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Empowering local governments to make a disaster resilient built environment within Sri Lankan Cities

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Abstract

Urban areas are growing very rapidly all over the world, particularly in developing countries. As a result of rapid urbanisation, the world's population is increasingly concentrated in large cities leading to unplanned urban development with inappropriate and poor quality housing, infrastructure and services. This excessive unplanned urban growth leads to various physical, social and economic vulnerabilities. As a result, the consequences of disasters are highly detrimental when they occur in urban environments. Thus, it has become necessary to strengthen the resilience of cities to disasters. The built environment provides a core to many human activities and plays a critical role in any city. Thus, 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. This requires a serious effort to be made by various stakeholders including governmental and non-governmental institutions. As local governments are responsible for local area development, they have a key role to play in achieving the resilience of the cities under their jurisdiction. Even though there is a growing concern on the role of the local governments in making cities resilient, several incidents have been reported on the inadequate contribution of local governments in taking the lead role of initiating risk reduction. In this context, the research aims to explore and propose mechanisms to empower the local governments to make cities resilient to disasters within the context of the built environment. Accordingly this paper intends to analyse the challenges faced by the Sri Lankan local governments in creating a disaster resilient built environment within their cities and to propose the ways and means of addressing the challenges faced by the local governments. As such, the paper proposes a set of recommendations to empower the Sri Lankan local governments in facilitating city resilience building initiatives in the built environment context.

Keywords: Cities, Local government, Disaster resilient cities, built environment, Sri Lanka.

1. Introduction

The world is experiencing rapid urban growth with a consequential increase in urban poverty. As a result of rapid urbanisation, the world's population is increasingly concentrated in large cities with poor housing and lack of basic protective infrastructure (Red Cross, 2010; UN-ISDR, 2010). This excessive unplanned urban growth leads to various physical, social and economic vulnerabilities. Consequently, the impacts of disasters are highly detrimental when they occur in urban environments. According to the Red Cross (2010) more than fifty percent of the world's population lives in cities and urban centres, increasing the risk of informal settlements, social inequality and environmental degradation, making them more vulnerable to disasters. It is therefore important to strengthen these urban cities by increasing the city's resilience to disasters. The built environment provides a core to many human activities and plays a critical role in any 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).

A large number of stakeholders are required to get involved in the process of making cities resilient and the local governments have to play an essential role as they are the main governing body in every city. Several authors, as well as institutions such as UN-ISDR, 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 occur (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 areas. Due to this emerging need to empower local governments in implementing disaster risk reduction measures, UN-ISDR has specifically addressed the 2010-2011 world disaster risk reduction campaign to local governments under the theme of "Making Cities Resilient – My City is Getting Ready". While further recognising the importance and long term nature of the campaign it has been further extended up to 2015.

Even though there is a growing concern among researchers and practitioners about 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 in 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 provide 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 the local governments in implementing disaster

risk reduction initiatives and to understand how local governments could be empowered and governance 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. Consequently, the aim of this research is to develop a framework to empower local governments to make cities resilient to disasters in the built environment context. As part of this broader aim, the paper focuses on analysing the challenges faced by the Sri Lankan local governments in making their cities resilient to disasters. In doing so, it proposes ways and means of addressing the challenges faced by the local governments and concludes with a set of recommendations to empower the Sri Lankan local governments in facilitating city resilience building initiatives in the built environment context.

2. Disasters and Sri Lankan local governments

Sri Lanka was severely affected by the Indian Ocean Tsunami in 2004 and also by heavy floods at various occasions. The Joint Report of the Government of Sri Lanka and Development Partners, issued in December 2005, highlights that the 2004 tsunami caused the death of 35,000 people and destroyed US \$ 900 million worth of assets and infrastructure in Sri Lanka. More recently, during the early months of 2011, Sri Lanka has been severely affected by floods and the lives of many people have been disrupted and many rice crops destroyed (Reuters, 2011). During the event at least 57 people died, around 193,700 were affected and at least 35% of rice crops destroyed. As a developing country which is prone to natural disasters caused by floods, cyclones, landslides, droughts, coastal erosions and also to low-frequency and high impact events like tsunamis (DMC- SL, 2005), Sri Lanka is in great need of disaster resilient cities. On the other hand, according to the report on climate change vulnerability in Sri Lanka, the country is experiencing rapid urbanisation where it is estimated that the percentage of urban population would rise to 50% in the year 2016 (Ministry of Finance and Planning, 2006). Furthermore, in 2009, the manufacturing, construction, and services sectors, which are primarily urban-based, accounted for 83.3% of GDP (Climate Change Secretariat, 2010). This clearly indicates that the majority of economic activities of the country are taking place in urban areas and are not distributed geographically, making the country more vulnerable to disasters. Thus, Sri Lanka, being a country experiencing rapid urban growth and vulnerable to various natural disasters, provides a sound basis for this research and hence the scope of the research will be focused on Sri Lanka.

