

Evaluation of Quetta Master Plan from the Lens of Disaster Risk Reduction: A Case of Quetta Master Plan

By

¹Zain uddin Kasi, ²Syed Ainuddin, ³Abdul Rahim, Jamal-ud-din

Abstract:

The research study was conducted in order to evaluate Quetta master plan through the lens of disaster risk management. The researcher has used qualitative method of research design along with primary data. The data was collected from public and experts working in the provincial disaster management authority of Quetta, Baluchistan. Thematic analysis was carried out as the data analysis technique and total sample size was 20. The findings have revealed that disaster risk management is an important subject of controlling the consequences of natural hazards and mitigating risks through every means. The experts and public have shared their opinion regarding lack of funds and resources for taking necessary steps. The number of casualties and deaths has increased in Quetta because it is prone to natural calamities. Therefore, the public should be engaged in protecting the environment and urban planning should be done effectively like in other countries. Moreover, the response collected in the theme related to the National legislation, urban planning and disaster risk requirements include various responses included some aspects such as the recommendations regarding the urban planning in the province of Baluchistan and the effectiveness of the planning in terms of dealing with the disaster risks in an effective manner. Furthermore, the problem that has been highlighted in the responses obtained from the respondents is related to the lack of resources and funds as Pakistan is one of those countries that is not supported by international agencies in terms of monetary value or financial funding that make it difficult to make the urban planning effective.

Keywords: Master Plan, Urban Planning, Natural Disasters, Quetta

¹MPhil Scholar Department of Disaster Management & Development Studies University of Balochistan Quetta Pakistan (Corresponding) zainkasi7@gmail.com

²Dr. Syed Ainuddin Associate Professor Department of Disaster Management & Development Studies University of Balochistan Quetta Pakistan. syed.ainuddin77@gmail.com

³Lecturer Department of Disaster Management & Development Studies University of Balochistan Quetta Pakistan. Email: a.raheemalizai@gmail.com

Introduction:

The purpose of this paper is to describe and evaluate the Quetta Master Plan and to assess it in terms of disaster risk management experts. The study discusses the need for disaster risk management to be implemented in the country in order to prevent casualties caused by the natural disasters. The city of Quetta is considered to be posing a great deal of value and is the 5th largest city in Pakistan (Khan, 2019). It is the capital city of one of the largest province of Pakistan which is Baluchistan. The synopsis also provides the theoretical framework that can be best used to evaluate the Quetta City Master Plan and identify any shortcoming in order to in order to reduce the risks of natural disasters.

It is important to suggest that there is a significant lack of attention towards the planning and development by the government in Baluchistan province and its cities (Erduran et al., 2015). It can be argued that even though the government does announce the budget for the development of the region and its cities, the region still lacks effective planning and is highly prone to the risk of natural disasters. No efforts have been made by the provincial and the central government in order to develop and improve the architecture of the city (Rana & Routray, 2018).

Furthermore, it has been observed that multiple programs have had been initiated by the government but have never been implemented due to the lack of management and funds (Rana & Routray, 2018). Moreover, the central and provincial government had developed the Quetta master plan in 1985 which was to be used by the civil authorities to plan out the city in a more effective manner and to pull it from underdevelopment. The master plan consisted of bringing significant improvement in the urban and structural planning of the city and to mitigate or prevent risks that could be caused by any natural disasters (Balochistan, 2019).

Other countries such as Indonesia that are also prone to affected by natural disasters have implemented disaster risk management in the urban areas of the country. After the tsunami in the year 2004, the government had identified the essence of a disaster risk management in the country (Jha and Stanton-Geddes, (2013). However, in the developed countries such as the UK which has the Natural Hazards Partnership (NHP) is considered to provide the government to come up with the assessment of disaster risk reduction (Hemingway and Gunawan, 2018). The NHP is trying to expand itself as an international welfare organization and to collaborate with governments in order to prevent the risk of natural disasters. In order to implement an urban planning, it is likely to pose certain financial risks to the country due to the high amount of investment in the research and development of a proper urban plan. Pakistan is facing certain economic crisis which makes it important to understand to suggest that urban planning the reason of lack of urban planning is due to the lack

