URBANIZATION AND PLANNED RESIDENTIAL AREA DEVELOPMENT PRACTICE ACCORDING TO EXISTING STANDARDS

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ABSTRACT
Due to urbanization the pressure of population in urban area is increasing tremendously. To accommodate this increased population new residential areas are built by development authorities e.g., CDA, KDA, RAJUK etc. in major cities. Several policies i.e. Private Housing Project Land Development Rules 2004, Real estate Act 2010 are adopted by government of Bangladesh to guide and control their development. Chandgaon Residential Area in Chittagong and Nirala Residential Area in Khulna have been developed for middle income people and government officials by CDA and KDA who are the main governing bodies responsible for the development control in Chittagong and Khulna. The aim of the paper is to analyse the scenarios of planned residential area development in respect of violation in construction of buildings with planning standards. The data has been analysed with the help of field survey, ArcGIS, Excel, SPSS and AutoCAD software. Finally, this study found that, these residential areas are partially mentioned different standards and facing similar type of problem.

Keywords: Private housing project land development rules; real estate act and setback

INTRODUCTION
In Bangladesh around 1142.3 people lives in per square kilometre and nearly about 35.1% people lives in urban areas (World Bank, 2010). Among the present urban population, more than half lives in the four largest cities: Dhaka, Chittagong, Khulna and Rajshahi. (Zeitlyn, 2006 and World Bank, 2010). As a result the demand of batter housing is increasing day by day. The quality of residential development has long term impacts both on the communities and on the surroundings. A planned residential area provides a better housing for shelter, recreation and gives well opportunities for social and cultural development of the inhabitants. Chandgaon residential area was developed by (Chittagong Development Authority) CDA to meet the increasing demand of housing basically for middle class people (CHWA, 2014). On the other hand the Nirala residential area is a well-known residential area in Khulna city implemented by Khulna Development Authority (KDA) to cope with the increasing demand for housing (BD-KHU-679, n.d.). The objective of this study is to find out scenarios of planned residential area development with standards e.g., Private Housing Project Land Development Rules 2004, Real estate act 2010, Neighbourhood design concept etc.

LITERATURE REVIEW
The history of designing planned residential area is too old which we can find in ancient civilization but in modern era it started in 1920 with Clarence Perry's "Neighborhood Unit" concept. A neighborhood unit is an area simply required to build up the population of an elementary school and the area will be five minute walking distance radius from the school (Kostritsky, 1952). The principle for planning residential environments should reflect a philosophy of sustainable development that values landscapes and protects their functions while supporting healthy communities for residents. (Jill Grant, 1996). Where people choose to live and the type of housing they select is influenced by a number of factors such as the cost of housing, accessibility to services and employment opportunities, preference for different neighbourhoods and lifestyle choices (Department of Transport, 2014). A residential area should be designed following the concept of universal design. Universal design is the design of an environment so that it can be accessed, understood, used to the greatest extent possible by all people regardless of their age, size, ability and disability (Ireland, 2009). The street system is a vital part of

designing a residential area. Several factors need to be considered while preparing the street plan of a residential area such as Connectivity and permeability, Sustainability, Safety, Legibility and sense of place (Ireland, 2009).

