



How disaster-resilient are urban land use planning: A Review

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Summary

All of us very well known that in the present scenario society and natural world is under significant threat because the negative effects of environmental change and abnormal weather conditions are increasing with the passage of time. Even though global structures and standard equipments BECAME DURABLE at international level under the supervision of U. N. still, the occurrence of environmental disaster and geographical disasters are increasing per year with a noticeable speed. From the last ten years, a large amount of money has been spent by the authorities of our country for the purpose of early warning systems establishment. Despite of scientific development, there is a lack of awareness in the community because they do not have sufficient information. Here, in this work, the most significant weak points of state or local tactics are presented by the scholar from human based viewpoint. These tactics are made for the advance prediction of environmental change and abnormal weather conditions. The basic intention behind this research work is the investigation their reasons and grounds. In addition to this, an overall solution for reducing the risk of natural disasters is also suggested by the scholar.

key words: land use planning, environment, populations, development, disaster risk etc.

Introduction

There exist a close relationship in the middle of disasters and growth opportunities which are created via persons, society and country. These development opportunities lay the foundation in support of imbalanced risk of natural disasters (“UNDP, 2004”). In times gone by human actions become the main reason of risk of natural disasters. In comparison to other countries, actual threat in the direction of acts of nature remains significantly more in Asian nations. (“UNDP, 2004”). In the determination of general growth structure and risk of natural disasters the contribution of Land governance is very significant. Weaknesses of natural disaster risks originates due to the inappropriate metropolitan development.

An avalanche in Chamoli district of Uttarakhand early this year claimed at the least 74 lives, destroyed two hydropower initiatives and ravaged the area. Jacob Koshy experiences on how growth initiatives are endangering the lives of individuals within the younger and fragile Himalayas. The vulnerability of the Himalayas to flash floods, landslides and earthquakes was introduced here in 2013 when floods killed at the least 6,000 individuals, destroyed hydropower initiatives and plunged the State into darkness for days.

Review of literature

(Fu, Meng, and Kalawsky, n.d.) studied "*Flood Risk and Resilience*" Flooding has been widely identified as a global hazard because of the scale and severity of harm it poses every year around the world. Flooding has affected two point three billion people worldwide, with an estimated economic loss of six hundred and sixty two billion US dollars in the middle of year 1995 and 2015. As a result of urbanisation, industrial development and climate change, the economic costs and damage to communities are expected to increase.

(Glavovic 2010) studied "*The Role of Land-Use Planning in Disaster Risk Reduction: An Introduction to Perspectives from Australasia*" The best way to minimise the possibility of catastrophe is to keep individuals out of the way of harm. Planning for natural hazards will contribute in a significant way in the recognition of disasters danger. On the basis of this recognition it take those decisions which provide protection for the community and create suitable. For increasing hazard awareness, it encourages society to work in a very pro active way.

(Gurran 2019) studied "*Land Use Planning*" It is widely found that a limited understanding of the hazards present in a given area, in addition to other vulnerability factors, has exacerbated risks of natural disaster. It becomes possible to reduce the risk of natural disaster by forecast and growth. It includes used land scheduling and development control regulations. Improvement should have been carried out, for example, for settlements along flood plains, on steep slopes vulnerable to landslides, and in areas prone to earthquakes. When we fail to improve it recognized a gap in the middle of growth, science studies, tragedy regulation and ecological societies, a inadequate threats knowledge, poor governance capabilities and abilities through structural and non structural interventions in the reduction of disaster danger.

(Valdés, Helena Mollin; 2012) studied "*disaster risk reduction in Education sector*" It noted that the programme acknowledges that the goal of integrating DRR into the education sector cannot be accomplished simply by involving the sector in question alone or by carrying out occasional projects. While the Department of Pedagogy's mandate within the Ministry of Education is to establish the school curriculum, its approval also depends on the overall objectives of the Education Sector Plan, which is largely formulated by the Department of Planning and Finance and its content is more effective if connected to other sectors, such as nutritional health and hygiene and life-scale environment Similarly, while the budget for the building of new schools is distributed from the Ministry of Education's budget, the Department of Public Works also carries out the implementation of school construction.

(Gupta and Nair 2010) studied "*Flood risk and context of land-uses: Chennai city caset*" From the last few years our country has experience lots of flooding incidences, particularly in metropolitan cities. The disaster which took place in the year of two thousand and five in Mumbai reported in the form of mega disaster since (2005). Frequent floods are also recorded in the different cities of Bangladesh and Pakistan. Floods result from land runoff, the development of unhygienic environment, the materials accumulation at the time of flood downturn in stream channels, the rise in groundwater coinciding in the company of improved stream flow. It becomes possible that intense rainfall can trigger the flood related threats.