of funds available (Hussain, 2016). Furthermore education is important in order to implement an appropriate city plan which may provide solutions to the problems associated in the urban areas of Pakistan such as infrastructure and architecture. Moreover it is important to suggest that city plan can pose a disadvantage since it can cause local people to get disturbed and people might move to other unfavorable parts of the city. The sustainable practices brought in by the city plan might make it more expensive for the citizens to live in the city. The city was originally planned to accommodate around 100,000 individuals, but at present 3 million people are residing in the city which is creating a huge burden on the city (Aamir, 2015). There even lies a problem of mismanagement of the funds that is being allocated to the city thus the city is deprived of improvement in its conditions. Moreover, mismanagement of the city is further advancing congestion and traffic problems within the urban areas (Shaw, 2015). The large cause of this is accounted in the rural-urban ratio which is disrupted due to the urban migration, which has further deteriorated the master plan as the city faces shortage of housing facilities (Rasheed, Zeeshan and Zaidi, 2017).

The other major problem identified in regard to the city of Quetta is it is affected by the plethora of natural and human induced hazards, which are in form of the earthquakes, floods, landslides, sea tides and droughts, which is seconded in the research of Qadeer (2014). The water transport incidents are the most of the humanely incidents faced by the Quetta city. Thus, it is identified that these disasters are creating a barrier for sustainable development of the city. The urban challenges in the city are further visible in terms of the availability of the unsafe water which is a significant challenge faced in the urban areas of Baluchistan, primarily Quetta.

As derived from the thematic analysis, the major complaint of the people of Quetta was the proper sanitation facilities as well as the problem of the drainage. The major proportion of the city is predominant by the Kachii Abadies, which is the home for low income people. As per the plan the city of Quetta is found rapidly growing and there is an expansion at higher rate, primarily based on the agricultural land, and the expansion is related to the groundwater recharge zones, creating further pressure on the scarce water resources of the city, which have led to the trepidation of drought and famine, which are triangulated in the study of Ghani (2012).

Literature Review:

Need of the Master Plan:

Since the Quetta city's resurgence after the deadly disaster of 1935, it has been maintaining a consecutive population growth until the next succeeding years till 1941. The very first census in Pakistan that carried out was in 1951, in which the population was documented to be fifty thousand. However, during the next intercensal period until 1961 a

continuous growth in population was noticed which was above 90 thousand and there was an additional increase of 80 thousands in the next decade (1972). The population anticipated in the 1980s was 321 thousand, which was compatible to the heads documented in the previous census. The demographic exponential growth could illuminate the dynamics of growth rate. And hence, the growth of population in the Quetta is projected to be increasing three folds during the plan period of next 25 years. The population growth is ascribed to both the natural increase in the current population as well as in the demographic component change such as: immigration within the province and outside the province. For which there was a dire need of master plan for future constructions and settlements. The urban Quetta area is documented to be approximately 650 hectares in the year of 1951. In the following two decades 450 hectare of land was bought for urban uses, where around 180 hectare was added since 1972 and the mean increase in population per annum has been 6 thousands during the 1951 to 1971, that has increased to 15 thousands in the next one decade whereas the urban Quetta extended at a slow rate of only about 22.5 hectares per year which later further extended about 18 hectares per year in the next decade.

However, there have been limited activities of pre-planned constructions and developments for the ceaseless growing urban poor. And the legal tenure ships as Pashtoon Abad and Shaldara lacking the basic infrastructures as well as residing in the disfranchised with poor households due to the slip which happened to terminate in growth of spontaneous settlements.

The planning of the Quetta city for growing population needs to meet the challenges of provision of the socio-economic, aspirational needs as well as emotional needs of its growing population. Endeavors have to be made for modeling not only physical environment but socio-economic environment also being worthy of potentialities of residents forming vigorous Islamic community.

Disaster Risk Management and Quetta Master Plan:

Disaster risk management is defined as the process and method of reducing risk to prevent any uncertain event from happening. It basically includes set of policies and strategies that may mitigate the level of disaster risk. Quetta master plan was taken into consideration for this study so that the researcher can shed light on how Quetta can be protected from disasters and what effective measures can be taken to address current issues. Some of the major problems identified through the Quetta master plan were limited development of physical infrastructure, water scarcity and ineffective management of urban areas. However, apart from these issues, one of the vital challenges faced by Quetta is that, it has become

prone to disasters and is affected by uncertain events that affect the lives of local people. Thus, this study has focused on examining Quetta master plan through the perspective of disaster risk reduction.