Sri Lanka is a unitary democratic republic with three levels of government: central, provincial and local. Accordingly, there are nine second tier provinces and 335 third tier local governments including 23 Municipal Councils, 40 Urban Councils and 272 Pradeshiya Sabhas. These local authorities function under their respective Ordinances and Acts, namely; the Municipal Councils Ordinance No. 16 of 1947, and the Urban Councils Ordinance No 61 of

1939, both of which have been revised and re-printed incorporating amendments made in 1987, and the Pradeshiya Sabhas Act No. 15 of 1987.

Presently, the supervision and administration of local government is devolved to provincial councils which have been incorporated under the Provincial Councils Act of 1987. However, the constitution, form and structure of local authorities are to be determined by the law under the 13th Amendment to the Constitution (Leitan, 2010). Thus, for the first time, local governments received constitutional recognition and powers under the 13th Amendment to the Constitution (1987) which states that “Local authorities will have the powers vested in them under existing law, Municipal Councils Ordinance and the Urban Councils Ordinance. Pradeshiya Sabhas will have the powers vested in them under existing law. It will be open to the provincial Council to confer additional powers on local authorities, but not to take away their powers.” As such local governments are autonomous statutory bodies with their constitution, powers and duties defined in their respective Ordinances and Act (Marga Institute, 2011). In general, municipal councils enjoy more powers than urban councils and Pradeshiya Sabhas.

A study conducted by USAID (2005) revealed that the most basic functions of the local governments related to making cities resilient, such as physical planning and regulation of land use, are virtually non-existent. The study further highlighted that municipal and urban councils although appear to do some physical planning; the Urban Development Authority (UDA) has the predominant role to play. Therefore, in Sri Lanka, the involvement of local governments in disaster resilience planning is not significant due to inadequate resources and non-delegation of legislative powers by the country’s Disaster Management Act (NBRO, 2009). Although there is less involvement in disaster risk reduction initiatives, the local government provides a supportive role in emergency response and recovery phases of the disaster management cycle. As such, in Sri Lanka, all the disaster management activities are coordinated by the Disaster Management Centre and its district level coordinators do coordinate the disaster management activities with the support of all other related agencies and local governments. However, the local governments are the primary agency in the country which is involved in providing planning approval for new buildings, alterations and extensions to existing buildings, and changing the use of buildings and land use. Therefore local governments are in a better position to ensure that the new developments are in line with the city’s resilient activities and are safe for human settlements.

However, local government itself is seriously resource deficient in terms of both people skills and competencies, and funds (UNDP, 2007). Lack of technical capacity has been one of the major challenges faced by local governments in contributing to urban planning (Ranasinghe, 2011) and this affects the process of making cities resilient to disasters. According to the Sri Lanka Local Government Forum (2010) most local governments do not employ staff competent enough to undertake initial planning activities and feasibility studies and who can analyse proposals originating from village level. Therefore the report highlighted the need for qualified Town Planners and Development Officers especially in municipalities and urban councils.

As explained earlier, Sri Lankan local governments function under their respective Ordinances and Acts, namely the Municipal Councils Ordinance No. 16 of 1947, the Urban Councils Ordinance No 61 of 1939 both of which have been revised and re-printed incorporating amendments in 1987, and the Pradeshiya Sabhas Act No. 15 of 1987. None of these Ordinances and Acts has explicitly recognised disaster management as a subject for local governments. However, in the Municipal Councils Ordinance and the Urban Councils Ordinance there are sections which can be used or interpreted as related to disaster management activities. On the other hand the country's Disaster Management Act has not delegated any legislative power to local governments (NBRO, 2009). Nevertheless, in the gazette notification published in 2009 regarding the National Policy for Local Government disaster risk reduction, a number of sections have been included, which can be seen as the first step towards bringing local governments into disaster risk reduction activities.

Section 4.1.4 of the National policy on Local Government mainly identifies the role of Local Government as the 'Planning Authority' and has brought a disaster risk reduction element into local planning. Thus the policy ensures proper implementation of the National Physical Planning Law under which the local authority is given the status of the planning authority of the area under its jurisdiction. It is proposed that the scope of the local authority is to be expanded enabling it to assume the role of a planning authority while being backed by the strength and support of the Urban Development Authority Act and the Urban Settlement Development Authority Act for major local development initiatives. In doing so, the policy has explicitly recognised the need for considering associated issues in disaster-prone areas, in order to mitigate disaster impacts. Furthermore, there is a proposal to link investments in local development of the local governments in order to achieve a holistic and integrated development planning process. The policy has also recognised the need for pro-active involvement in a disaster situation, including mitigation and management within the overall District Framework for Disaster Management. In doing so, the policy has linked the Disaster Management Act to local governments by stating; "obtaining technical guidance and assistance from related Ministries and allied technical authorities, the local authority shall identify the disaster-prone areas, potential disaster-risks and hazards and formulate a comprehensive, area-specific plan of action based on locally identified strategies and rapid response systems, having regard to the policy and operational guidelines issued for the purpose, as per the Disaster Management Act".