STUDY AREA
These two study areas are located in two different cities. The exact location of these study areas and surrounding areas are described below.
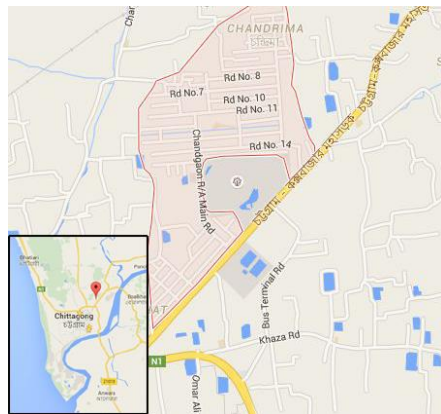
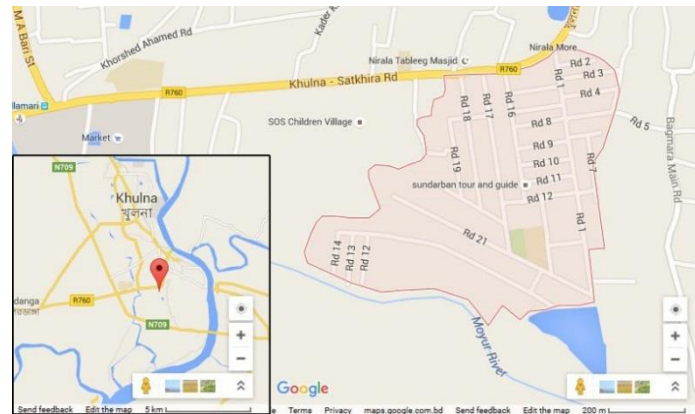

Fig. 1: Location map of Chandgaon residential area


Fig. 2: Location map of Nirala residential area

METHODOLOGY
To analyse of Planning a Residential Area two areas has been selected which are Chandgaon Residential Area in Chittagong and Nirala Residential Area in Khulna City. To collected data the survey has been conducted during the field work of Chandgaon residential area under a project of departmental course and field work of Nirala residential area is done during study tour to Khulna. The study has been conducted to analysis the residential areas based on the field study of existing situation. In order to meet the demand of the study, different methodological approaches were adopted to full fill the stated objectives of this study. The basic requirement of the individual aspect of this study is to find out the problems of the residential areas and make comparisons with standards. We used two sources of data in this study. We can classify them as primary data and secondary data. Primary data and information have been collected by Reconnaissance survey and discussion with the members of abasik kollan committee of the both residential area. For the secondary data different types of literature have been reviewed that is related with the selected topics, studying the standards for residential areas and Collect data from different websites. After collecting all types of data and information's a comparison has been made between these two residential areas with the PHPLDR standards. It has helped to find out which development plan has been implemented according to standards or not. It has tended to make the criticism. With the data which are collected from Reconnaissance survey & Field survey and then analysis will started about the present conditions, facilities, special features and problems of these residential areas & can also determine the performance level of these selected areas from this analysis. According to the collected data & after analyzing data, then comes the major step of this project which is Report writing. In report, it is discussed by the findings, problems & comparison of the data collected by Reconnaissance survey & Field survey

RESULTS AND DISCUSSIONS

Lack of Maintenance Setback
The road pattern in the Nirala residential area is almost grid iron pattern which ensured maximum use of available land and facilities. The land is flat with efficient sewerage facilities which keep the land dry in the rainy season whether the rainfall in high in amount. The road condition on the outer periphery is bituminous carpeted and the condition of other road inside the residential area is bituminous carpeted but spoiled.

Fig. 3: Nirala residential area
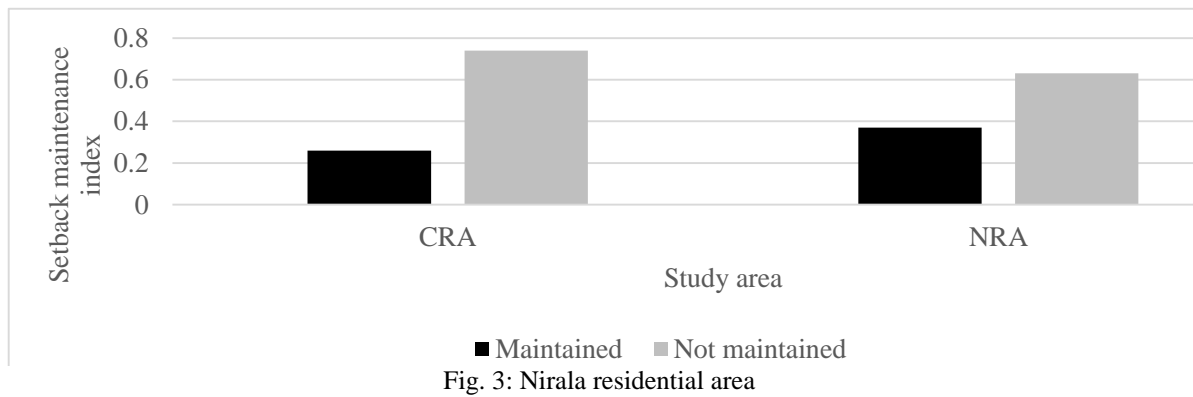
Violation of structure use in residential area