The following chapter covers qualitative analysis of the primary data collected from general public and experts working in the planning department of Quetta of disaster management. The data was collected from 20 people in total. The purpose of selecting 20 as the sample size for interviews was to ensure that thorough analysis is done and the objectives of the study are achieved. The researcher has conducted thematic analysis in this research as the data analysis technique. Apart from the analysis and a detailed discussion on research objectives have also been conducted.

This section describes the need for risk management reduction in modern cities such as Quetta with regard to its city plan. It is important for city planners and governments to understand the need for risk management and implement it in their urban planning programs. Furthermore, not accompanying to risk management strategies it is important to suggest that it can lead to urban destruction and loss of life when a natural disaster is likely to strike. Moreover, it is also important to discuss that the taxes that have been collected by the government must be used in order to improve the structural conditions of the urban area (Mercer, 2010). The government authorities must ensure that taxes must be used in order to mitigate and prevent the risks that can be supposedly caused by uncertain natural disasters.

This section further discusses the urban problems that the city of Quetta faces in terms of pollution and overcrowding which is all a result of mismanagement in the urban planning of the city. Improper urban planning can result in the city being underdeveloped and can pose a high vulnerability to the city's condition than can be caused by the natural disasters. The city was originally planned to accommodate around 100,000 individuals and is now home to above 3 million people (Aamir, 2015). Moreover there also lies the problem of the mismanagement of funds since they were not used in order to effectively plan the city to improve its city conditions. Moreover the destruction caused by natural disasters can cause countries to be inflicted with heavy financial losses. The financial losses can be prevented if urban planners are able to follow architectural practices by constructing buildings that are strong to able to withstand natural disasters. Furthermore, improving construction practices can aid the urban planners to develop urban resiliency and to increase their investment in urban planning to mitigate the risks caused by natural disasters (Malalgoda et al., 2014). It is important to identify that the disaster risk management had originated in the year 1970s and has been influenced by the political and geographical location of an urban area. It had been previously proposed by the United Nations in order to cope up

and mitigate the risks posed by the natural disasters (Coetzee and Van Niekerk, 2012). Many adaptations and alterations have taken place since then for the disaster risk reduction in order to prevent casualties and come up with new architectural or responsive techniques.

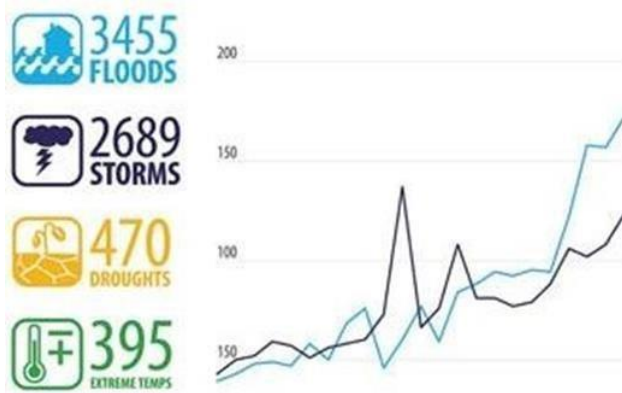


Figure 1: Natural Disaster Source: United Nation International Study for Disaster Risk Reduction (2019)

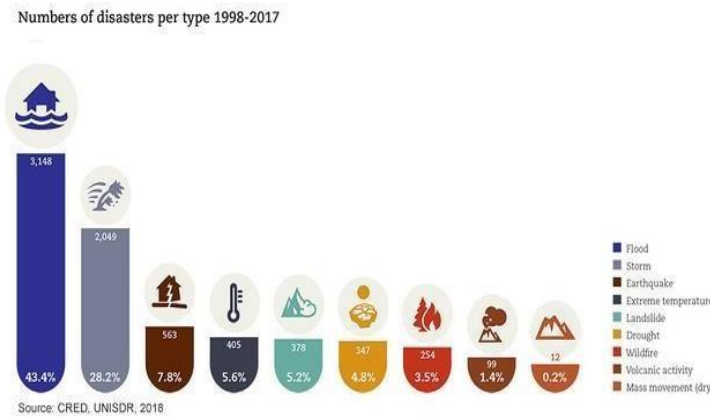


Figure 2: Rate of Natural Disasters Source: Prevention Web (2019)

