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### Original Citation

Malalgoda, CI, Amaratunga, Dilanthi and Haigh, Richard (2011) Empowering local governments to make disaster resilient cities. In: International Conference on Building Resilience 2011: Interdisciplinary approaches to disaster risk reduction, and the development of sustainable communities and cities, 19-21st July 2011, Kandalama, Sri Lanka.. (Unpublished)

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# **Empowering Local Governments to make Disaster Resilient Cities**

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## **Abstract**

Disasters either natural or man-made cause a significant impact to the entire world. The occurrence of natural disasters has increased significantly in the recent past resulting a higher number of mortalities and economic and social losses. It is evident that the impacts and severity of natural disasters are linked to the unplanned urban development. Due to rapid urbanisation and population growth the cities are becoming increasingly vulnerable to disasters. Therefore there is a high need for disaster-sustainable urban areas in today's context, incorporating proper risk reduction mechanisms to make cities resilient for future disasters. This requires a serious effort of various stakeholders including governmental and non-governmental institutions. The local governments being the first responder and the one responsible for community development, has a key role to play in achieving society's resilience to disasters and to ensure the resilience of the cities under their jurisdiction.

Even though there is a growing concern among the researchers and practitioners on the role of the local governments in making cities resilient to disasters and contributing for the development of disaster resilient cities, several incidents have been reported on the inadequate contribution of local governments in taking the lead role of disaster risk reduction initiatives. This could mainly be attributed to inadequate financial, manpower and other resources available with local governments, lack of willpower and their failure to make timely decisions due to lack of authority. This has emphasised the need for empowering local governments with improved governance structure and the need for developing capacities to lead the concept of resilience in their respective local areas. Therefore the aim of this research is to develop a framework to empower the local governments to make cities resilient to disasters within the context of built environment and accordingly this paper is focussed on emphasising the need for empowering the local governments.

In this context, this paper highlights the need for empowering the local governments and identifies the ways and means of achieving this in the development of the society's resilience to natural

disasters. The literature review technique is used to address this potential issue and the findings are justified through various literature gathered from research papers in electronic databases along with conference proceedings and reports published by various institutions.

**Keywords:** Disaster, Empowerment, Local Government, Resilient cities

# 1. Background

The occurrences of natural disasters has risen sharply worldwide (Kulatunga, 2010) causing widespread human, structural and economic losses. The economic losses of disasters in 2011 have tripled against the figures of 2010 and lost more than 218 billion US dollars by the month of May, 2011 (Ameh, 2011). According to official statistics issued by the CRED and the ISDR (2010a), natural disasters have caused the death of more than 780,000 people and affected more than 2 billion others over the past ten years from 3,852 natural disasters worldwide. Further the loss to property and infrastructure is over US \$ 960 billion. Thus natural disasters are considered to be a major threat to the entire world and have become a global concern.

It is clearly evident that the severity of the impact of natural disasters is directly linked to unplanned urban development and ecosystems (ISDR, 2010b). According to statistics, people in underdeveloped countries with a low level of development are more likely to be affected and killed by disasters (Bosher, 2008a). The early months of 2010 saw two of the worst earthquakes of the recent past, which affected two separate parts of America. The Earthquake which hit on 12 January 2010 in Port-au-Prince, the capital of the region's poorest country, Haiti, resulted a death toll of more than 200,000 and made nearly one million homeless (Red Cross, 2010) which is an extreme illustration of either unplanned or total lack of development activity required for disaster risk reduction (DRR). According to Witte and Llana (2010), the powerful earthquake that struck Chile on 27 February 2010 was far stronger than the one that struck Haiti in January, but the damage was much more contained, with a death toll of 214, which is thousand times lower than that of Haiti's. The disparity of impacts of the above two earthquakes are primarily due to good disaster preparedness and quality housing, infrastructure and services in Chile (Red Cross, 2010), which highlights the need to incorporate disaster risk reduction in all aspects of planning and development activities.

According to the Red Cross (2010) more than fifty percent of the world's population live in cities and urban centres, increasing the risk of informal settlements, social inequality and environmental degradation, making them more vulnerable to disasters. Therefore it is important to concentrate on people in urban centres and to focus on sustainable urbanisation to reduce disaster risk within cities. In addressing the disaster risks within cities it is important to concentrate on the two basic dimensions of the disaster management cycle which includes pre disaster protection and post disaster recovery as explained by Smith (2001). The built environment provides a core to many human activities and plays a critical role in every city. Thus, when moving towards sustainable urbanisation and safer cities, it is necessary to develop the built environment with an effective degree of resilience, in order to withstand and adapt to the threats of disasters (Bosher, 2008).

The Hyogo Framework for Action 2005-2015 has identified the importance of prioritising disaster risk reduction at national and local level with a strong institutional basis for implementation (ISDR, 2005). A large number of stakeholders need to get involved in the process of making resilient cities, out of which local governments are required to play an essential role as they are the main governing body in every city. Several authors, as well as institutions such as UNISDR, have identified local government as one of the key stakeholders in the process of making cities resilient. Some have argued

that local authorities are the vehicles through which the disaster risk agenda could be championed as they are rooted in the local communities where disasters happen (Manyena, 2006). As such, a resilient city needs to be able to deal with any impending hazard locally and the local governments being the main governing body in every city are expected to undertake the responsibility of managing the situation in their respective cities.