However, despite all the challenges, many local governments in the country have registered for the resilient city campaign of the UN-ISDR and are working towards achieving disaster resilience and making the city resilient to disasters. By October 2011, 43 local governments of the country have registered for the campaign and are working towards making the cities resilient to threats posed by natural hazards (UN-ISDR, 2011). For example, the Colombo municipality has taken steps to form a task force which consists of all organisations having the responsibility for mitigating floods; setting up a disaster management committee to act immediately, efficiently and effectively after a disaster; improvements to risk information and early warning systems; building a culture of safety and resilience; reducing the risk of the key sectors by minimising unplanned urban developments; inclusion of a disaster fund in the annual budget of the council; school programmes to make school children disciplined in solid

waste handling; prevention of destruction of environmentally sensitive land; discouraging investments in human settlements and developments in environmentally sensitive and disaster prone areas; encouraging investment based on sustainable urban development principles; and prevention of unauthorised constructions (Kamil, 2010).

3. Research methodology

Aim of the main research, of which this paper is based on, is to develop a framework to empower the local governments to make cities resilient to disasters within the context of the built environment. Case studies have been selected as the most appropriate strategy for this research as it enables the researcher to obtain a good understanding of the context of the research and the processes (Saunders et al., 2009). A case study is an empirical inquiry that investigates a contemporary phenomenon within its real life context, especially when the boundaries between phenomenon and context are not clearly evident (Yin, 2009). Three aspects need to be considered in selecting an appropriate strategy, namely; the type of research questions posed, the extent of control the investigator has on the actual behavioural events and the degree of focus on the contemporary as opposed to historical events (Yin, 2009). In the current research the study is mainly focussed on answering ‘what’ and ‘how’ form of research questions; for example ‘what are the barriers faced by local governments in their attempt to achieve resilient cities?’, ‘how is local government empowered to make disaster resilient cities?’. In such instances, the researcher does not have control over the behavioural events and needs to conduct the study in the real-life settings. The study also focuses on a contemporary event where existing background knowledge is present to develop an initial conceptual framework which justifies the selection of the case study research strategy. On the other hand, case studies have a unique strength to deal with a full variety of evidence-documents, artefacts, interviews and observations, and this had an impact on the selection (Yin, 2009).

It was proposed to conduct three case studies within Sri Lanka by selecting three geographical areas within the country. Sri Lanka is a unitary democratic republic with three levels of government: central, provincial and local. Accordingly, there are 9 second tier provinces and 335 third tier local governments including 23 municipal councils, 40 urban councils and 272 pradeshiya sabhas (Marga Institute, 2011). Generally municipal councils are for cities and large towns, urban councils for less urbanised areas and pradeshiya sabhas for rural areas. As such, municipal councils are the premier form of local governments which are based in most urbanised areas of the country. As such case studies were proposed to conduct in Batticaloa, Galle and Kandy municipal council areas. These cities have been selected based on the judgement of the researcher with the opinion of other experts which allowed selecting cities which were particularly informative in nature. As such the cities which have been badly affected by disasters and which are prone to future disasters were chosen. Within the case studies, a large number of interviews have been conducted to gather valid and reliable data that are relevant to the area of study. The interviews were designed to capture the city’s resilience to disasters and to understand the commitment of the local government in making the city resilient to disasters and associated problems. As such, the data were gathered through semi-

structured interviews with the local and other government officials, policy makers, industry practitioners and experts who are engaged in the respective areas of study.

In addition, a series of expert interviews were also conducted with the experts in the field of study, with the view of gaining background knowledge pertaining to this field of study. These interviews were mainly designed to capture, current practice of initiating disaster risk reduction initiatives within Sri Lanka, role of municipal councils in creating a disaster resilient built environment, associated challenges and ways of empowering municipal councils to ensure effective contribution towards city resilience. The main idea behind conducting expert interviews is to reduce the biasness in data sources and to increase the validity and the reliability of the research conclusions by way of triangulating multiple sources of data and multiple methods of data collection. In the same way, government and other publications related to the establishment of local governments, their structure and other administrative and funding arrangements, were studied to get an in depth idea about the cases to be observed.