The above chart represents the dangers that can be posed by the natural disasters around the globe and the need for nations to implement disaster risk reduction techniques in order to prevent casualties and destructions caused. Moreover the stats suggest that 3148 floods had occurred with a 2049 storms have occurred in the year 2018. From the year 1995 to the year 2014, around 89 percent of the world’s casualties that had resulted from storm were in the countries with low amount of economy. A total amount of USD 4 trillion and 2.5 million people have been lost in the last 30 years. The estimated global losses have increased from USD 500 billion a year to a surprisingly USD 200 Billion (World Bank, 2019).

However, the year 2017 is considered to be at a loss of 330 Billion USD due to natural disasters.

Theoretical Framework:

The disaster risk management framework can be an effective tool to understand and evaluate the Quetta city plan (Abunyewah et al., 2018). The framework is comprised of 4 factors which are mitigation, preparedness, response and recovery. Each of the factors enables urban planners to plan cities in such a manner so as to decrease the impact of natural disasters and to prepare them before, during and after a disaster has been struck.

Moreover the plan can also enable authorities to adapt to the adverse effects of the natural disasters by improving the communication of emergency services and to be prepared by improving the architectural practices in the city (Eltinay & Egbu, 2015).

Furthermore, the framework can also be used to reduce the risk of vulnerability in urban areas and is likely able to provide the urban planners or government authorities with adequate knowledge of the possible damage that is likely to be caused (Ciurean et al., 2013). Using the disaster risk management can enable the provincial authorities and the government of Pakistan to develop the city in such a manner so as to prevent loss of human life and to construct buildings which are strong enough to withstand any damages.

Research Methodology:

Research Design: In order to conduct the research and to obtain accurate answers, the researcher made use of qualitative research design. The reason for qualitative design is to develop a better understanding of the topic which is to evaluate the Quetta City Master Plan in terms of disaster risk reduction. The qualitative design allowed analyzing the case study of Quetta and coming up with solutions to the problems and subjective view with regard to the conclusion of the topic.

Data Collection & Variables of the Study:

The researcher used primary and secondary sources of data to obtain maximum amount of data to conduct the research. Primary data was obtained by interviewing experts regarding the Quetta city plan and obtaining their views on the urban planning of Quetta. Furthermore, the interviews aided the in receiving adequate amount of information regarding the limitations of disaster risk management in the Quetta City Plan.

The variables of the study were the architectural response and the disaster risk management. The dependent variable was the disaster risk management and the independent variable was the architectural response. It was important to study the previous city plan of Quetta in order to come up with a new plan which needs be implemented. The previous plan was analyzed using the secondary sources and the expert views through primary interviews.

Sampling:

The researcher adopted the non-probability sampling as opposed to probability sampling because the population was known. Further in the non-probability sampling technique, the study utilized purposive sampling which involved choosing a population which was based on their qualifications. The sample size that was taken for this study was 20 people from Quetta city, 10 of them were individuals that were expert on the subject while 10 from people that are from the planning department of Quetta. Another reason for using this type of sample is due to the fact that the subject requires information that can only be extracted from experts.

Research Analysis Tools:

The researcher will make use of thematic and content analysis for the data that has been collected to carry out the research. The primary data will be analyzed using thematic analysis in which patterns trends, patterns and the details regarding city planning and disaster risk management will be analyzed. On the other hand, content analysis will be used to analyses the secondary data obtained from previous studies regarding the topic. The content analysis will enable the researcher to come up with particular conclusion to the research.

Thematic Analysis and Results:

Risk and Disaster Management Techniques in Pakistan:

The first theme focused on the risk and disaster management and whether the disaster risk management techniques are applicable in Pakistan. The first respondent was asked about his knowledge on disaster risk management, on which the response was:

“Well definitely this word is in my knowledge and I have heard about it. The disaster management as the word suggests is the application and implementation of the policies that are aimed to reduce disaster risk, besides to prevent the new risk and I would say to manage the existing risk prevailing in the country, which I believe can reduce the losses.”

