Assess Features Cities Resilient To Disasters

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Abstract: Building resilience is a forward looking, target driven approach to urban development that uses a wide range of measures addressing all elements of urban systems. Ensuring these targets are met demands all levels of communities and governments work together to ensure the safety of all people and protect the economic, social, environmental, and cultural assets and attributes which define the unique character of each city. In this literature review, the information in the field of health searched and extracted from the related databases including Web of science, Pub Med, Scopus, Google Scholar, conference papers and published papers in the last years about resilience cities by keywords of disaster, resilience, resilience cities. The focus on urban disaster risk has helped raise awareness of localized disasters that have devastating impacts on communities, especially poor households, and constitute a persistent drain on national and local budgets. For those at earlier stages of resilience building, the creation of a new committee or working group is often the first step. Also in Iran this task does every year but in practice it doesn't resulted in good news. [Mohammad H NJIRM 2016; 7(6): 74-78]

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Introduction: Cities are one of the most important human inventories. Cities reveal our cultural and societal interactions, economical structures and political systems. Cities are disciplined places and spaces that formulated our routine activities.[1]City is the dense settlement of human that because of existence of human is needed to safety and security in all societal, economic, cultural and managerial aspects. Today urban community is encountered to various types of hazards permanently.[2] Dimensions of urban settlements increasingly complicated and security uncertainty in eco cities become more explicit. One of important and significant aspects in developing city planning is attention to country's vulnerability and most important city's vulnerability against treats from natural and man-made disasters.[3]Cities, due to the high volume of investment and the location of many economic and social facilities and tools, require more attention. If we suppose that city is an organism it need to joy and happiness for living.[4]The role of urban space, or space where takes shape social interaction between citizens and promote social culture in Iran is decreasing day by day. It's clear that people are necessary to urban spaces and if urban space available a secure and suitable environment active participation and happiness have promote. The big today cities encountered various threats and issues. To make these cities resilience against environmental hazards by using underground space development city approach is a new attitude in urbanism. Iran's major cities due to place on earthquake faults, encountered serious threats and vulnerabilities.[5]Using underground space development approach can assistant to stability of underground spaces against natural and manmade hazards such as earthquake, fire, explosion and vibration, to less destroy in related to other spaces. Resolution of this issues and meet the infrastructural needs of city and its centers to make resilience, is one of most important safe city goals.[6]

Method: In this literature review, the information in the field of health searched and extracted from the related databases including Web of science, Pub Med, Scopus, Google Scholar, conference papers and published papers in the last years about resilience cities by keywords of disaster, resilience, and resilience cities. Article sand reports which had been referred to the lessons learned were excluded. Inclusion criteria were: 1-Research published in reputable sources 2-Somestudies published from 2006 onwards3-English and Persian studies, and exclusion criteria having access to full text article, studies published in conferences and journals was invalid. In addition, there is no limit to the arrival there of the type design and methodology.

Results: Urban safety could include all measures that formed into short term, mid-term and long term programs to preserve live and property of resistances

in cities. Security and safety are factors that affected to appearance of cities. Cities are encountered to new issues at various aspects of its citizen's life, also they are a long history from appearance of primary cities. Today urban safety is one of the most important issues in reformulation and structure cities.[7]

Planning for decrease vulnerability: Today due to complex urban issues, increasing population and variety and extent of needs, it's impossible that derelict cities to keep themselves with interaction between affected factors. Thus urban plans are most fundamental tool formulate cities by discipline and prepared plans. Although most natural and manmade disasters often seem beyond human control, but their losses and injuries, notably are controllable.[8]This is reason which human began preventive operations. Preparedness and decrease urban vulnerability against hazards occur when that urban safety against hazards considered as the main objective at all levels of urban planning. Vulnerability aspects originate from many disciplines and they affected others one to one and create a system by internal interaction.[9] Planning for decrease urban vulnerability composed four steps include: develop objectives, recognition of current status, vulnerability analysis and develop strategies.

More than half of world population live in cities and this resulted to be safer cities become a long term but accessible challenge. Resilience and decrease urban vulnerability must be part of urban designate and strategies to achieve sustainable development. Cities need to big alliance and extent partnership of citizens. Climate changes and meteorological events increase vulnerability in cities.[10]

Resilience city against disasters: A resilient community is one that can absorb disturbances, change, reorganize and then still retain the same basic structures and provide the same services. City which experience minimum disasters must have responsible and righteous local government, that attention to sustainable urbanization and before, during and after a disaster are accountable for provide essential resources to build management and organizing capacities.[11] It make decisions to predict and mitigate natural disasters, using early warning systems, preserve infrastructures, public and private properties, cultural heritage, economic and bioenvironmental invest. It able to decrease physical and social effects of metrological hazards, earthquake and other hazards. This city have capability to rapid response, rapid recovery and resumption of social, institutional and economic activities after disasters.[12]

Principles of making cities resilience against disasters
Administrative and organizational structure, provide resources especially financial resource, multiple risk assessment, preserve and promote infrastructures and making resilience, protection of critical facilities, building rules and regulations, education and public awareness, protect the environment and strengthen ecosystems, preparedness, alert and rapid response and recovery.[13]

