and adjustment.

References

- Begum, J.A., and Amin, I. I., (2012). Low Income Housing in Dhaka City Vasantek Rehabilitation, World Review of Business Research, 2(3), 78-99.
- Bari, M., and Efrogmson, D. (2009). Detailed area plan (DAP) for Dhaka metropolitan development plan (DMDP): A critical review. Dhaka: WBB Trust.
- Das, P.S and Meher, K.C. (n.d). A Critical Analysis of Economic Activities of Slum Dwellers: A Study of Khurda District, Odisha, 1(2). The International Journal of Management.
- Kamruzzaman M. and Ogura N. (n.d.). Enabling housing with microfinance - A Case Study of Grameen Bank Housing Program in Bangladesh.
- Nawaz, R. (2004). Right to shelter: Bangladesh. International Conference on Adequate and Affordable.
- UN – Habitat (2003). *The Challenges of Slums. Global Report on Human Settlement*. Nairobi, Kenya: Global Urban Observatory. Retrieved from <https://www.un.org/ruleoflaw/files/Challenge%20of%20Slums.pdf>