

Rainfall In Chittagong City and Aspects of Drainage Congestion Problem : A Historical Perspective.

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Abstract

The Chittagong city is situated one of the heaviest rainfall regions in Bangladesh. Over the study period of about 60 years, the total annual rainfall in Chittagong has remained unchanged although urban development has taken place, increasing the impervious area of the city, with the consequent increase in the rainfall run off. But adequate drainage system to cope with the increased rainfall run off has not built-up during this time. Length of khals in Chittagong city has decreased. Drainage capacity of those khals has deteriorated. So the increased surface run off is not draining out properly by the existing drainage system. Many obstructions block on the free flow of running water, For this reason, time of overland flow in rainy season is higher than the previous period. Drainage congestion takes places in various location of the city. The aim of this research is to examine the role of urban development in creating increased rainfall runoff thereby contributing to the internal flooding problem. The methodology used was to calculate the built-up and non built-up areas within a fixed defined study area for different periods, rainfall runoff for each periods for 1:5 years recurrence interval, time of overland flow over the drainage basin. The study indicates that the drainage congestion in Chittagong city is a serious problem and has assumed the nature of a political issue. It is hoped that this research may be of help to the related organization and experts solving this problem.

Effects Of Urbanization On Urban Water Bodies In Kcc Area

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Abstract

In recent years the environment of Bangladesh has undergone serious deterioration. In many aspects the situation has reached crisis proportions. Several factors make Bangladesh particularly vulnerable to environmental damage. Human agglomeration to cities as well as changing economic activities of Bangladesh has increased the urbanization rate of count which directly or indirectly destroying the existing water bodies. The increasing rate of urbanization creates impervious roofs which restrict the free circulation of water bodies. Besides, the huge urban population fills up the water bodies for maintaining their livelihoods. All these activities are reducing the amount of water bodies everyday. The Khulna City Corporation (KCC) Area is no longer safe from these activities and this study has tried to focus on this issue in KCC area.

Urban Fire Safety Issues in Slum Areas: Dhaka Episode

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Abstract

Like other developing countries, urbanization in Bangladesh is a growing phenomenon, which has recorded a phenomenal growth in terms of population, and, this urban development fretfully affects urban safety of lacking in proper policies, law and implementation of law. In the growing urban situation of metropolitan Dhaka, the capital of Bangladesh, an emergency service like fire safety has become one of the major challenges, especially for dwellers of squatter settlements and slums. This paper provides a general understanding of urbanization in Bangladesh and tries to describe the causes behind several recent incidences of major fire occurrences in various squatter settlements and slums of Dhaka. In addition, it presents several case studies of fire safety laws and measurements taken in high-density urban areas of different context. The paper concludes providing some strategies that might be helpful to the policy makers in providing fire safety for urban slum dwellers.

Seasonal Flactuation Of No₂ Concentration At Different Intersection Of Sylhet City

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Abstract

Sylhet City is one of the largest metropolitan city at the north east portion of Bangladesh with total gross area of 26.5 km² and a population load of 0.7million, estimated in 2001. Due to migration from other towns and rural areas, City population is increasing rapidly with resulting increase of vehicular load. Due to the rapid urbanization, city environment especially air quality is degrading for vehicular emission. This study evaluates the NO₂ concentration by chemical method specifically colorimetric method at 7 different locations of Sylhet city during morning and evening time through dry season and monsoon. Maximum concentration of NO₂ at dry season morning was 0.699µg/m³ at Ambar khana point and minimum concentration was found 0.258 µg / m³ at Modina market point. Maximum concentration of NO₂ in dry season evening was 1.161 µg / m³ at Bonder point and minimum at Subhani ghat point was 0.7 µg / m³. Maximum concentration of NO₂ monsoon morning was 0.316 µg / m³ at Tilaghor point and minimum at Modina market point was 0.145 µg / m³. Maximum concentration of NO₂ in monsoon evening was 0.814 µg / m³ at Ambarkhana point and minimum at Modina market point was 0.391 µg / m³. Maximum seasonal variation occurred at Bonder point was 61.29% and minimum variation occurred at Subhani ghat point was 35.69%. The concentration of NO₂ measured at all locations were below the permissible limit (100 µg / m³) based on DOE standard.

Policy of Housing for Slum Dwellers

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Abstract

Massive urban migration leads to a proliferation of slums in Dhaka city with poor living condition devoid of any basic civic amenities for urban poor. The objective of this paper is to explore the policy through which government could provide proper housing for its poor citizens. Firstly, this paper will analyze existing quality and supply of housing for the slum dwellers. Then it will look into the policies of government for the slum dwellers. A case study will be presented to understand the current government role in addressing the housing need of slum dwellers. This paper will also portray the scenario of current housing trends both in public and private sector. It was argued in the paper that government's 2008 housing policy did not give any clear direction as to how it will address the housing need for its poor citizens particularly for the slum dwellers. It concludes with a discussion to frame a policy which will ensure a balanced mix of housing supply for its poor citizens with the current trend of housing supply in the market.