Essential elements for Making Cities Resilient: Put in place organization and coordination to reduce disaster risk, based on participation of citizen groups and civil society. Build local alliances. Ensure that all jurisdictions understand their role in disaster risk reduction and preparedness. Financially supported the measures for disaster risk reduction and provide incentives for homeowners, poor families, communities, private and the public sector to invest in reducing the risks they face. Every year evaluated data on hazards and vulnerabilities. Prepare risk assessments and use these as the basis for urban development plans and decisions, ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them. Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change. Assess the safety of all schools and health facilities. Apply and enforce realistic, risk compliant building regulations and land use planning principles. Identify safe land for low income citizens and upgrade informal settlements, wherever feasible. Ensure that education programs and training on resilience are in place in educational spaces and local communities. Protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Apply early warning systems and emergency management capacities in your city and hold regular public preparedness exercises. After any disaster, ensure that the needs of the affected population are placed at the center of reconstruction, with support for them and their community organizations to design and help implement responses, including rebuilding homes and livelihoods.[14]

Types of resilience: There are four types of resilience included: Social resilience refers to the demographic features of a community including by sex, age, ethnicity, morbidity, socio-economic status and other key groupings, as well as a community's social capital. Social capital, although it is difficult to quantify, refers to a sense of community, the ability of groups of citizens to adapt, and a sense of attachment to a place. Infrastructural resilience refers to the vulnerability of built structures including property, buildings, and gas, water, power and transportation systems. It also refers to sheltering status, health care facilities, the vulnerability of buildings to hazards, essential infrastructure, and the ability of roads for evacuations and post-disaster supply lines. It also refers to a community's capacity for response and recovery. Economic resilience refers to a measure of a community's economic diversity such as the overall employment, number of businesses, types of avenue resources and their ability to function following a disaster. Institutional resilience refers to the governmental and non-governmental structures that manage a community.[15]

Urban vulnerability: Urban vulnerability is volume of damage to the components and elements of a city when disasters occurred in terms of their quality. Urban vulnerability is an extent phenomenon that encompass all city's factors and because of factors are interdependent it expand rapidly. Urban vulnerabilities divided into two groups: structural vulnerability included damage to building, facilities and infrastructures and nonstructural vulnerability consist of humanitarian, environmental and hygiene damages.[16]When we talk about damages we must talk about risks. If we called risk, the degree of potential damages that resulted from hazard occurrence probability and rate of vulnerability, we must call vulnerability the inherent defect in the specific aspects of the city environment that according to the characteristics of the biological, physical or design features it is vulnerable. In regarded to variety of disasters, the aim of urban defense is decrease vulnerability, promote security, making flexible capability and timely response for save lives in urban spaces.[17]

Factors that affected urban vulnerability: Increase density in vulnerable areas؛ deficit in traffic systems؛after disasters to maintain access and traffic flow on roads in urban resulted in rescue and save lives. Urbanization in unsuitable and at risk areas, in urban areas risk factors include poor planning, improper design of the buildings, careless proper implementation of projects, lack of attention to maintenance in the area at risk.

Construction approach vulnerable users and aggregation of critical users in one area improper urban texture؛ urban texture have specific vulnerability situations. When event occurred any urban tissue reaction are different degrees of vulnerability and directly affected the escape and refuge of residents, outreach facilities, quality of cleaning and recovery and temporary housing. The extent of the impact of this feature not only in the building designate but also can used in urban planning and crisis management and it is very important.[18]

Decrease city's vulnerability against earthquake: Land use planning play an important role in decrease urban vulnerability against earthquake. Risk-based land use planning identifies the safest areas to prioritize immediate investments in urban development and infrastructure projects. Land use plans influence the location, type, design, quality and timing of development. Mainstreaming risk-based land use planning in infrastructure projects reduces risk in rapidly urbanizing urban centers that are prevalent in hazard-prone areas and expose a high concentration of population and economic assets to risk.[19] Risk-based land use plans must informal infrastructure projects. If followed to determine urban land use attend to the proximity of incompatible users, provided rapid evacuation of facilities and distributed applications in a way that causes decentralization, we could expected to the cities vulnerability against earthquake greatly reduced.[20]

Basically land use planning by decrease city's vulnerability against earthquake follow two main objectives that include: Enhance the safety of spaces which citizens used against earthquake and facilitate access for rescue in times of disaster. It must considered in urban land use planning. Access to upon goals need designing a model for urban land use that respect to principles of urban designing and planning, as well as minimize the vulnerability of the city to earthquake. In other hand by predict disaster situations, maximize facilities needed for search and rescue during disasters and facilitate relief operation from perspective of urban land use planning.[21]

Urban immunization policies: The most important way to decrease vulnerability and making safe cities against natural hazards is the creation of urban crisis management stations and organizing and coordinating the city's organizations responsible for crisis management. In other hand it is essential to increase public awareness about risks originated from natural hazards and making change in their behavior. Citizens must believe that by proper education, they can organized in form that prevent injuries and do self-relief against natural hazards. Also urban immunization culture must extent for making safe cities against natural hazards. It's clear that people, city managers and government officials must have commit and participated in execution of cities immunization policies. The most important policy is create urban crisis management structure to prevent natural hazards and making city safe.[22]

Safe architecture against disasters: Human have various needs that architecture meet many of them. Security in the need that apparent after Meet the physiological needs.[23]

Discussion: Cities are the human dense habitats that due to human presence, needs to safety and security in all aspects of physical, social, economic, cultural, administrative, etc.[24]Iran because of its climate features and special geo-politic situation constantly and perhaps much more than other communities encountered with several natural hazards such as floods, earthquakes, landslides and manmade hazards such as war. However, in our country for various reasons, planning and doing measures not considered before event occurrence and even if legislate rules and regulations, in practice it is not effective because of lack of requirements and measures prediction or poor management and lack of effective governance structures.[25]Thus provide a comprehensive plan and do that is essential for urban immunization.

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