Within this context, scope of this paper is to explore the challenges faced by the Sri Lankan municipal councils in making a disaster resilient built environment within Sri Lankan cities and to propose the ways and means of responding to identified challenges. The paper analyses the preliminary findings of ten semi-structured interviews conducted with experts who are extensively engaged in the fields of disaster management and local governments. As such, this paper is based on the preliminary findings of the expert interviews conducted as part of the main research. The interview data were analysed based on the explanation of analysing qualitative data as indicated by Saunders' et al. (2009), which involves summarising the data, categorising and structuring the data using narrative to recognise relationships, develop and test propositions and produce well-grounded conclusions. NVivo (version 9) software was used at the data analysis stage to manage, organise and analyse qualitative data. This software has many features that help the process of qualitative analysis, which is effective when dealing with a large number of interview transcripts. The next section will highlight the preliminary findings of the expert interviews.

4. Analysis and discussion

4.1 Overcoming challenges faced by local governments in making a disaster resilient built environment within cities

As evident in the literature Sri Lankan local governments are facing enormous challenges in contributing towards city resilience. Upon analysing the data gathered from the expert interviews, various challenges for local governments have been identified. The next section discusses the challenges in detail while highlighting the ways of overcoming these challenges.

4.1.1 Legal Framework

In Sri Lanka, local governments are autonomous statutory bodies. However the existing system is not considered as a level of government which can administer the development functions as many of the country's development activities are carried out through central government agencies and Provincial Councils. Local governments are the primary agency in the country, which involves in providing planning approval for new buildings, alterations and enlargement of existing buildings, changes to use of buildings and changes of land use. As such local governments are empowered with regulatory and legislative enactments on land-use planning and control of development activities. Therefore local governments are in a better position to ensure that the new developments are in line with the city's resilient activities and are safe for human settlements. Thus, local governments are in a better position to handle many functions in creating a disaster resilient built environment although this responsibility is not adequately delegated by law.

Many of the interviewees were on the agreement that the Ordinances governing the municipal councils are outdated. Many were of the opinion that these have not been revised to suit the current needs of the country. Municipal councils are governed by the Municipal Council Ordinance No. 16 of 1947 which has been revised and re-printed incorporating amendments made in 1987. Municipal Council Ordinance has not explicitly recognised disaster management as a subject for municipal councils although there are sections which can be used or interpreted as related to disaster management measures. For instance, municipalities are expected to provide for the comfort, convenience and wellbeing of the community and therefore they are expected to act on disaster resilience initiatives to ensure the safety of its community. Although there are certain provisions for municipal councils to intervene in disaster matters, many interviewees considered these provisions as insufficient for municipal councils to take decisions in this regard. However, it is important to enhance the awareness on current provisions related to disaster management among the local government officials so that they can act accordingly. In addition, the country's Disaster Management Act has not delegated adequate legislative powers to local governments. Nevertheless the gazette notification published in 2009 regarding the National Policy for Local Government included a number of sections on disaster risk reduction, which can be seen as the first step towards bringing local governments into disaster risk reduction activities. The Local Government Ministry accepted the amendments to incorporate DRR concepts into the Local Government Ordinances and Acts, and this is seen as a welcome step in empowering local governments.

Once the legal framework is established, it is very important that necessary tools, techniques and guidelines are developed and linked to the legal framework. Having a legal framework would itself is not sufficient to encourage local governments to make their cities resilient to disasters. These need to be backed with required tools, techniques and guidelines which support the development of a disaster resilient built environment. In addition to that, a competent team of staff members is required at local level, who can understand and enforce these tools and techniques. The implementation of this is a major challenge for local governments. As such legal framework should incorporate all necessary provisions not only the

authority to engage in city resilience building but also the authority to enforce necessary guidelines and to recruit staff required to enforce these guidelines. Linked with these, legal provisions are also required to support the funding arrangements for city resilience activities.

4.1.2 Lack of adequate tools, techniques and guidelines to promote a resilient built environment within cities

It has been observed that the local population is less aware of built environment related vulnerabilities and as a result many poor constructions are witnessed in disaster prone areas. Even though local government is the primary agency in the country for issuing development permits for buildings and lands under Urban Development Authority (UDA), and issuing of certificates of conformity to ensure that the construction complies with the approved plan, it is unlikely that they look into disaster resilient planning and construction practices when issuing these development permits. As disaster resilient needs are not adequately covered in existing regulations, they are not considered sufficiently when granting planning permits. Vulnerabilities for disasters further aggravate due to lack of planned human settlements and unauthorised developments. Every city does not have an urban development plan to regulate urban planning and many individuals do not get their building plans approved prior to construction. Thus, it is recommended to consider disaster resilient aspects when preparing city development plans and providing development permits. To supplement this process it is very important to prepare development plans for every city, including necessary planning and construction guidelines and hazard maps and these need to be legally enforced in all developments within the city and incorporated into existing planning regulations.