Even though there is a growing concern among researchers and practitioners of the role of local government in making cities resilient, several incidents have been reported on the inadequate contribution of local governments in taking the lead role of disaster risk reduction initiatives. Pearce (2003) has identified that some local governments do not include or work with people and this has made it difficult to make decisions and reasonable solutions for disaster related problems. According to Manyena (2006), the development of disaster resilience by local authorities is largely dependent on the capacity of local authorities to plan and manage the development activities. As such strengthening of local government should be a primary concern of policy makers (Pelling, 2003; Dillinger, 1994; Abbott, 1996; Schubeler, 1996). This emphasises the need to develop the capacity of local governments in order to implement proper disaster risk reduction within the areas under their jurisdiction. Therefore it is important to identify the challenges faced by local governments in implementing disaster risk reduction initiatives and to understand how local governments can be empowered and governance can be reformed to ensure successful implementation of disaster risk reduction initiatives at the local level. As such the empowerment of local government in making cities resilient to disasters emerges as a very important research area in today's context with much potential.

Therefore the aim of this research is to develop a framework to empower the local governments to make cities resilient to disasters in the built environment context and this paper is primarily focussed on emphasising the need for empowering the local governments. The literature review technique has used to address this potential issue and the findings are justified through various literature gathered from research papers in electronic databases along with conference proceedings and reports published by various institutions.

The paper consists of six sections. Section one is the background. Section two provides an introduction to disasters and explains the concept of disaster risk reduction. Section three illustrates the need for resilient cities while providing different definitions to the term 'resilient city'. Section four explains the role of the local government in making cities resilient and identifies the challenges faced by local governments in doing so. Section five outlines the need for empowering the local government and finally the summary and way forward in section six.

## **2. Disasters and the concept of disaster risk reduction**

There have been many attempts in the literature to define the term 'disaster'. ISDR (2002) has defined disaster as a "serious disruption of the functioning of a society, causing widespread human, material, or environmental losses, which exceed the ability of the affected society to cope using only its own resources". As such disasters are events concentrated in time and space and which occur

when a community suffer exceptional, non routine levels of disruption and loss (Smith, 2004). Disaster may occur as a result of a hazard which is a naturally occurring or human induced or an event with the potential to create a loss (Smith, 2004). Even though the origins and the causes of disasters are diverse, the consequences to society are often similar, which includes loss of lives, economic losses, destruction of the built and natural environment, and disruption to the local institutions and livelihood (Haigh and Amaratunga, 2010).

Thus, hazards are considered to be a major threat to the entire world and disaster scholars who have investigated the relationship between development and vulnerabilities have identified that the impact of disasters are likely to increase in the future (Aini & Fakhrul-Razi, 2010). Disaster risk arises when hazards interact with physical, social, economic and environmental vulnerabilities (ISDR, 2005). Vulnerability means “characteristics of a person or group in terms of their capacity to anticipate, cope with, resist, and recover from the impact of a natural hazard” (Blaikie et al, 1994). It is identified that vulnerabilities related to unplanned urbanisation, development within high-risk zones, under-development, environmental degradation, climate variability, climate change, geological hazards and competition for scarce resources, are ever increasing and could result in a higher degree of disaster occurrence in the future (ISDR, 2005). Vulnerability is also increasing due to rising poverty, growing global population, armed conflict and other underlying development issues (Hayles, 2010). Therefore it is important to manage these vulnerabilities in order to reduce the impact of disasters.

It is well known that all individuals and communities are vulnerable to hazards in varying degrees and all have inherent capacities to reduce the vulnerability (Ginige et al, 2009). In fact, the consequences of a disaster are much less severe if it happens in a place where people are well protected, whereas the consequences are considerably more significant if it happens in a poorly protected environment. The disaster impact can also vary depending on its type and the economic conditions of the areas struck by the disaster (McDonald, 2003). The author has further argued that more developed countries are less at risk due to their better built environment and support systems. Therefore, disaster risk can be expressed in a simple equation which consists of three variables as shown below (Ward, 1999 cited Yodmani, 2001).

Disaster Risk = (hazards x vulnerabilities) / capacity

Accordingly, disaster risk can be reduced either by decreasing the hazards and/or vulnerabilities and/or by increasing the capacities of the community and other related institutions. Therefore disaster risk reduction should incorporate measures to curb disaster losses by addressing hazards and people’s vulnerability to them, throughout the disaster management cycle (Palliyaguru and Amaratunga, 2008). In this context, disaster risk reduction (DRR) can be defined as the “systematic development and application of policies, strategies and practices to avoid (prevention) or limit (mitigation and preparedness) the adverse effects of hazards” (ISDR, 2010c). The impact of disasters can be reduced or prevented with the proper adoption of the disaster risk reduction strategies.