(Muneerudeen 2017) studied "*Urban and Landscape Design Strategies for Flood Resilience in Chennai City*" Tamil Nadu's capital Chennai exist in the form of city which is established in the souther eastern part of our country and is just six point seven metres above the average sea level. Because of this region climatic condition and equatorial storm large amount of rainfall is occurred in this region which sometimes become the reason of floods. It is the reason due to which Chennai is in a vulnerable position. The coastal tsunami which took place in the year of two thousand and four had a significant effect, and rapid urbanisation, followed by a decline in the natural land drainage capacity caused by invasions of marshes, wetlands and other ecologically sensitive and permeable areas, has led to the city's recurring flood events. The situation has been exasperated by channelized rivers and canals polluted by the presence of illegal settlements and waste. Natural and man-made water infrastructures have been polluted and have fallen into disuse, including monsoon water collection and storage facilities such as the Temple tanks and reservoirs.



(Gajjar et al. 2013) studied "A Framework of Urban Resilience Planning " He noted that attempts to combat climate change also concentrate on the protection and management of land, reforestation and the creation of sustainable and renewable energy sources. Mitigation is also targeted by policies that facilitate increased usage of public transport, ecologically sensitive methods of supply and disposal of water and low-carbon waste management systems. Mitigation follows a top-down policy enforced by national policies and sector-specific regulations on the transition to manufacturing, utilities or systems

LAND USE PLANNING AND DISASTER RISK

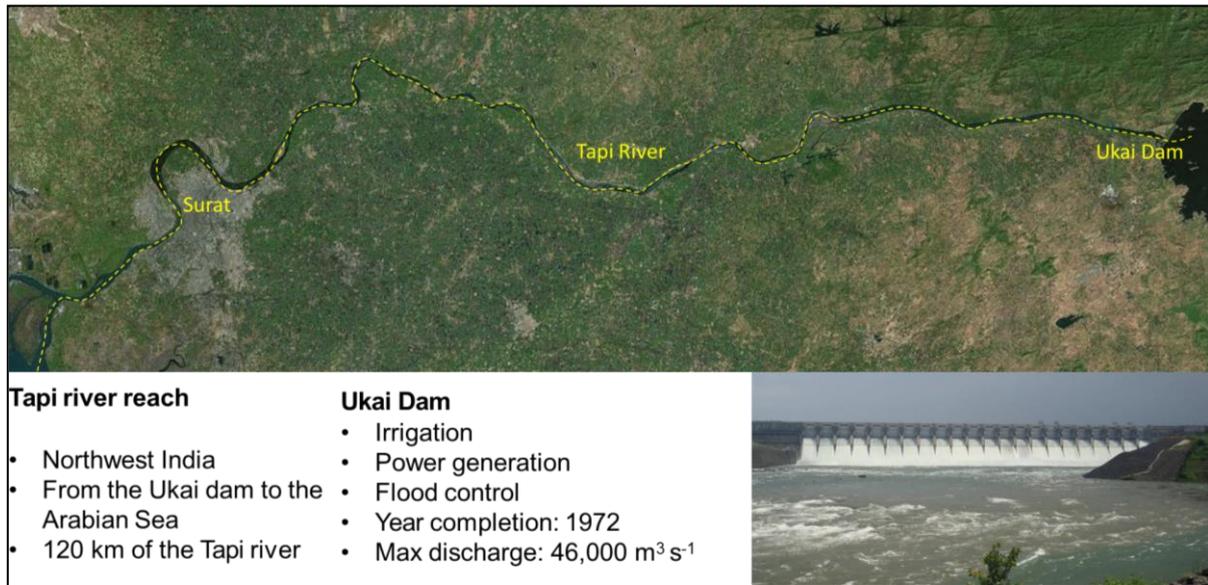
It emerges in the form of common interest practice which specifies and determines the manner of land utilization for the purpose of improving the society actual, financial and communal effectiveness and safety. It management being implemented at nationalized, local or state levels, as well as city or local levels by means of centralised and decentralised planning systems. The aligned development phase of the sub-state in the business of general growth goals is managed by the planning criteria defined at the state level. Further preparations will be carried out by the state authorities (with greater detail at lower levels). In cities and towns, local land use planning is usually developed, while rural areas are protected by regional plans. These guidelines concentrate on towns and villages, while discussing some aspects of rural areas. While communities have been adaptive to hazard risks through indigenous awareness, while avoiding high-risk areas or adapting settlement and construction patterns to the local environment, factors such as rapid economic growth, land scarcity, insufficient or non-existent land use planning and poor compliance mechanisms have led to unplanned development that does not result in unplanned development. In urban areas in most countries, progress and shortcomings in land use policies can be directly observed. More than 70 per cent of development currently takes place outside the formal planning framework, according to the International Federation of Surveyors (FIG 2010), and 30 per cent of the urban population in developing countries lives in slums or informal settlements. Contemporary cuts in land use planning across different fields, such as urban development, management of coastal areas, management of natural resources, management of the environment, and agricultural and water resources. While the principles of land use planning have evolved from single goals to multiple goals, legal and policy structures have not been sufficiently flexible to integrate evolving planning priorities or input into the development