The residential area was for middle income people. But to survey reveals numerous intrusions of commercial activities into the residential area e.g., shops, coaching centres, NGOs offices, sells distributors offices etc. which increasing the land value of that area and shrinking the way to afford the living space to middle income people. Even the people who stays on the built house, sells his own living space to higher income people for higher living cost. According to survey, there is also 18.53% vacant land for future development. There was a large water body in the side of the residential area which was preserved for fisheries. There about 17% area of the total area this is the ideal according to the standard for convenience and proper transportation for residence. In standard road serves 88608 populations with its 1768134.12 sq. ft. area. On the other hand, in Chandgaon residential area, Chittagong has the criteria of calm living space with sound living environment. The target group was government employees for which the living spaces were built. But there was no such strong community management team or law enforcement team which will protect the goal of the residential area project to provide the built space to target group.
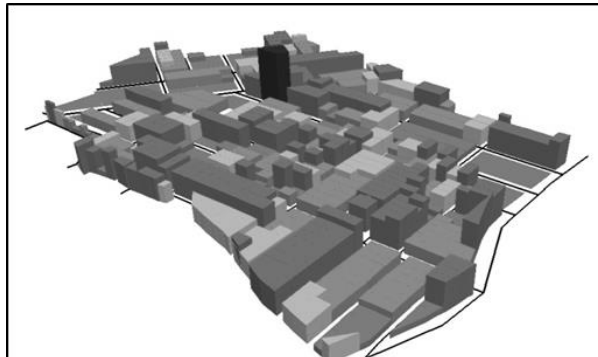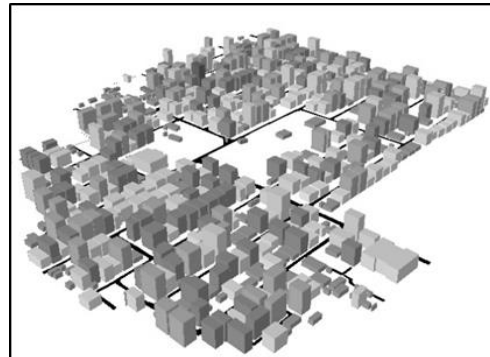

Fig. 4: Nirala residential area

Fig. 5: Chandgaon residential area

Intrusion of economic activities on the residential area

There is need for the doctors for medical facilities, corner shops for marketing, schools and coaching centres are need to fulfil the daily need of the residential people. But the increasing number of these facilities is not safe to preserve the characteristics of residential area. When commercial activities were increased in the residential area, it has been observed that there calm environment disturbed.
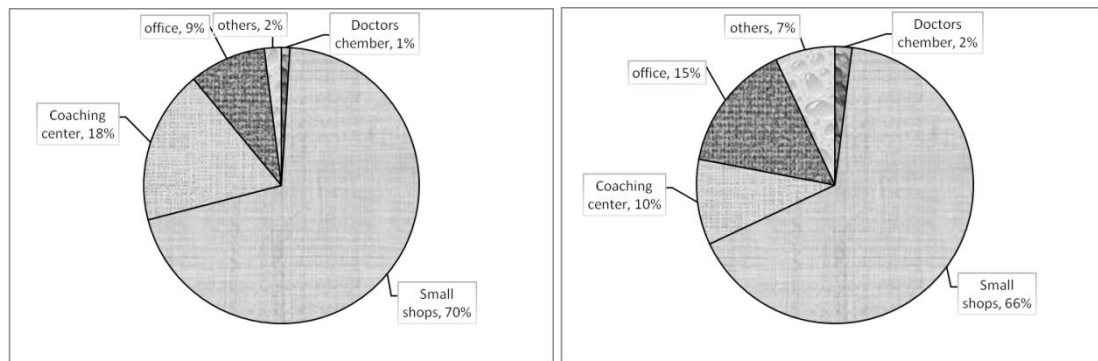
Fig. 6: Intrusion of economic activities in CRA   Fig. 7: Intrusion of economic activities in NRA