Further, disaster risk reduction measures can be categorised in several ways: policy and planning; physically preventive measures; physical coping and/or adaptive measures; and community capacity building (DFID, 2005). Policy and planning measures are implemented at the national or regional

level and help to integrate disaster risk reduction into the policy framework. Physically preventive measures are designed to reduce the vulnerability and exposure of infrastructure to natural hazards. These include coping and adaptive infrastructure that is capable of withstanding hazard threats. The community capacity building measures are designed and implemented at a community level, particularly by strengthening of communities to better respond and cope to a disaster event through training and capacity building. In this context, the term 'community' can be referred to as a group of people living in a particular geographical area or to a group of people living in a particular place (Smith, 2001). Similarly, McEntire et al (2010) have identified four schools of thoughts for vulnerability reduction. The 'physical science' school is about living in safe areas and focuses on avoiding exposure to hazards and thereby risk reduction. The 'engineering school' concentrates on the built environment and ways to increase resistance through construction practices and methods of fabrication. The 'structural school' concentrates on traditional notions of vulnerability more than the other three, and it stresses susceptibility based on socioeconomic factors and demographic characteristics including race, ethnicity, gender, age, amongst others. The 'organisational school' stresses the resilience or the effectiveness of response and recovery operations concentrating on the importance of preparedness, leadership, management and the ability to adapt, improvise, and to be creative. As such it is important to address these schools of thoughts as approaches towards reducing disaster risks.

Therefore as a measure of reducing disaster risks, it is important to build cities with adequate degree of disaster resilience and the next section highlights the need for resilient cities in the current context.

### **3. Need for disaster resilient cities**

#### **3.1 Resilient city definition**

Cities are complex in nature and consist of a number of inter-dependent physical systems (Santos-Reyes, 2010) and human communities, which are vulnerable to disasters in varying degrees. Cities are seen as engines of economic growth where much of the economic activities take place (Pelling, 2003). As such the urban areas can be defined by their economic functions where secondary (industrial, manufacturing) or tertiary (service) sectors dominate over primary sectors (agriculture, forestry, mining etc.) found in rural areas; or by population density or size; or by administrative region where all land and activities lies within a metropolitan district become urban (Pelling, 2003).

'Resilient city' is a comparatively new term which is now widely used in disaster related literature and policy documents published by various institutions such as UNISDR. Although the term is used and discussed widely in policy terms, its theoretical base appears to be rather light. Therefore it is important to have a proper definition for the term 'resilient city'. The resilient city can be defined in different ways. One such definition for a resilient city is a "city that has developed the systems and capacities to be able to absorb future shocks and stresses over time, while at the same time working to mitigate the present causes of future shocks and stresses" (ResilientCity.org, 2010). A resilient city can also be defined as a sustainable network of physical systems (constructed and natural

environmental components) and human communities (Godschalk, 2003). The physical systems act as the body of the city, and at a time of a disaster, the physical systems should be able to survive and function under extreme stress. As such, at a time of a disaster, the effects to the physical systems and human communities need to be minimal. ISDR (2010d) have also identified some parameters to a resilient city, namely, a resilient city needs to be equipped with a competent and accountable local government who caters for sustainable urbanisation with the participation of all stake holder groups; many disasters are avoided by way of good housing, infrastructure and services; being equipped with necessary resources and being capable of organising itself before, during and after a hazard; being able to quickly restore basic services as well as social, institutional and economic activities; understanding its dangers, and developing a strong, local information base and taking steps to anticipate disasters and protect the city, and being able to minimise physical and social loss arising from disasters. All in all, a resilient city needs to be able to absorb future shocks with a minimal, or without any, effects to the city, its physical systems and community.

### **3.2 Need for resilient cities**

As a result of rapid urbanisation, the world's population is increasingly concentrated in large cities with poor housing and a lack of basic protective infrastructure (Red Cross, 2010; ISDR, 2010d). Therefore the cities are becoming extremely vulnerable to natural hazards. Disasters happen in both urban and rural areas. According to the Red Cross (2010) more than half of the world's population lives in cities, and between one-third and one-half of the population of cities of low and middle-income nations live in informal settlements. The high population density in cities is leading to unplanned urban development with inappropriate and lower quality housing, infrastructure and services. This excessive unplanned urban growth leads to various vulnerabilities and impacts on urban cities (Bhattarai & Conway, 2010). Also, weak urban governance, a lack of available land for low income citizens, and a concentration of economic assets in cities and the decline of eco systems have contributed to the high disaster risk in cities (ISDR, 2010d). Taking the above into consideration, it is important to prioritise investments in cities in order to mitigate the impacts of disasters in the short run and to reduce risks in the future (Dubbeling et al, 2009). Comfort (2011) observed that severe destruction and heavy losses that occurred after Hurricane Katrina were due to inadequate plans and practices, and emphasised the need for creating resilient cities which are capable of assessing and managing their own risks. Similarly the Haiti earthquake can be identified as another example of increased impact due to unplanned development. According to Dempsey & Jenks (2010), poor building construction and unplanned development has aggravated consequences of Haiti earthquake. Similarly, several others such as Newman (2008) and Godschalk (2003) have highlighted the need for resilient cities as a way of achieving society's resilience. The above facts show that there is an urgent need for concentrating on the vulnerabilities in cities and to make them resilient to disasters. The local government has been identified as one of the key stakeholders in the process of making cities resilient and therefore the next section elaborates the role of the local government in this exercise.