Preparedness For Urban Fire Hazards

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Abstract

Fire causes the greatest loss of life and property in urban areas especially in densely populated city like Dhaka. Unplanned urbanization has intensified the problem further. This paper is focused on fire safety engineering, which intends to apply the science and engineering principles to protect people and their environments from the destructive effects of fire and smoke. Based on existing two major active and passive fire protection systems, their different components and techniques have been analyzed through systematic review. The analysis also includes various parameters including construction techniques. The analysis has revealed that by applying the given construction techniques and fire resisting elements, possibility of fire hazard can be mitigated. Making the people aware about the necessity of following building codes for fire protection can minimize the destructive effect of fire. The paper concludes with a discussion on overall view on fire protective systems suggesting the adaptable techniques for our country to mitigate the fire hazards.

Effect Of Unplanned Industrialization On Urban Environment: A Case Study In Natore

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Abstract

Bangladesh had always been predominantly an agriculture based country and in early days pollution was never even felt in this region. In early sixties, of necessity, industries of various kinds started to spring up slowly. Industrial development is important for Bangladesh's economic growth, but has brought with it a range of problems one of which is water pollution. Natore is a historical city situated in the North-Western part of Bangladesh. The Narod is the most important canal in Natore which passes through the heart of the city. This part of the country has been repeatedly suffering from drought since 4-5 years back. Moreover, there are three industries in the upstream of the Narod canal and the Natore city is situated in the downstream side of the canal. As a result, the canal suffers from severe pollution these days. In dry season, the observed biochemical oxygen demand (BOD_5) in this canal was in the range of 15-45 mg/L, chemical oxygen demand (COD) was 1176-3920 mg/L and pH was 5.53-7.82. Unplanned industrialization, derisory wastewater treatment, inadequate sewerage facilities, uncontrolled waste disposal practice, lack of awareness and inefficient control measures were presumed to be the major causes for such kind of contamination and degradation of this aquatic system. In this study, different views of urban population were also reflected for the environmental restoration.

Coping Mechanism For Utility Crises In Middle Income Areas Of Dhaka

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Abstract

Because of its spontaneous growth, the utility crisis of Dhaka city is increasing day by day. Therefore problems in utilities are considered centrally with respect to the economy and environment in Dhaka. But the local aspects are totally different from the central viewpoint. In this paper, three most important utility crises in the supply of gas, water and power have been explored and their impacts and people's coping mechanism with these problems have been illustrated. It has been seen that local people have adopted various alternatives and even compromised their daily life cycle to make an adjustment with these problem.

Key words: Dhaka, utility service, gas, water, power, coping, daily routine.

Evaluation Of Traffic Noise Pollution And Exposed Individuals Perception Of Dhaka City

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ABSTRACT

In the light of the rapid growth of vehicles and the harsh effects due to noise pollution, there is a need to study noise pollution from the location and citizen perception point of view in Dhaka city. In this study, an attempt has been made to study Traffic noise at the different spots of Dhaka city in four different times as day, noon, evening and night. The noise levels were measured with the help of a portable precision digital sound level meter. Again to know about the citizen's perception towards traffic noise pollution in Dhaka City perception study has carried out by a questionnaire administered to 100 individuals including Housewives, Children, Academician, vehicle drivers, hawkers and shopkeepers in Dhaka Area. It was observed that noise levels are increasing with increased traffic volume. From the cluster analysis it was evident that, Farmgate and Banglamotor area are highly distinct from other areas with a maximum noise level of 90 dB(A) and 89 dB(A) respectively. Which is way above for the predicable limit of noise level. From the perception study it is also found that, 60% respondents were not satisfied about the noise level in their place. Headache, bad temper, hearing problem, loss of concentration were some of the significant effects manifested by noise pollution.

Planning For Sydney: Performance, Lessons Learned And Future

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Abstract

Sydney is Australia's only truly global city and one of the world's great metropolises. Its heritage of sound metropolitan planning has built a terrific city to live, work, play and raise a family. This paper presents a review of the Metropolitan Strategy—City of Cities: A Plan for Sydney's Future, Sydney's comprehensive long-term strategic plan. The 2005 Metropolitan Strategy provides the framework to manage Sydney's growth and development to 2031. Over the last few years several challenges have arisen, including the Global Financial Crisis, expected population forecasts, housing affordability and climate change. This review will critically examine how the 2005 Metropolitan Strategy is responding to these challenges to sustain Sydney into the future as a comfortable and accessible place in which to live and work with a global status that marks Sydney as a desirable place to visit and do business. The paper concludes with a discussion of the major findings of this review suggesting key considerations to be addressed in developing good practice policy and guidance which could be adapted by other cities in metropolitan planning to achieve sustainable urbanization.