Violation of standards in providing facilities according to population size

The following table describes the facilities and plot size according to the population size in respect of Private Housing Project Land Development Rules 2004. In two residential area there is seen serious violation of standards.

Table 1: A comparison between population size and standard

Infrastructures	Standard (PHPLDR,2004)	Findings in CRA	Findings in NRA
Residential buildings	3.5 katha/household for middle class	3.22 katha/household	3 katha/household
Play field	1.2 acre/15000 population	1acre/25000 population	1acre/20000 population
Recreational infrastructures (mosque, club etc.)	0.5 acre/10000 population	0.2acre/15000 population	0.3acre/10000 population
Educational	1.55 acres/15000 population	1acres/25000 population	1acre/20000 population

(Source: Field survey- 2015)

Analysing the size of the neighbourhood according to school catchment area

There are one primary, high school & one college named CDA school & college in cra. Both are situated in the sub center beside the central field. The residential unit is within 0.45 miles radius of catchment. On the other hand, There are one elementary school named Dew Drops Preparatory School and a high school named Presidency International School. Both are situated in the sub center. The residential unit is within 0.38 miles radius of catchment in nra where the principle states a minimum of 0.5 miles within catchment.
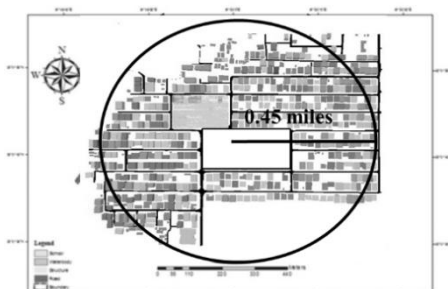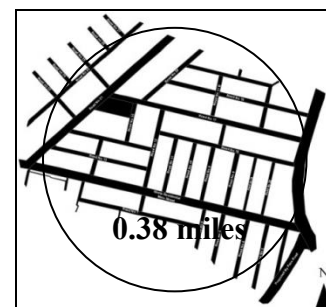

Fig. 8: School in CRA   Fig. 9: School in NRA

Implementation of grid iron pattern for roads

In chandgaon residential area grid iron pattern of road has been followed which seems to be economic use of available land but arises the issues related to dead ended road and creating monotonous city environment and mostly identical road intersections. On the other hand in Nirala residential area, there found similar type of road pattern which provided communication with the area outside as well as inside the residential area.
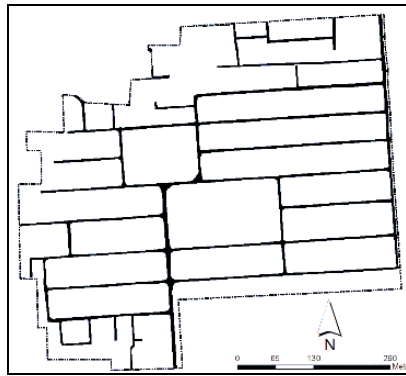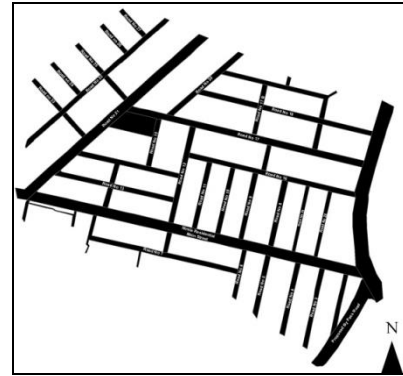
Fig. 10: Road pattern in CRA