## **4. Local government's role in making cities resilient to disasters**

### **4.1 Why local government?**

Effective implementation of disaster risk reduction requires participation of various sectors and disciplines such as the three spheres of government (national, provincial and local), private sector, civil society, non-governmental organisations, community based organisations, research institutions and institution of higher learning etc. (Niekerk, 2007). It is further observed that none of these role players can play in isolation and a successful and effective system requires integration and coordination of all these role players. Out of these stakeholders local government has been identified as one of the key stakeholder in the process of making cities resilient to disasters. Though all levels of governments are generally involved in disaster management, the role and actions of local governments in making cities resilient are predominantly critical (Col, 2007). Local governments can play a key role in contributing to make cities resilient in numerous ways as they are rooted at the local level where disasters happen. As such there is wide spread agreement within the literature that local governments have a vital role in implementing disaster risk reduction initiatives and to make cities resilient to disasters (MacManus and Caruson, 2006; Kusumasari et al., 2010; Manyena, 2006). The institutions like UNISDR, the Red Cross, and ADPC, have also emphasised the need for local government to undertake the responsibility of managing disasters in order to make cities deal effectively with hazard threats locally. Before examining this potential role of the local governments in making cities resilient, it is important to understand the meaning of local government.

Reddy, 1999 (cited Waldt, 2007) defines local government as the “level of government created to bring government to the local populace and to give citizens a sense of participation in the political processes that influence their lives”. He further highlighted locality, legal personality, autonomy, governmental powers, and participation and representation as key characteristics of a local government. According to Pelling (2003) within cities local government occupies a vital position in contributing to its varied roles of being a service provider, community resource mobiliser, regulator, advocate and strategic planner. Within these roles the local governments are expected to provide a better service to the local population. As such, local governments can be identified as a huge service provider to the local community. For example, Sabri & Jaber (2007) cited Palestinian local governments as offering services like creation and maintenance of roads, water and electricity supply; planning and controlling of buildings, building permits, and infrastructure; providing health and environmental services and responsibility for public entertainment. Some local governments provide these services to the general public directly or may arrange to do so by third parties. In general, the term local government encompasses urban and rural communities of different sizes and levels and includes regional, provincial, metropolitan, city, municipality, township and village councils which are instituted for specific demarcated areas (The Incheon Declaration, 2010; Waldt, 2007).

In the context of making cities resilient, Manyena (2006) described local authorities as the vehicles through which the disaster risk agenda could be championed as they are rooted in the local

communities where disasters occur. Hence, being the closest governmental body to the local community, the local governments are in a more privileged and advantageous position in contributing to making cities resilient to disasters. As such they play an important role before, during and after a disaster (Kusumasari et al, 2010). In most countries, local governments are in charge of development work to reduce disaster risks, such as land use planning, urban development planning, public works, construction safety and licensing, social services and responding to the needs of the poor and the under privileged (ISDR, 2010e) and therefore they typically have more authority over urban planning and construction supervision (Bendimerad, 2003). Thus, the disaster risk reduction and urban sustainability are more likely to be addressed by the local rather than central governments. It is known that every city has a different risk profile and therefore vulnerable to different threats of varying magnitude which emphasise the need of a localised solution. Also, local governments could encourage public participation at the local decision making level in order to implement successful mitigation strategies (Pearce, 2003). It is therefore clear that local governments can contribute to disaster risk reduction and to make cities resilient in numerous ways.

Due to this emerging role of local governments to implement disaster risk reduction measures, UNISDR has specifically addressed the 2010-2011 world disaster risk reduction campaign to local governments under the theme 'Making Cities Resilient'. The vision of this campaign is to achieve resilient and sustainable urban communities and to insist local governments to take actions to reduce the risk of disasters to cities. According to ISDR (2010b), the local governments have to play four major roles in implementing disaster risk reduction (DRR), namely:

Play a central role in coordinating and sustaining a multi-level, multi-stakeholder platform to promote DRR in the region or for a specific hazard: In the disaster risk reduction efforts, local governments are in a better position to engage and coordinate the stakeholders who are involved in this exercise. Therefore the local governments are expected to lead the stakeholders and to facilitate them with required support and assistance in order to successfully engage them in implementing disaster risk reduction initiatives.

Effectively engage local communities and citizens in disaster risk reduction activities and link their concerns with government priorities: Local government can be identified as the closest political authority to the local community and therefore they are in a better position to engage local community in disaster risk reduction activities and address their concerns and grievances efficiently and effectively to achieve better results. According to the ten-step checklist developed by ISDR (2010b), the local governments could organise education programmes on disaster risk reduction in schools and local communities in order to educate and involve local communities and school children in risk reduction activities.