The other respondent, Respondent 3, was then asked about whether Pakistan has the disaster risk management techniques, on which he responded as follows: *“Our country is the one which is prone to many disasters and risk, such as floods, earthquakes, glacial outburst, landslides etc.*

Well, in our country, the disaster management has always been inactive and stagnant, but after 2005 earthquakes, the National Disaster Management Authority (NDMA) was established in 2007. We witness the central authority breaking into provincial and regional disaster authority, but is quite inefficient, I would say.”

When the researcher asked the respondent to shed light on the reasons for ineffectiveness, the respondent responded by:

“Well, the prime reason, as per my observation is that the disaster management authorities particularly National Disaster Management Authority (NDMA) gets active after the disaster to deal with aftermath of the disaster, although their role I believe is to introduce measures that can either reduce risks of disaster or alert the country of the citizen. Besides, I hardly see that these disaster management authorities coordinate with each, thus there is a major drift at national and regional level.”

This has been triangulated in the study of Zeeshan and Khan (2015), which stated the presence of National Disaster Management Authority (NDMA), founded in 2007 after the earthquake and then articulated the National Disaster Response Plan in 2010 to further enhance its domain. Although early warning systems have been in practice but is inactive in case of disasters. The prevention better than cure principle is not implemented in the country, which have left the country exposed to more risks and vulnerabilities. The government has tried community based management system to incorporate different communities to actively take part in the system, working on law and order, sanitation and basic water facilities which though looked small in matters but are the slow poison in causing of the floods or drought in either of the cases.

Benefits Associated with the Implementation of the Disaster Risk Management Plan:

This theme focuses on the risk management plan in the country and the benefits that are associated with the disaster management plan. The respondents were asked in regard to it, on which the respondent 4 responded:

“Well, without any doubt, there should be a risk management plan. It is the need of an hour; you know the country’s geographical location makes it a disaster prone zone, particularly due to high altitude. There are so many benefits that are attached to it like you see implementing you can save hundreds of lives if you have a proper risk management plan. Secondly, the fact that proper risk management plan can lead to preparedness of the communities where they can make arrangements.”

This has been validated in the study of Zeeshan and Khan (2015), which highlights the benefits of the disaster risk management plan, is to

strategies the risks perceived in order to prepare the community with the life-saving method. The implementation of the plan can help the people to save from the monetary losses. Moreover, having a sound disaster management plan can lead to finding out the alternates as if a disaster has struck an area, and the disaster risk management is active, it can relocate all the important buildings, such as schools and hospital and evacuation of the houses to save valuable lives. When the respondent 5 was asked in regard to the benefits he believe in the risk management plan, his response was:

“Well, if you take my opinion, I would say that it is very beneficial to have a sound disaster risk management plan. Without any second thought, every country ought to have it, as there are numerous advantages such as reduction in the calamities, saving of lives and other valuables. Well, further I would say that it can save a country from huge economic losses, as the country like take our example suffered billions of Rupees losses in the 2010 floods and 2007 earthquakes.”

After coughing for a while, he continued with a sigh of flashback in his mind: *“Ummm... Not only is the loss restricted to valuables and belongings being damaged, but the rehabilitation process. I still remember witnessing such a burden on Karachi, when floods hit the upper Sindh and Punjab and evacuation process shifted the victims to mainland Karachi, it was doom and gloom. The situation was so in trepidation, as the city already bearing excess number of people was burdened with more numbers, much of which could have been saved if there was an adequate disaster management plan. That’s I believe is the real benefit of the disaster management system that it alleviates the additional economic cost on the economy resulting from the devastation of the floods and other catastrophes.”*

Casualties and Destruction caused by Natural Disasters:

Based upon the current data and the news in this domain, it was found that Baluchistan is largely affected by natural disasters and Quetta being the capital city, is adversely affected by it too. Be it floods, earthquake, droughts or even Tsunami, Quetta was always affected by the natural disasters. The major reason behind this is the seismic active area/region of Baluchistan which is naturally prone to disasters. However, this was contradictory because human contribution has also played a significant role in increasing the natural disasters. Tracing back to May 31st, 1935 when a powerful earthquake triggered Quetta and around 35,000 innocent lives were lost and most of the city was found under the rubble (PDMA, 2019). The interview was conducted with the experts working in the disaster management department and also from the general public so that the opinion of both can be analyzed in light of the topic.