Fig. 11: Road pattern in NRA

The street plot relationship

According to subdivision rule, there has been seen that the residential building was tended to be built by maintaining 90 degree street plot relationship which made the building cost minimum and gave more accessibility to the road.
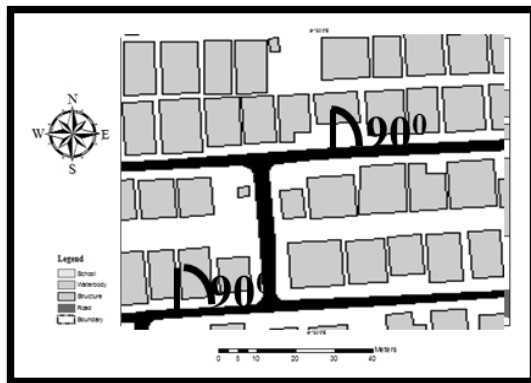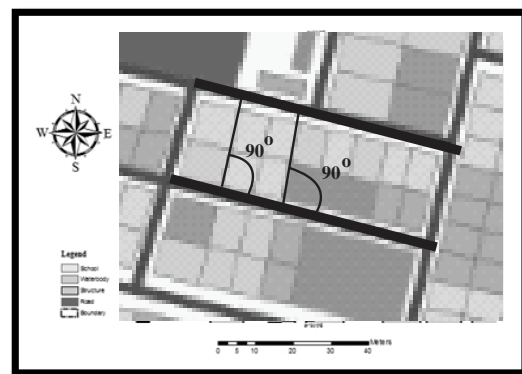

Fig. 12: Street-plot relationship on CRA

Fig. 13: Street-plot relationship on NRA

Comparison between residential areas according to population density standard

Table 2: Comparison with PHPLDR 2004 between two residential areas

	Population	Standard		Existing situation	
		Gross	Net	Gross	Net
Chandgaon Residential area	52,000	149.85	96.85	41	23.37
Nirala Residential area	20,000	57.14	37.14	67.31	37.02

Source: Field survey 2015

According to ther standard, in chandgaon residential area the gross residential should be 149.85acre and net residential area 96.85acres for 52,000 population. But existing gross residential area has been found 41acres and net residendital area 23.37acres. on the other hand, In Nirala residential area, according to PHPLDR 2004, gross residential area should be 57.14acres and net residential areas 37.14acres for 20,000 population. On the reality the gross residential area has been found to be 67.31acres and net residential area has been found 37.02acres which followed the PHPLDR 2004. In Nirala residential area the setback rule is maintained now having vacant plots of 150.

RECOMMENDATIONS

To promote balance urbanization process in the city area are the following suggestions can be taken

- ➢ Projecting the future population for achieving a balanced growth in terms of population density.
- ➢ Planning for provision of adequate infrastructure facilities such as road, drainage, water supply etc.
- ➢ The existing standards must be followed strictly in any type of development.
- ➢ Strengthening of the institutional mechanisms, monitoring and enforcing of regulatory

measures.
➢ Planning for in-built mid-course corrective measures between different government and non-government organization.
➢ Futuristic planning for adjacent areas outside the residential area need to be emphasized.

CONCLUSIONS

The plan residential area plays vital roles both in the context of the economy of Bangladesh and serving the fundamental human right of shelter which actually call for the awareness and analysis regarding various pertinent issues involving the sector. Solving the existing problem and strictly maintain the standards can ensure the balanced development. Ensuring proper land use, floor area ratio, maintaining setback and other land development rules the new residential area can be made more habitable and aesthetically pleasant.

ACKNOWLEDGMENTS

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