To strengthen their own institutional capacities and implement practical DRR actions by themselves: The local governments are required to strengthen their own institutional capacities in order to engage effectively in a practical disaster situation to avoid or limit the adverse impacts of disasters to the local community. Local government can be identified as the authority where land use practices can be regulated and safer construction methodologies can be promoted and enforced (APDC, 2004). According to the ten-step checklist developed by ISDR (2010b), the local governments have to play a

major role in making disaster mitigation a priority. They should have an organisation to deal with disaster risk within their locality in coordination with all sectors, including the participation of citizen groups and civil society. Further, the local governments should assign a budget for disaster risk reduction with adequate incentives for preventive actions, in order to reduce risks to housing and environment, and also identify safe land for low income citizens in urban development plans. In addition the local governments could contribute in maintaining updated data on hazards and vulnerabilities within their jurisdiction, prepare risk assessments and use these as the basis for urban development plans and decision-making, and make them readily available for the public. The work of local government also includes investing and maintaining risk reducing infrastructure such as flood drainage schemes, retaining walls and natural buffers to mitigate floods, storm surges and other hazards. They should formulate risk free building regulations and land use planning norms appropriate to the needs, and within the reach of low income citizens. The local government should also be responsible for assessing and upgrading the safety of all schools, health facilities and various other public buildings and facilities. Further they should install early warning systems and emergency management capacities with regular public drills to educate the public.

To devise and implement innovative tools and techniques for disaster risk reduction, which can be replicated elsewhere or scaled up nationwide: The local governments are in a better position to develop, experiment and implement new tools and technologies for disaster risk reduction such as early warning systems etc. and further include them under their policy priorities.

## **4.2 Difficulties face by local governments in making cities resilient to disasters**

Even though the role of the local government in disaster risk reduction has been widely recognised in the literature, several authors and researchers have identified that gaps exist in the actual contributions made by the local government in disaster risk reduction endeavours. In the recent past, many local governmental bodies have encountered difficulties in dealing with disasters due to inadequate knowledge and capabilities to manage disasters (Kusumasari et al, 2010), and the capacity of local level governments have often been limited by financial and human resource scarcity and by the capture of local level responsibilities by the central government (Pelling, 2003; Stren, 1989). According to Manyena (2006), in Zimbabwe, rural district councils are experiencing a number of challenges such as inadequate financial and human resources, an unstable political system and problems related to decentralisation. Similarly, South African municipalities are still focussing on a reactive approach due to lack of awareness, resources and political will (Niekerk, 2007). At a time of a disaster, the local governments could immediately undertake the responsibility of providing relief to victims but they are often faced with the problem of not having the necessary resources and adequate legislative authority (Bendimerad, 2003). Similarly, in Sri Lanka, the involvements of local governments are very much less in disaster resilience as it is centred on central government, and local governments do not possess adequate resources and they have not been delegated any legislative power by the country's Disaster Management Act (NBRO, 2009). In the context of Hurricane Katrina of 2005 in the gulf coast of USA, defining things in the best interests of the affected people became very difficult due to multi layered governance, and similarly in the Asian Tsunami of 2004,

repercussions have been observed in Indonesia and Sri Lanka due to prior internal conflicts and inherent administrative weaknesses (Osei, 2007). According to Sabri & Jaber (2007) major concerns faced by the Palestinian local governments were control methods, relationship issues with the central government, organisation issues, electronic services and transparency and community contributions. Pearce (2003) has also argued that some of the local governments do not interact or work with people and this has made it difficult to make decisions regarding the provision of reasonable solutions for disaster related problems. The local governments are often faced with the problem of allocating their limited resources among so many priorities and therefore they may not be able to allocate sufficient financial resources for disaster management programs. This would thus affect the proactive decision-making process related to mitigation and preparedness activities (Bendimerad, 2003).

ISDR (2010b) have identified five challenges and opportunities faced by local governments in implementing successful disaster risk reduction strategies, which include lack of interest and capacities, especially the funding mechanisms for risk reduction projects; understanding local risk and vulnerabilities where local governments may lack knowledge about disaster risks and vulnerabilities; maintaining and upgrading critical infrastructure; managing a long term process as disaster risk reduction initiatives often suffer due to staff changes, uneven priorities among staff, and long term political commitment; and learning from disasters where focus on short term recovery works after the onset of a disaster. In summary, the main challenges faced by local government can be categorised under two headings; namely, the internal factors and the external factors. The internal factors include the lack of knowledge of disaster risk reduction initiatives, lack of interest in the subject, human resource issues, lack of financial capabilities, internal organisational and administrative weaknesses and competing priorities. The external factors include lack of authority, multi-layered governance arrangements, unstable political systems and the relationship issues with the central government. Therefore it is important to address the challenges faced by local governments in implementing disaster risk reduction initiatives in a holistic manner to ensure effective disaster risk reduction.

## **5. Need for empowerment of local governments in making cities resilient to disasters**

Empowerment of local governments has been given a high priority in the current context, as a way of responding to the aforementioned challenges.

### **5.1 What is empowerment?**

The Oxford dictionary defines the term empowerment as a way of giving the authority or power to do something. In general, the term empowerment usually comes with people, for example, the Business Dictionary (2011) defines empowerment as a “management practice of sharing information, rewards, and power with employees so that they can take initiatives and make decisions to solve problems and improve service and performance”. This is based on the concept of giving employees the skills, resources, authority, opportunity, motivation, and making them responsible and accountable for the

outcomes of their actions. The same concept can be applied for the organisations. According to Marshall (2006) an empowered organisation is one that is capable of demonstrating characteristics such as clear and honest communications, collaboration within and between work units, shared responsibility in all aspects of task and process, and delivery of high quality products and services driven by customer/client needs. Adams (2008) highlighted that empowered organisations are more likely to maintain the capacity as learning organisations and can ensure inward flow of knowledge and experience that contribute to the quality of the services. In the context of making cities resilient, the term empowerment in this research is referred to as giving the responsibility to the local government to make cities resilient by a way of providing the required skills, resources, authority, opportunity, motivation and making them accountable for the outcomes of their actions.