4.1.3 Human resource constraints

Local governments are seriously resource deficient in terms of skills and competencies. A lack of technical capacity has been one of the major challenges faced by local governments in contributing to urban planning and this has adversely affected the process of making cities resilient to disasters. It has been identified that most local governments in Sri Lanka, do not employ qualified town planners and development officers. Thus, inadequate urban planning and lack of monitoring and supervision of new developments have been observed. As discussed elsewhere, local governments are the primary agency in the country for issuing development permits for buildings and lands and issuing certificates of conformity to ensure that construction complies with the approved plan. In doing so, all disaster risks and vulnerabilities need to be considered before issuing development permits. However, without the qualified people and awareness on disaster risks and vulnerabilities it is unlikely that this exercise would support building a disaster resilient built environment within a city. Thus, it is important to strengthen the disaster management related skills and knowledge of the existing staff and also acquire additional people with knowledge and skills to make this initiative a success. However, when recruiting qualified staff it is also important to ensure that they have sufficient full-time work. Some areas are more disaster prone compared to other areas and there are always different levels of human resource requirements for different local governments. Therefore it is not only bringing new skills, but use of existing skills of other agencies which would pool the

required skills and competencies. For an example, a local government may not need to do GIS mapping but can bring those maps from UDA and access them. Therefore it is important to establish procedures for them to access or seek advice when required from either Urban Development Authority (UDA) or National Building Research Organisation (NBRO) or any other agencies. Another important question raised was “*who will pay their salaries, central government or whether they will have to find themselves?*”. Sri Lankan local governments are not self-sufficient and they do not have sufficient revenue to pay the salaries of additional professional staff. Therefore, it is very important that all these issues are raised at policy level and regulations amended accordingly.

4.1.4 Funding constraints

To implement disaster risk reduction initiatives to achieve a resilient built environment, substantial fund allocations are required. Built environment resilience is all about ensuring that built assets are capable of withstanding at a time of a hazard event. It requires relocating existing vulnerable structures; enforcing resilient building codes and standards; protecting critical infrastructure in the city and constructing protective infrastructure; sustainable urban planning; and land use practices. All these invariably require a considerable amount of funding for satisfactory completion. None of the Sri Lankan local governments are self-sufficient to implement projects on their own to reduce disaster risks within the city. Local governments do not have separate funds to implement disaster risk reduction initiatives and have to depend on central government and other donor organisations for funding. They have to allocate their limited resources to so many other priorities and, therefore, they may not have sufficient financial resources available for disaster mitigation programmes. Disaster risk reduction (DRR) has not yet been mainstreamed into local government system and therefore at the moment, there is no direct mechanism to allocate funds for DRR policy implementation. The Disaster Management Centre (DMC) was able to include DRR concepts into Local Government Policy, which has been approved by the government in 2011. This is certainly a welcome development as the local government sector in Sri Lanka is not financially strong, and therefore it needs the central government’s attention in the form of funding and other resource allocations for capital, as well as recurrent expenditure.

4.1.5 Lack of focus

It has been observed that with regard to disaster management the focus is mainly on immediate response, relief and reconstruction activities after an onset of a disaster. As such, local governments are not much involved in the risk reduction activities within their city but they are actively involved in post disaster activities. For relief and reconstruction, there are certain norms set by the government, and local governments usually receive funds for implementation of these projects from the central government and from various donor organisations. However emphasis on pre-disaster protection is relatively low and this is mainly due to lack of financial and human resource capabilities. Therefore, it is important to raise awareness and make them responsible for making a resilient built environment within their cities. In order to make this a

success it is important to equip them with necessary resources and need to recognise their contribution within the legal framework.

4.1.6 Coordination issues

It is important to note that most of the disaster management functions in Sri Lanka are centrally coordinated by the Disaster Management Centre (DMC). Each district has a district level coordinator to coordinate the disaster management activities within the district. All districts in Sri Lanka are divided into administrative sub-units known as divisional secretariats (DS). Each DS division is again divided into number of “Grama Niladari” divisions. The disaster management district office of each district coordinates all disaster management activities through these DS and “Grama Niladari” divisions. As such the involvement of local governments in disaster related issues is somewhat low and poor coordination between these two sectors has also been observed.