One of the experts was asked about causalities and destruction caused by the natural disasters in Quetta and the following response was obtained: *“Well, my point of view might be a bit different from your other responses but I will try to put in easy manner. I think that natural disasters are responsible for causing destruction and huge amount of causalities and destroy the infrastructure as well. You must be aware that Quetta has now developed and become a better city but still, the facilities and poor infrastructure do not show that the conditions have improved. This is so because the natural disasters occur at great range and scale due to which, everything is destroyed.”*

On the basis of the above response, it can be analyzed the experts are well aware that natural disasters destroy the infrastructure. However, the expert has emphasized on this fact that Quetta has developed a lot as compared to the previous years but still, it has a long way to go in terms of further development. The geographical location of Baluchistan is critical and this is why, it is affected by natural disasters. Another response was obtained from the expert when asked about the destruction and causalities after the natural disasters:

“We have developed a disaster management cycle which includes some of the important steps such as response, rehabilitation, reconstruction, development, prevention, mitigation and preparedness. But the problem in Pakistan is that, we are not given enough resources for managing the disasters and mostly, we are lacking because of something or the other. Disaster management practices in Pakistan mostly revolve around flood disasters and the relief strategies are not implemented immediately due to lack of funds.”

The above response of the expert reveals that natural disasters that occur in Pakistan are mostly hazardous and cause great loss to the infrastructure. However, this has also been identified from the existing studies that disaster or relief departments always remain untrained and they are not made part of the development process at the national or federal level (Khan and Khan, 2008).

Risk Assessment and Sustainable Strategies for Disaster Risk:

The next set of questions that were asked from the experts working in disaster management department of Baluchistan was associated with risk assessment and sustainable strategies for disaster risk management. Also, the risk assessment strategies that are applied were asked from the respondents so that thorough analysis can be done. One of the experts shared their opinion in the following words: *“Risk assessment is part of our job roles and responsibility and during every natural disaster and even before that, we have tried to reduce risks through every possible manner so that we can protect the innocent lives and the infrastructure. Apart from this, PDMA is responsible for taking important measures such*

as assessment of disaster affected areas for emergency, a plan of transition to ensure that the recovery is ensured and public briefing is also managed so that, panic is not created anywhere.”

The above opinion of expert shows that the risk assessment is done before the natural disasters occur because they are aware that predictions cannot exactly show the accurate results and that they need to prepare themselves. Based on the response of the expert and the findings of the literature, it was determined that the risk assessment which is suitable for Quetta, Baluchistan is hazard assessment and vulnerability assessment. In these methods, the disaster management team is responsible for identifying the hazards, for instance, the magnitude of 2008's earthquake was above 7 and the predictors did not expect it to be this much, hence, it is to be noted that risk strategies depend on the intensity of the natural hazard that occurs. On the other hand, vulnerability assessment can also be performed which helps in identifying the elements that are prone to it such as the infrastructure, site and people.

In order to obtain some more realistic responses, the public was approached and they were asked regarding the risk assessment strategies and what they think should be the necessary steps for managing the natural disasters in Quetta:

“I think that risk management should be done before the natural disasters occur and here in Quetta, we have been facing this issue since a long time because of which there is limited development. I think that in Quetta, there are limited human and property awareness campaigns due to which we are unaware of what to do when the disasters occur. I clearly remember that when earthquake was hit in 2008, we were confused and had no clue about what to do and what not to do because we were in state of shock. It is necessary that the government should take some initiatives in order to help the people understand the situation and act accordingly.”

Based on the above response obtained from the general public, it was found that awareness campaigns are highly necessary in order to take the right action on the right time. Another question was asked from the expert regarding past disasters and sustainable strategies to which the following response was obtained:

“The country previously did not prepare for any disasters nor were there any special strategies but now, we have developed many frameworks for tackling the natural disasters and have also ensured that they are implemented timely. Sustainable strategies for managing risk include trainings, recovery measures and preparation of relief plans. The major goal or the motive, I tell you, behind it is to increase the resilience of infrastructure and reduce risk by all means.”