process. Inconsistencies between different sectoral policies and regulations, as well as their ties with broader socio-economic development plans (land, agriculture, urban development, environment, coastal zone management) have led to contradictory policies being fragmented. Many of the problems faced by developed nations are reflected by its introduction in India.

Tapi Riverfront Development and Rejuvenation Project

Tapi is a perennial river which crosses over Surat city and serves to a population of approx. Six point five million in city. It is a life line of the city. It becomes very dynamic in nature at the end of its course when it meets in the company of the Arabian Sea. It thus brings the saline tidal back flows in city during high/ low tides all the way up to the Singanpore weir. It faces serious challenge of floods for which SMC has planned various flood embankment schemes along the river to accommodate rising levels of floods since nineteen seventy six. Other issues are discharge of contaminated sewage from storm water outfalls, water management after construction of Singanpore weir and development of slums at river banks which needs to be resolved. There have been many recreational facilities which have been developed on banks of river. Solutions of the issues and previous efforts of development need to be integrated in developing the project. The Tapi Riverfront Development and Rejuvenation Project is an initiative taken up by the Surat Municipal Corporation to develop the Tapi River (for approx. length of thirty three kilo meters from Kathore Bridge to ONGC Bridge) in a holistic and comprehensive manner and increase its asset value for the sake of Surat city.

Figure: Tapi River and the catchment area of Tapi



Sources: Google Image

The Concept Master plan emerges in the form of effort for the formulation of plan of a complete, possible, understandable and durable river edge full of pedestrian trails. The downstream is developed in the form of green and recreational space that can transform the existing neglected waterfront into a centre in support of cities communal activities. Construction of Embankments to strengthen River Edge of both banks (approx. Thirty three kilo meters on each side) with respect to the level of fifty year of flood return period given by CWPRS.

- Cleaning the River by integrating Tapi Shuddhikaran Project.
- Reclamation of Land for recreational purpose.
- Broad zoning of Master plan has been done with reference to Land availability and Activity Mapping.
- Laying an emphasize over several green spaces like gardens, recreational parks, eco-park, etc.
- Development of public amenities along with probable access points along the riverfront.
- Development of Continuous Promenade (with Pedestrian & Cycle Track).
- Strengthening of certain existing roads to improve access for riverfront.
- Development of new proposed roads to improve connectivity along the river front across the river.



- Create specific riverfront road network by integrating existing and proposed roads.

Riverfront Project can directly impact some of the key pillars of “The Surat Resilience Strategy” for example, Water availability & quality, Dominant sectors of employment & economic development, Ecosystem & environmental regulation, Social cohesion, Up-scaling of health, Affordable housing, Connectivity & mobility services with regulation.

Conclusion

Developments/construction taken cannot be brought back to the original landscape. The lakes / water bodies should be protected from encroachments and existing encroachments should be evicted by the departments/agency concerned bringing the water bodies to its original state. In particular in metropolitan areas, vulnerabilities to hydro-meteorological catastrophes result from huge concentration of people, infrastructure and financial assets. The environmental effects of migration, slum dwellings, mismanagement of waste and local atmosphere are exacerbating disaster hazards and repercussions, not only on macro level but also on micro-level - village level. The ability to deal with a catastrophe is another key aspect of the management of flood disasters in cities. The problem of land use is particularly of significance for water relief, natural flood management in the form of wetlands, more housing, improved construction and sanitary conditions and the preservation of open spaces.

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