## **5.2 Need for empowering local governments**

As a way of addressing the aforesaid challenges, it is important to empower the local governments. Empowerment can be done through capacity development and by providing power and authority by way of reforming the existing governance. As such, the capacity development and the improvement of good governance related to local governments, have been given a very high priority in the current context in order to empower the local governments in making the cities resilient. ISDR (2004) have identified the need for improved political commitment and an improved governance of disaster risk reduction within the institutions as two key strategies to be implemented in Africa. Several other authors too have recognised the importance of good governance in disaster risk reduction. The political will and effective governance (e.g. legislation, policies, planning, legal frameworks, etc.) are key elements of a successful disaster risk reduction initiative (APDC, 2004; WMO, 2010). Therefore it is important to understand the meaning of good governance. According to WMO (2010) good governance include “adoption and promotion of robust and sound policies, legislation, coordination mechanisms and regulatory frameworks, and the creation of an enabling environment that is characterised by appropriate decision making processes to allow effective participation of stakeholders, complemented by the appropriate allocation of resources”. Ahrens & Rudolph (2006) have identified accountability, participation, predictability and transparency as the key features of a governance structure that encourages development and supports risk reduction.

Kusumasari et al (2010) introduced six parameters to measure the local governmental capabilities in managing disasters, namely, institutional, human resource, policy for effective implementation, financial, technical and leadership. Proper planning and managing the above parameters would lead to effective management of disasters. In addition, organisational structure and the relationship to national government have been identified as the key to building resilience, by Solway (1994 cited Pelling, 2003). Therefore it is of paramount importance to develop the capacities of local governments in relation to above parameters and to reform the existing governance in order to enable them to act effectively in a disaster situation.

Accordingly, an effective system requires the risk reduction to be mainstreamed in to a policy process and the governmental agencies should have the capacity to design and implement an effective policy (Collins and Kapucu, 2008). Therefore the development of disaster resilience by local authorities is

largely dependent on the capacity of the local authorities for planning and managing the development activities (Manyena, 2006). As such, institutional capacities at national to local levels need to be supplemented by effective information and knowledge sharing mechanisms among different stakeholders which is essential for effective disaster risk reduction (WMO, 2010). Therefore the Hyogo Framework for Action 2005-2015 indicates that both communities and local authorities should be empowered to manage and reduce disaster risk by giving them access to necessary information, resources and the required authority to implement actions (ISDR, 2010b). The authority could be identified as the most important factor in empowering local governments, as lack of authority in disaster management at local government level would aggravate vulnerability, as the risk reduction efforts are closely linked with land use planning, urban settlement and construction control (Bendimerad, 2003). Therefore it is worthwhile to build capacity and empower the local governments and help them acquire the knowledge and resources and provide them with appropriate decision-making authority in order to ensure an effective contribution to disaster resilience.

## **6. Summary**

The literature reveals that the local governments are facing a number of challenges in their contribution to making the cities resilient to disasters. Some of the issues that have emerged are inadequate financial and human resource capabilities, lack of knowledge and interest, inadequate legislative authority and lack of proper coordination with the central government. As such the paper highlights the need of empowering the local governments as a way of responding to aforementioned challenges. Therefore it is proposed to empower the local governments by way of developing the organisational capacities and reforming the governance related to local government set up. In doing so, the local governments can effectively contribute to make their cities more resilient to disasters.

## **References**

- Abbott J (1996) *Sharing the city: community participation in urban management*. London: Earthscan.
- Adams R (2008) *Empowerment, participation and social work*. 4<sup>th</sup> ed. Hampshire and New York: Palgrave Macmillan.
- Ahrens J & Rudolph P M (2006) "The importance of governance in risk reduction and disaster management", *Journal of Contingencies and Crisis Management*, Vol 14 No. 4, pp. 207-220.
- Aini M S & Fakhurul-razi A (2010 in press) "Development of socio-technical disaster model", *Safety Science*.
- Ameh E (2011) *Economic losses to disasters in 2011 have tripled* [online]. Available from: <http://news.myjoyonline.com/international/201105/65843.asp> [Accessed 29 May 2011].

APDC (2004) Building disaster risk reduction in Asia: A way forward [online]. Asian Disaster Preparedness Centre. Available from: <http://www.adpc.net/infores/kobe.pdf> [Accessed 29 May 2010].

Bendimerad S (2003) Disaster risk reduction and sustainable development [online]. Available from: [http://info.worldbank.org/etools/docs/library/114715/istanbul03/docs/istanbul03/05bendimerad\\_3n\[1\].pdf](http://info.worldbank.org/etools/docs/library/114715/istanbul03/docs/istanbul03/05bendimerad_3n[1].pdf) [Accessed 29 May 2010].

Blaikie P, Cannon T, Davis I & Wisner B (1994) At Risk - natural hazards, people's vulnerability and disasters. 1st ed. London and New York: Routledge.