Effective implementation of resilience-building requires participation of various sectors and disciplines such as the three tiers of government (national, provincial and local), private sector, community, non-governmental organisations, community based organisations, research institutions and universities. In Sri Lanka, there are a number of governmental organisations responsible for the design, development and maintenance of the built environment and urban planning functions in close collaboration with various agencies under different government ministries. All these government institutions have to play a role in the city’s resilience-building. Many of these agencies have district level offices in every district and work closely with the municipal council in the city’s resilience-building. Involvement of a large number of stakeholders in disaster resilience activities leads to lack of clear cut responsibilities. Majority of the respondents claimed that the process is not simple and it takes too much of time due to the involvement of many organisations. At the moment, most of the country’s development activities are carried out through central government agencies and Provincial Councils. As such lack of involvement in development activities, physical planning and regulation of land use have often been observed. Consequently local governments are not playing an outstanding role in development of disaster resilience activities within the areas under their jurisdiction. On the other hand, DMC and other technical agencies responsible for producing information related to natural hazards, such as NBRO are working on producing guidelines for settlements, planning and construction in various disaster prone areas with the support of various government and non-government organisations. Also, hazard maps are being developed to show areas prone to various hazards and to identify elements which are at high risk to natural hazards. Thus, it is apparent that a system is in place within the country to create a disaster resilient built environment. However these initiatives have not been integrated into policy level and as a result have not penetrated into local level adequately. As such, local governments are unaware of these developments happening in the country. Thus, these guidelines and maps are not adequately adhered to, in issuing planning approvals at local level. Also, it has further been observed that local governments are not consulted in national level decision making and therefore local level requirements are not adequately penetrated into national level decisions.

4.1.7 Managing the long term process

In Sri Lanka, councillors are elected every 4 years by the voters of the respective areas on the basis of proportional representation. All municipalities are led by full time mayors who are nominated by the leading party and appointed by the Commissioner of Elections. Initiating city resilience is a long term process especially when it is applied to built environment. For an example building of a disaster preventive infrastructure may take few years from inception to completion. Urban planning is a long term process which may require high level of planning, relocation of community, public consultations, mass scale constructions, etc. As such, many of the disaster resilient initiatives require long term political commitment. When councillors are changed periodically, the priorities too would change and this would adversely affect the city's resilient building initiatives. Thus, it is very important to integrate resilience building into local government agenda through policy changes and to raise awareness on the need for resilient cities within local government sector.

4.1.8 Dependence on central government

At the moment, all the disaster management activities are coordinated by the DMC and its district level coordinators coordinate the disaster management activities in each district with the support of all other related agencies and local governments. As such it is evident that institutional arrangements are in place at local level to manage disaster resilience activities. As the main focus is on disaster preparedness and immediate response phases of the disaster management cycle, the involvement in disaster mitigation at local level is somewhat less organised. One of the main reasons behind this is that these district level coordinators are not involved in design, development and maintenance of the built environment. Local governments being the primary agency in the country responsible for issuing development permits for buildings and lands under UDA regulations and issuing certificates of conformity to ensure that the construction complies with the approved plan are in a more privileged position to regulate resilient development within the area under their jurisdiction. However, as explained in the earlier sections, most of the Sri Lankan local governments are not self-sufficient and are dependent on central government for their funds, and human and other resources. As such, they are not in a position to initiate city resilient initiatives on their own. For an example, for issuing a development permit, they need to consult UDA if it is within an urban declared area whereas they need to consult NBRO if it is a land slide prone area. They do not have necessary expertise within the local government to take up the decisions but always have to depend on other organisations. Some local governments are not governed by the same political party governing the country and in such cases these local governments do not get adequate support from the central government.

On the other hand, most of the important decisions related to local government sector are coming from the central government and how far they can take independent decisions is questionable. Although local governments are more familiar with the local level conditions and the community needs, they are not always consulted in national level development activities.

Therefore it is important to implement procedures for channelling through local governments all local level development work.

4.1.9 Irregular occurrences of disasters

Disasters such as flooding, landslides are quite regular in Sri Lanka but other disasters like, Tsunamis, cyclones are irregular in nature. Therefore, for such kind of disasters it is very hard to convince people to take mitigation measures in their constructions. One reason is that these disaster risk reduction measures are costly and it is believed that disasters come once in a way and therefore the concerns about these damages are relatively low. Basically the financial component does not encourage them to include these risk reduction measures into practice. Thus, it is very important to educate the community on the risks of disasters and needs to make them aware on the adverse effects they might have to encounter if mitigation measures are not considered.

4.1.10 Community engagement

Local governments cannot act on their own to make their cities resilient to disasters. They require support from various other organisations and community. In some municipality areas, the community engagement is relatively low. In many cases, the community seeks municipality services only when they require getting a license or permit. Other than that, their involvement with the municipality council is somewhat low. When it comes to disaster risk reduction, consultation of local community is very important to identify the real requirements of the area in order to mainstream the risk reduction into local government planning. At the moment, most of the decisions with regard to disaster risk reduction are taken at the central and provincial government level and therefore the concerns of local community are not adequately represented in planning and budgetary allocations. As such it is very important to establish mechanisms to increase community participation at local level decision making and to bring the local level requirements to provincial and central level decision making.