Effect Of Planning Features On Pollutant Concentration In Dhaka City

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Abstract

Despite the recent technological improvements on vehicle emission control and the increasingly stricter regulations, traffic-related air pollution is one of the most pressing problems in modern urban agglomerations both in the developed and the developing world. But in Bangladesh the emission control strategy is weak; the regulation management is weaker as well. In Dhaka city nearly 40% pollution is added due to transport emission alone. This study presents the results of a limited monitoring and modelling methodology, which is adopted in order to understand the predominant mechanisms of pollution dispersion as well as the effect of building heights and road orientation on pollutant concentration in an urban road canyon. The examined canyon in Elephant road area of Dhaka is relatively narrow and flanked by closely spaced buildings on both sides. Evidence of the street canyon effect on the diffusion of Carbon Monoxide emissions, hence, has been attempted to be established via the analysis of the measured levels and the results of the application of OSPM dispersion model. After parameterization the OSPM for Dhaka city, the modeled value and observed value was found highly correlated, which means the model is working soundly for Dhaka city. This study also identified that, if the building height along the road increases the CO concentration increases as well in the road spaces with the help of OSPM. Again if the street orientation changes from perpendicular to parallel with wind flow direction the concentration reduces also. Finally considering street orientation & height zoning *during* planning of planning features in respect of urban transport pollution the pollutant concentration can be reduced easily up to forty percent.

Hidden Possibilities Of Far: In The Context Of Dhaka's Residential Areas

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Abstract:

Open space and recreation systems protect and enhance the social, ecological and economic viability of community open spaces. In Dhaka the overall situation of urban open spaces are in a very poor condition. Now a day's they are at a stage of threat and they are occupying to transform into built areas without concerning about the communities. To develop the growth management and density the control measurement 'FAR' is introduced which regulate the use of land according to the plan. The main advantages of "FAR" is the wide possibility in building design, provision of more open area while allowing the same floor area, elimination of the trend of violation of the previous minimum setback regulation. The study investigates three housing areas to show the present condition and quality of open areas. The main objective of this paper is to increase awareness about the comprehensive planning methodology and strategy in creating open space for a harmonious relationship of internal living spaces to the outdoor open spaces of the residential plots in Dhaka city.

This paper explores some hidden possibilities of FAR to enhance the quality of open space and indoor living space.

Key words: Open Space, residential plots, densely built areas, FAR, planning methodology

Execution & Violation Of Setback Rule In Eastern Fringe Areas Of Dhaka City

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Abstract

Rapid urbanization with natural and internal migration, Dhaka city is growing outwards expansion. As a result, population is concentrating in most of the fringe areas of the Dhaka city for a number of reasons. By this consequence People have constructed their building in smaller areas without following any rules and regulations. As the developing agency, RAJUK has the power to stop such unplanned development by the implementation of their enforcement power according to the Building Construction Act, 1952. But in reality, they can not do so. As an outcome haphazard development, improper utilization of land and space are the common feature. Uttarkhan and Dakshan Khan Union are the example of such type of unplanned development in eastern fringe areas in Dhaka city. This paper have been presented briefly the development control practice in Dhaka city, existing situation according to residential setback rule maintained, reasons for not following the residential setback rules and obstacles for RAJUK to implement her enforcement power. Here both primary and secondary surveys have been used for data collection.

Environmental Impacts Of Commercial Land Use In Residential Areas: A Comparative Study

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Abstract

This study has been accomplished on two planned residential neighborhoods of Dhanmondi and Chandgaon respectively from Dhaka and Chittagong, Dhanmondi is already subjected to massive commercialization and Chandgaon is being subjected to increasing commercialization. Within the time-frame of this study the impact of commercial land-use on the environmental condition of the planned R/A have been studied and this relates to quality, livability and comfortability of planned Residential Areas affected by the recent process of commercialization. The study also relates to the effects on the socio-economic condition of the residents brought about by commercialization in the planned Residential Areas. At present the residential use of Dhanmondi is only 42.20 percent and rest of 57.80 percent are using partly or fully non-residential purposes. In Chandgaon, we have seen the same thing though it is in the initial stage of commercialization. The residential use of Chandgaon, is only 56.39 percent and 15.15 percent are using partly or fully non-residential purposes where the rest of 28.46 percent plots are vacant. In the road no 11, 12, 13 and 14, this commercialization process is very high. If this process continued then it will not take more time to say Chandgaon as an commercial residential area or it may become a NGO village as most of the NGO office of Chittagong is in this R/A