Bhattarai K & Conway D (2010) Urban vulnerabilities in the Kathmandu Valley, Nepal: visualizations of human hazard interactions, *Journal of Geographic Information Systems*, 2, Pp 63-84.

Bosher L (2008) The need for built in resilience. In: Bosher, L. (Ed) Hazards and the built environment- Attaining built-in resilience. London and New York: Routledge, 3-19.

Business Directory (2011) Empowerment [online]. BusinessDirectory.com. Available from: <http://www.businessdictionary.com/definition/empowerment.html> [Accessed 1 January 2011].

Col J (2007) "Managing disasters: the role of local government", *Public administration review*, pp. 114-124.

Collins M L & Kapucu N (2008) "Early warning system and disaster preparedness and response in local government", *Disaster Prevention and Management*, Vol 5 No. 5, pp. 587-600.

Comfort L (2011) "Cities at Risk - Hurricane Katrina and the Drowning of New Orleans", *SAGE Journals online*.

Dempsey N & Jenks M (2010) "The future of the compact city", *Built Environment*, Vol 36 No. 1, pp. 116-121.

DFID (2005) "Natural disasters and disaster risk reduction measures", A Desk Review of Costs and Benefits – Draft Final Report, DFID, London.

Dillinger W (1994) Decentralisation and its implications for urban services delivery, Urban management programme, UNDP/UNCHS/ World Bank, Nairobi

Dubbeling M, Campbel M C, Hoekstra F & Veenhuizen R (2009) Building resilient cities - editorial [online]. *Urban Agriculture Magazine*, Number 22. Available from: <http://www.ruaf.org/node/2067> [Accessed 21 April 2010].

Ginige K, Amaratunga D & Haigh R (2009) “Mainstreaming gender in disaster reduction: why and how?”, *Disaster Prevention and Management*, Vol 18 No. 1, pp. 23-34.

Godschalk D R (2003) “Urban hazard mitigation: creating resilient cities”, *ASCE*, Vol 4 No. 3, pp. 136-143.

Haigh R & Amaratunga D (2010) “An integrative review of the built environment discipline’s role in the development of society’s resilience to disasters”, *International Journal of Disaster Resilience in the Built Environment*, Vol 1 No. 1, pp. 11-24.

Hayles C (2010) “An examination of decision making in post disaster housing reconstruction”, *International Journal of Disaster Resilience in the Built Environment*, Vol 1 No. 1, pp. 103-122.

ISDR (2002) World Disaster Reduction Campaign Disaster Reduction for Sustainable Mountain Development [online]. International Strategy for Disaster Reduction – ISDR. Available from: [http://www.unisdr.org/eng/public\\_aware/world\\_camp/2002/pa-camp02-announc-eng.htm](http://www.unisdr.org/eng/public_aware/world_camp/2002/pa-camp02-announc-eng.htm) [Accessed 1 April 2010].

ISDR (2004) Africa regional strategy for disaster risk reduction [online]. International Strategy for Disaster Reduction – ISDR. Available from: <http://www.unisdr.org/africa/af-hfa/docs/africa-regional-strategy.pdf> [Accessed 1 April 2010].

ISDR (2005) Hyogo framework for action 2005-2010: building the resilience of nations and communities to disasters [online]. International Strategy for Disaster Reduction – ISDR. Available from: <http://www.unisdr.org/eng/hfa/hfa.htm> [Accessed 1 April 2010].

ISDR (2010a) Earthquakes caused the deadliest disasters in the past decade [online]. International Strategy for Disaster Reduction – ISDR. Available from: <http://www.unisdr.org/news/v.php?id=12470> [Accessed 28 Feb 2010].

ISDR (2010b) Local governments and disaster risk reduction [online]. International Strategy for Disaster Reduction – ISDR. Available from: [http://www.unisdr.org/preventionweb/files/13627\\_LocalGovernmentsandDisasterRiskRedu.pdf](http://www.unisdr.org/preventionweb/files/13627_LocalGovernmentsandDisasterRiskRedu.pdf) [Accessed 28 April 2010].

ISDR (2010c) Terminology: basic terms of disaster risk reduction [online]. International Strategy for Disaster Reduction – ISDR. Available from: <http://www.unisdr.org/eng/library/lib-terminology-eng%20home.htm> [Accessed 28 Feb 2010].

ISDR (2010d) My city is getting ready [online]. International Strategy for Disaster Reduction – ISDR. Available from: [http://www.unisdr.org/preventionweb/files/14043\\_campaignkit1.pdf](http://www.unisdr.org/preventionweb/files/14043_campaignkit1.pdf) [Accessed 28 Feb 2010].

ISDR (2010e) Strategy outline for the 2010-2011 ISDR world disaster reduction campaign on building resilient cities, addressing urban risk [online]. International Strategy for Disaster Reduction



– ISDR. Available from: <http://unisdr-apps.net/confluence/download/attachments/8683823/ISDR+2010-2011+CampaignStrategy.pdf> [Accessed 28 Feb 2010].

Kulatunga U (2010) "Multi faceted nature of managing disasters (Editorial)", *International Journal of Strategic Property Management*, Vol 14 No. 4, pp. 283-286.