It was found from the above response that the country is now prepared for any natural hazards to occur but still, it is not able to fully control it. The news channels and the social media have also started playing a vital role in increasing awareness among the general public. According to PDMA (2019), it was found that the department of disaster management has prepared a program called as CBDRM which includes some important guidelines and activities for dealing with the natural disasters and how they can be mitigated. Since, Baluchistan is strongly affected by natural hazards, therefore, PDMA has already held some meetings with their stakeholders and other regional departments regarding the upcoming monsoon season. Also, the past disasters that occurred due to flooding in 2007, 2010 and 2012 has affected the local people badly and it has also had adverse effect on economic stability of the province.

National Legislation, Urban Planning and Disaster Risk Requirements:

The next set of questions that were asked from the respondents was related to national legislation, urban planning and disaster risk requirements for managing it.

Based on it, the respondents were asked questions and the following response was obtained from the experts working in the disaster management department:

“In my opinion, I have had many experiences where people ask me about how urban planning should be done in Baluchistan and how can the planning be effective enough for managing the risk. But I want to tell you something that, urban planning is done in other advanced countries too which are prone to natural disasters such as Malaysia, Philippine, Indonesia and Japan. However, the problem is only related with resources and funds, because the international countries are supported by many other international agencies but the issue with Pakistan is that, they are not supported by any funding or resources.”

Based on the above response, it was determined that urban planning should be done more timely and it is necessary for the local departments and disaster management agencies to ensure that they implement the plan effectively. Moreover, it was also found from the existing studies that urban planning of Baluchistan or Quetta specifically cannot be done so easily because literacy rate is low and local people have little or no awareness about it.

Funding for Architectural Disaster Programs:

The next set of questions that were asked from the experts and public were related with funding for architectural disaster programs. Basically, the funding has become an issue for the local authorities and the

provincial government because lack of tools, techniques and equipment's and resources lead towards ineffective implementation of disaster management plans. The budgetary distribution allocates very less amount for preventing any natural hazards or disasters hence, it is not covered efficiently. One of the experts stated that:

“We have many times communicated to the higher authorities that we need resources and financial budget for managing disasters but no action is taken yet. Quetta council has also discussed this issue with the provincial level authorities but, they do not take it seriously. All we are left is with limited resources.”

Discussion:

Problems faced by the Quetta city in accordance to the Quetta master plan. The objective of this paper was to discuss in depth about the problems that the city of Quetta faces in regard to Quetta master plan that has been developed by Pakistan's civil authorities, targeting the underdeveloped region of the Quetta city, in order for the city to undergo drastic changes in the structural construction. As per the interviews conducted and the thematic analysis carried out, the research identifies that the major problem faced by the Quetta city is the improper urban planning, that is left the city to remain underdeveloped and exposed to natural disaster.

The city was originally planned to accommodate around 100,000 individuals, but at present 3 million people are residing in the city which is creating a huge burden on the city (Aamir, 2015). There even lies a problem of mismanagement of the funds that is being allocated to the city thus the city is deprived of improvement in its conditions. Moreover, mismanagement of the city is further advancing congestion and traffic problems within the urban areas (Shaw, 2015). The large cause of this is accounted in the rural-urban ratio which is disrupted due to the urban migration, which has further deteriorated the master plan as the city faces shortage of housing facilities (Rasheed, Zeeshan and Zaidi, 2017).

The other major problem identified in regard to the city of Quetta is it is affected by the plethora of natural and human induced hazards, which are in form of the earthquakes, floods, landslides, sea tides and droughts, which is seconded in the research of Qadeer (2014). The water transport incidents are the most of the humanely incidents faced by the Quetta city. Thus, it is identified that these disasters are creating a barrier for sustainable development of the city. The urban challenges in the city are further visible in terms of the availability of the unsafe water which is a significant challenge faced in the urban areas of Baluchistan, primarily Quetta.

As derived from the thematic analysis, the major complaints of the people of Quetta were the proper sanitation facilities as well as the problem of the drainage. The major proportion of the city is predominant by the Kachii Abadies, which is the home for low income people. As per the plan the city of Quetta is found rapidly growing and there is an expansion at higher rate, primarily based on the agricultural land, and the expansion is related to the groundwater recharge zones, creating further pressure on the scarce water resources of the city, which have led to the trepidation of drought and famine, which are triangulated in the study of Ghani (2012).