Traffic Jam And Planning Process For Dhaka City: A Trans-Disciplinary Approach

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Abstract

Traffic Jam is a single problem among many of Dhaka city. It has major negative impacts on our economy, environment and social life. So far, studies on Dhaka city transport system has been limited to identifying the multiple reasons like population migration and growth, unplanned land use pattern; and agglomeration of economic, political and higher service etc. As a capital city, all these features are no exception from any other in the world, and the ongoing discussions were supposed to take place lot earlier than the real time. However, the solution of the problems like urban transportation is an ongoing process rather than short term action plan. In one hand, the problems are inter-connected and multiple, and the solution must be a trans-disciplinary one. Trans-disciplinarily is still a new concept in planning and yet to be fully structured methodology to analyze problems. However, in this paper, we point out the transpired common understanding about the transportation system among different disciplines, politics and stakeholders. We provide argument in favor of this common understanding as an incentive to foster the planning process. Several changes are already perceivable like shifting Dhaka Stock Exchange to Uttara and development of Purbachal New Town. Apparently, it is quite a lengthy process but this is how generic urban planning functions. Finally, we propose that along with the Detail Area Plan (DAP) and Strategic Transport Plan (STP); there should a review of existing land use of Dhaka city to identify areas where 'city bearing capacity' has been exceeded or at critical level. Further/additional development must to be prohibited in such areas.

Integrating Heritage Artefacts Into The Urban Fabric Of Dhaka

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Abstract

The dynamics of rapid urbanization, shifting economic activities, rising cost of urban land are exerting serious pressure on the heritage (both man-made and natural) of more than 400 years old city of Dhaka resulting in the identity crisis.

A sustainable urbanization must attain a balance between development, conservation (both man-made and natural heritage) and participation. For an articulated urban development and urban identity, the heritage buildings and spaces need to be considered within the context of urban-settings rather than as isolated examples of architecture or urban design. The objective of the paper is to evaluate the status of heritage artefacts in the urbanization trend of Dhaka. The tools and mechanism available for the purpose will also be evaluated. Guided urban transformation is needed to maintain the essential physical fabric of historic areas of Dhaka while ensuring the social and economic viability as well as its long term sustainability. It is suggested that to regenerate the potential cultural market of Dhaka, the strategy requires a multidisciplinary effort involving professionals developing pragmatic plan for urbanization and integrate the past interventions within the present fabric thereby safeguarding the historical and natural patrimony.

The paper explores the urban crisis of Dhaka's built heritage and the management of underlying issues and finally to outline an approach for urban conservation within the framework of planned urbanization.

Urbanization And Rural Migration In Bangladesh- A Macro Overview

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Abstract:

Half of humanity now lives in cities, and within two decades, nearly 60 per cent of the world's people will be urban dwellers. Urban growth is most rapid in the developing world, where cities gain an average of 5 million residents every month. Bangladesh has seen rapid growth in urbanization after its independence which was at its peak during from the 1980s to 90s. Bangladesh has about 29 million of urban population and if the World Bank predictions are to be believed it shall reach up to 99 million by the end of 2030. Migration patterns in south Asian countries have been seen as mostly seasonal and dispersed but with the accelerated rate on increase of urbanization in these countries; today migration happens in massive scale which has given rise to Urbanization of poverty. Migration contributed about 40 per cent to the urban growth in Bangladesh during 1974-81. Thus, this paper shall try to briefly trace the history of urbanization in Bangladesh and will try to identify the emerging trends in Urbanization. It shall also seek to understand the patterns of migration and its impacts on urbanization and hitherto by linking with the urbanization of poverty

Thus, this paper shall try to briefly trace the history of urbanization in Bangladesh and will try to identify the emerging trends in Urbanization. It shall also seek to understand the patterns of migration and its impacts on urbanization and hitherto by linking with the urbanization of poverty.

Household Waste Management In Dhaka City For Better Environment

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ABSTRACT

Dhaka, the capital of Bangladesh, is the city with highest population growth in the world. Due to increasing urbanization the city is facing tremendous pressure on its basic utility services. Household waste management is also a big problem in the city. Dhaka City Corporation (DCC) collects 42% solid waste and dumps in the dumping sites. Rest of the waste remains unmanaged in the source place and deposit sites. Proper management of this waste is required to keep the environment healthy. Moreover, waste is not a waste only. Some waste can be converted into energy, some waste can be recycled, and some can be used for land filling. Now a day, the disposal and/or use of waste is burning issue in the perspective of environment. This paper addresses mainly two issues; Dhaka city's present situation of household waste collection and its management. The study is mainly based on review and analysis of different literature and documents from concern authorities. In conclusion, the paper suggests some solution to current waste management problems.