4.1.11 Leadership and organisational culture

The local government culture has been developed in such a way that they always look for assistance from the central government when they encounter a disaster related issue. Sometimes, even though they have provisions to intervene within the Municipal Ordinance, they do not get fully involved. Therefore, a change of attitudes is required in order to bring local governments to make cities resilient.

However, it has been noted that some of the local governments irrespective of all the administrative restrictions they encounter are getting actively involved in disaster resilience activities within their local areas. High standards of environmental sustainability and resilience were evident in some local government areas which clearly highlight the management capabilities of the governing councillors and staff. As such it is clear that a good leadership and

management can change the attitudes of local governments towards disaster resilience. Thus, having mayors and municipal commissioners with outstanding leadership qualities and management capabilities are essential to promote disaster resilience agenda within the local government systems.

4.1.12 Corruption and political interference

Corruption is another major issue which affects making a resilient built environment within cities. It is the duty of the local government to ensure that certain planning regulations and guidelines are adhered to at the planning and construction phases of the built environment. Sometimes these procedures are overruled due to various reasons. Political power is high in the country and sometimes planning regulations are not taken into consideration in granting development permits due to political pressure and influence. Often political decisions seem to be more powerful than planning regulations. Bribery and corruption practices too are high and tend to influence in decision making. Due to these malpractices even after getting the planning permission, construction may not proceed as per the approved plan. One argument for having such corruption and political interference is due to the enforcement of too many controls and restrictions. Therefore it is important that the systems are made user-friendly and necessary actions taken to educate the community on the importance of resilience.

4.2 Recommendations to empower local governments in making a disaster resilient built environment within cities

Based on the preliminary findings of expert interviews, the following recommendations are proposed to empower the Sri Lankan municipal councils to make a disaster resilient built environment within the cities under their jurisdiction.

Policy changes:

- It is recommended to incorporate disaster risk reduction policies to Ordinances governing the municipal councils. In doing so, it is proposed to delegate adequate authority to municipalities enabling them to take independent decisions with regard to their city resilience.
- Amending Disaster Management Act to recognise municipalities as the main stakeholder in initiating city resilience activities.
- Allocate a separate fund for disaster resilience activities within each municipal council budget.
- Amending Council Ordinances to increase their revenue in order to make them self-sufficient. This would need amending policies related to their revenue, tax rates etc. and methods of collecting taxes.

- Policies for equipping municipalities with competent staff knowledgeable in initiating disaster resilience activities within the area under their jurisdiction
- Necessary tools, techniques and guidelines related to disaster resilient planning, construction and operation of the built environment to be enforced by law.

Developing tools and guidelines to promote disaster resilient planning, construction and operation:

- Developing and enforcing all necessary building codes, construction and maintenance standards and guidelines to promote a disaster resilient built environment within the area. These regulations need to be mainstreamed into building planning and approval process.
- Developing hazard risk maps and set back zones and to consider them in providing building permits.
- Urban development plans need to be prepared for each municipal council area while incorporating DRR provisions to make the areas resilient to disasters. It is also necessary to ensure that all constructions are in line with the city development plan.
- These tools and guidelines need to be developed by relevant central level agencies and it is recommended to consult relevant municipalities when developing urban development plans.
- Systems need to be developed within the council set-up to ensure all development activities in the area are in line with the planning regulations and a separate team to be formulated to supervise all local level developments so as to ensure all constructions are according to the approved plan.
- Municipal Councils to recruit new staff and upgrade the knowledge of existing staff to implement these disaster resilient planning, construction and operation practices.

Make the municipal council responsible for creating a disaster resilient built environment within their city:

- In making the municipal council responsible to make their city resilient to disasters, it is important to provide them with required authority through policy level changes, funding, providing skilled personnel and other resources, and imposing necessary rules and regulations to streamline local area development.
- Awareness among council officials needs to be enhanced on the importance of making a disaster resilient built environment within their local area and local officials to be educated on disaster resilient planning, construction and operation practices.

- Municipal councils to be made responsible for all the development activities within their local area and necessary procedures to be adopted to ensure consultation of municipal councils in all development activities taking place within the city.
- Mainstreaming DRR into existing planning regulations and establishing mechanisms to monitor the compliance with regulations in all development activities within the city.

Attitudinal change:

- It is important to change the municipal council's attitude towards disaster risk reduction and to make them responsible for all the built environment related risk reduction initiatives. In doing so, it is important to motivate them by providing necessary assistance in terms of authority, funding, skills and other resources.
- Awareness raising programmes need to be organised for council officials to make them more aware about the disaster risks and vulnerabilities within their cities and to educate them on the process of regulating the development activities based on disaster resilient building codes, guidelines and hazard maps.
- Awareness programmes are also required for local community to make them more aware about the disaster risks, impact of disasters and to motivate them to make their houses more resilient to disasters.
- Strict rules need to be introduced to reduce corruption and other unlawful activities happening in the field of infrastructure developments, building approvals and land use management and it is important to monitor and supervise all development activities taking place in the city to ensure the compliance with the approved plan.
- It is important to develop the management and leadership skills of the council officials and make them empowered to make a disaster resilient built environment. In doing so, it is expected that these officials would support city resilience building activities irrespective of all the challenges and constraints.