Kusumasari B, Alam Q & Siddiqui K (2010) "Resource capability for local government in making disaster", *Disaster prevention and management*, Vol 19 No. 4, pp. 438-451.

Macmanus S A & Caruson K (2006) "Code Red: Florida City and County Officials Rate Threat Information Sources and the Homeland Security Advisory System", *State and local government review*, Vol 38 No. 1, pp. 12-22.

Manyena S B (2006) "Rural local authorities and disaster resilience in Zimbabwe", *Disaster Prevention and Management*, Vol 15 No. 5, pp. 810-820.

Marshall J (2006) Empowerment at work [online]. Marshall house personal development. Available from: <http://www.mhmail.com/articles/empowerment-process.html> [Accessed 25 February 2010].

McDonald R (2003). *Introduction to natural and man-made disasters and their effects on buildings*. Oxford: Architectural Press.

McEntire D, Crocker C & Peters E (2010) "An Addressing vulnerability through an integrative approach", *International Journal of Disaster Resilience in the Built Environment*, Vol 1 No. 1, pp. 50-64.

NBRO (2009) *Disaster management through local governments*, NBRO, Colombo

Newman P (2008) *Resilient cities: responding to peak oil and climate change* [online]. Available from: [http://resilientcitiesbook.org/about-the-book\\_284.html](http://resilientcitiesbook.org/about-the-book_284.html) [Accessed 22 February 2010].

Niekerk D (2007) *Local government disaster risk management*. In: Waldt, G. (Ed) *Municipal management: serving the people*, Cape Town: Juta and Company Ltd., 227-250.

Osei P D (2007) "Policy responses, institutional networks management and post hurricane Ivan reconstruction in Jamaica", *Disaster Prevention and Management*, Vol 16 No. 2, pp. 217-234.

Palliyaguru R. & Amaratunga D (2008) "Managing disaster risks through quality infrastructure and vice versa: post disaster infrastructure reconstruction practices", *Journal of Structural Survey*, Vol 26 No. 5, pp. 426-434.

Pearce L (2003) "Disaster management and community planning and public participation: how to achieve sustainable hazard mitigation", *Natural Hazards*, Vol 28 No. 2-3, pp. 211-228.

Pelling M (2003). The vulnerability of cities. London: Earthscan Publications Ltd.

Resilientcity.Org (2010) Resilience [online]. ResilientCity.org. Available from: <http://www.resilientcity.org/index.cfm?id=11449> [Accessed 25 February 2010].

Red cross (2010) World disasters report 2010 [online]. The International Federation of Red Cross and Red Crescent Societies. Available from: <http://www.ifrc.org/Global/Publications/disasters/WDR/WDR2010-full.pdf> [Accessed 25 February 2010].

Reddy P S (1999) Local government democratisation and decentralisation: a review of South African region. Cape Town: Juta

Sabri N R & Jaber R Y (2007) "Managerial performance of Palestinian local authorities", Transforming government: people, process and policy, Vol 1 No. 4, pp. 350-363.

Santos-reyes J (2010) "Natural hazard resilient cities: the case of a SSMS model", EGU General Assembly 2010, Vol 12.

Schubeler P (1996) Participation and partnership in infrastructure management, Urban management programme, UNDP/UNCHS/ World Bank, Nairobi

Smith K (2001) Environmental Hazards. 3rd ed. London and New York: Routledge.

Smith K (2004) Environmental Hazards. 4<sup>th</sup> ed. London and New York: Routledge.

Solway L (1994) "Urban developments and mega cities: vulnerability to natural disasters", Disaster Management, Vol 6 No. , pp. 160-169.

Stren R (1989) The administration of urban services. In: Stren, R. & White, R.R. (Ed) African cities in crisis: managing rapid urban growth. Westview, Oxford.

The Incheon Declaration (2010) Building local government alliance for disaster risk reduction [online]. Summary from 11-13 August conference, Incheon. Available from: [http://www.preventionweb.net/files/10962\\_IncheonDeclarationFinal28Aug09.pdf](http://www.preventionweb.net/files/10962_IncheonDeclarationFinal28Aug09.pdf) [Accessed 04 April 2010].

Waldt G (2007) Municipal management: an orientation. In: Waldt, G. (Ed) Municipal management: serving the people, Cape Town: Juta and Company Ltd., 1-22.

Ward B (1999) Disaster risk assessment.

Witte B & Llana S M (2010) *Chile earthquake much stronger than Haiti's but far less damage. Why?* [online]. Available from: <http://www.csmonitor.com/World/Americas/2010/0227/Chile-earthquake-much-stronger-than-Haiti-s-but-far-less-damage.-Why> [Accessed 15 February 2010].

WMO (2010) A framework for disaster risk management derived from HFA [online]. World Metrological Organization. Available from: [http://www.wmo.int/pages/prog/drr/DrmFramework\\_en.htm](http://www.wmo.int/pages/prog/drr/DrmFramework_en.htm) [Accessed 01 April 2010].

Yodmani S (2001) Disaster risk management and vulnerability reduction: protecting the poor [online]. Available from: <http://www.adpc.net/infores/adpc-documents/PovertyPaper.pdf> [Accessed 01 April 2010].