Access Management of Arterial Roads in Khulna City

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Abstract

This paper performs an evaluation of the congestion of arterial roads in Khulna and makes some recommendations to improve congestion by utilizing access management principles and techniques. The objective of this research is to evaluate the applicability and effectiveness of some access management measures on urban arterials. To measure access management on arterial roads, evaluation of the existing traffic circulation on those arterial roads have been performed and then, measurement of the efficiency of arterial roads have been made deliberate with the assistance of determining level of service. Once the level of service for those roads is obtained, the congested intersections can be identified so that where access management condition is poor can be portrayed with statistical support and proof. Besides, measurement of level of service for the collector roads opening into the arterial roads have been determined so that there is a considerable share of those collector roads incurred upon the arterial ones is affirmed and the extent of this traffic volume-share is determined. The main scope of this study is illustrating the existing efficiency of roads through traffic flow-measure considering the factors land use, week day & weekend, width of approach road, parking system, traffic circulation, traffic volume, design speed, corner clearance, drive way management etc. By this way, this study will assist the transport planners and policy makers to take up decisions about access management aspects for the betterment of improved transport network designing as well as overall city planning not only in a city of Bangladesh but also in any developing world.

Increasing Menace Of Fire Hazard As A Consequence Of Unplanned Urbanization

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Abstract

Capital city Dhaka is the largest urban agglomeration of Bangladesh and is characterized by rapid and unplanned urbanization. Migration from rural areas has been a key driver of this rapid urban growth as a result of concentrating maximum employment and service-facilities in the city. This unplanned growth is acting as a triggering event of certain man-made hazards. Fire hazard is the most serious among these in view of the number of occurrences, size of destruction and vulnerabilities of people. Urban people both upper and lower classes are vulnerable to fire hazard. Unplanned urbanization is creating this situation more complex and making people more vulnerable to fire hazard. Nowadays, high rise buildings are being constructed in every part of the city but in most cases the dwellings are being constructed without maintaining the building construction rules and codes, planning rules and regulations, land use zonings, Fire Protection Act of 2003. This paper tries to explore how unplanned urbanization is increasing the vulnerability of fire hazard and describes the various incidences of major occurrence of fires in various establishments drawing the pen pictures of the causes and finally put some suggestions to overcome the situation.

Impact Of Industrial Air Pollution On Human Health: A Comparative Study In Residential Areas

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Abstract

The environment is an integral part of human life. Every component of the biosphere has its own role in different types of epidemics. Though water and land pollution is very dangerous, air pollution has its own peculiarities, due to its transboundary dispersion of pollutants over the entire world. Industry is one of the main sources of pollutants in air. And very high urbanization rate is responsible for the unplanned residential system as well as unplanned urban growth. Pollution do affect human more in the unplanned urban area rather than the planned area. Therefore the study on air pollution caused by the industries and related impacts on human health have a special consideration today. Developing countries have conducted several studies in this area, but there are only a few studies in developing countries like Bangladesh. In this backdrop, a study on industrial pollution and related problems on health in an important part on Dhaka city has been undertaken. There are two residential areas are selected for a comparative study, based on pollution pattern and proximity of Tejtong industrial area in order to compare the health impacts in different human activity areas. The data shows an increasing trend in respiratory diseases with decreasing air quality. The industrial effluent gases and low indoor air quality plays a key role in the industrial area, while vehicular pollution and congested housing patterns are the main factors in other zones. The children and elderly are the main victims of the respiratory diseases.

The Impact Of Green Space Declination In Dhaka's Local Thermal Environment

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Abstract

Green areas are one of the contributing factors in maintaining urban thermal environment and also responsible for creating microclimate. It provides ecosystem services by reducing air temperature, solar radiation, providing air flow and maintaining air quality. But in Dhaka this service is being hampered through the tremendous pressure of urbanization. And urban green areas (like public parks, homestead gardens, play fields, vegetation around government complexes and playfields) are facing the threat of its existence which is resulting into various environmental degradation like temperature rise, increased solar radiation, air pollution etc. This paper analyzed the co-relation between urbanization and green open space declination. It also investigated the impact of green space to reduce the air temperature and humidity of Dhaka city at a local level through an impact study on different neighborhoods to create public awareness for preservation.