Coordination:

- In Sri Lanka, a number of organisations are responsible for design, development and maintenance of the built environment and it is important to define clearly their scope and responsibility towards making a disaster resilient built environment.
- In Sri Lanka, disaster management is centrally managed by the DMC and its district level coordinators do coordinate the disaster management activities in each district through their Divisional Secretariat and "Grama Niladaries". As such, their coordination with the local government is somewhat low. Therefore it is proposed to

strengthen their relationship with the municipalities and to mainstream the risk reduction into council agenda.

- Municipalities need to establish clear links with all the relevant government organisations, community based organisations, NGOs, educational organisations and private sector operating at the local level in order to make the initiative of creating a resilient built environment a success. In doing so, it is assumed that municipal councils would benefit from their knowledge and expertise on disaster risk reduction, skills and manpower, additional funding sources and resources.
- Community support is also essential to make a resilient built environment within the local area. Therefore it is important to interact more with the local community, raise their awareness on the need for resilient built environment, hazard risks and mitigation measures needed to make a more resilient built environment.

Monitoring and control:

- Proper monitoring and control mechanisms need to be implemented to ensure the smooth running of city resilience activities.
- All developments within cities need to be inspected at regular intervals to ensure the compliance with approved plan.
- Procedures to be laid down on how to deal with unauthorised development within the city.
- Strict rules need to be imposed to prevent bribery and corruption taking place in planning, construction and maintenance activities.

Support required from the central government:

- As most of the municipal councils are not self-sufficient, they require support from the central government in terms of funding to implement disaster resilience initiatives within their city.
- Policy level changes are required to make municipalities responsible of making the cities resilient with the involvement of necessary human resources capable of understanding and implementing city resilience initiatives.
- As all planning regulations and construction and operation guidelines are usually prepared at central level it is important for municipal councils to receive these regulations incorporating DRR for them to implement those at local level.

- City development plans and risk maps are normally prepared by the central government and it is important to consult municipalities on developing these plans for their local areas. It is vital that these development plans and risk maps are sent to the municipalities promptly to regulate the developments within their cities.
- Municipalities may need assistance from other government organisations, for an example UDA when it relates to urban planning, DMC when it deals with disaster management, etc. and it is very important that all these networks are properly established outlining the responsibilities of each and every party.

National level decision making:

- Involving municipalities in national level decision making with regard to city resilience activities.
- Communicating all decisions made at national level with regard to city resilience to municipal councils.
- Municipal councils are better aware of their local level conditions and requirements and therefore it is important to get their views before assigning budgets and resources to municipal levels.
- Making the councils aware of the latest developments in the field of disaster resilience and continuously update their skills with regard to disaster resilience planning, construction methods and all emerging disaster risks.

5. Conclusions

The findings of expert interviews revealed that municipalities in Sri Lanka are facing a number of challenges in their contribution to making a resilient built environment within cities. The main issues that have emerged are discussed in the paper while highlighting the ways of overcoming the identified challenges. The main discussion points emerged are legal framework; lack of adequate tools, techniques and guidelines; human resource and funding constraints; lack of focus; issues related to coordination; managing the long term process; dependence on central government; irregular occurrences of disasters; community engagement; leadership and organisational culture; and corruption and political interference. The paper proposes a set of recommendations to empower the Sri Lankan municipalities in making a resilient built environment within cities. The paper suggests amending the policies related to disaster management and establishment of municipal councils in order to make them responsible for creating a disaster resilient built environment within their cities. In doing so, the policy needs to address the funding, human and other resource needs and support required for municipalities to make this initiative a success. Further, all relevant development plans, risk maps, disaster resilient planning, construction and operation guidelines and resilient land

use practices need to be integrated into existing planning regulations and proper monitoring and control mechanisms have to be established to ensure the compliance with the regulations. In doing so, it is important to raise awareness of council officials on disaster risks and resilient practices by way of organising educational programmes such as seminars and workshops. It is also suggested to involve municipal officials in national level decision making with regard to their local areas and to establish proper communication channels to exchange decision and information related to city resilience. It was clear that local governments cannot work alone and need support from the central government and other related government organisations, community based organisations, NGOs, private sector and the local community. Thus, it is extremely important to define the scope and responsibility of each of these organisations and community groups towards making a disaster resilient built environment within the city under the municipal jurisdiction.

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