References:

- Aamir, A. (2015). Quetta: Overcrowding, pollution and mismanagement have turned. Retrieved from <https://nation.com.pk/17-Jul2015/quetta-overcrowding-pollution-and-mismanagement-have-turned-little-paris-into-a-dump>
- Abunyawah, M., Gajendran, T., & Maund, K. (2018). Conceptual framework for motivating actions towards disaster preparedness through risk communication. *Procedia engineering*, 212, 246-253.
- Balochistan.(2019). Master Plan - Government of Balochistan. Retrieved from http://www.balochistan.gov.pk/index.php?option=com_content&view=article&id=657:masterplan&catid=47&Itemid=550
- Choudhry, R. M., & Iqbal, K. (2012). Identification of risk management system in construction industry in Pakistan. *Journal of Management in Engineering*, 29(1), 4249.
- Jiurean, R. ., Schr ter, D., lade, T. 2013 . Conceptual frameworks of vulnerability assessments for natural disasters reduction. In *Approaches to disaster management Examining the implications of hazards, emergencies and disasters*. IntechOpen.
- Coetzee, C., & Van Niekerk, D. (2012). Tracking the evolution of the disaster management cycle: A general system theory approach. *Jàmábá: Journal of Disaster Risk Studies*, 4(1), 1-9.
- Eltinay, N., & Egbu, C. (2015). DISASTER RISK REDUCTION CONCEPTUAL FRAMEWORK: OPEN DATA FOR BUILDING RESILIENCE IN CRITICAL INFRASTRUCTURE.
- Erduran, E., Magsi, A. M., Gill, A. W. M., & Lindholm, C. (2015). Earthquake risk assessment of Quetta. Kjeller, Norway, Available online: <http://www.pmd.gov.pk/seismic/3.pdf>, Accessed, 26.

- Hemingway, R., & Gunawan, O. (2018). The Natural Hazards Partnership: A public- sector collaboration across the UK for natural hazard disaster risk reduction. *International journal of disaster risk reduction*, 27, 499-511.
- Jha, A. K., & Stanton-Geddes, Z. (Eds.). (2013). *Strong, safe, and resilient: a strategic policy guide for disaster risk management in East Asia and the Pacific*. The World Bank.
- Khan, M. (2019). BHC :: Quetta > History of District. Retrieved from <https://bhc.gov.pk/districtjudiciary/quetta/introduction/history> Malalgoda, C., Amaratunga, D., & Haigh, R. (2014). Challenges in creating a disaster resilient built environment. *Procedia Economics and Finance*, 18, 736-744.
- Mercer, J. (2010). Disaster risk reduction or climate change adaptation: are we reinventing the wheel?. *Journal of International Development: The Journal of the Development Studies Association*, 22(2), 247-264.
- Nazir, M. K., Bajwa, I. S., & Khan, M. I. Earthquake Disaster Management System (EDMS) for Quetta City Using GIS.
- Preventionweb. (2019). Disaster Data & Statistics | PreventionWeb.net. Retrieved from <https://www.preventionweb.net/knowledgebase/disaster-statistics>
- Rafiq, L., & Blaschke, T. (2012). Disaster risk and vulnerability in Pakistan at a district level. *Geomatics, Natural Hazards and Risk*, 3(4), 324-341.
- Rana, I. A., & Routray, J. K. (2018). Multidimensional Model for Vulnerability Assessment of Urban Flooding: An Empirical Study in Pakistan. *International Journal of Disaster Risk Science*, 9(3), 359375.
- Roy, F., & Ferland, Y. (2015). Land-use planning for disaster risk management. *Land Tenure Journal*, (1).
- Syed, A., & Kumar Routray, J. (2014). Vulnerability assessment of earthquake prone communities in Baluchistan. *International Journal of Disaster Resilience in the Built Environment*, 5(2), 144-162.
- Unisdr. (2019). Disaster Statistics - UNISDR. Retrieved from <https://www.unisdr.org/we/inform/disasterstatistics>

World Bank. (2019). Disaster Risk Management Overview. Retrieved from [https://www.worldbank.org/en/topic/disaster risk 177management/overview](https://www.worldbank.org/en/topic/disaster-risk/177management/overview)