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Making Cities and Local Governments Ready for Disasters: A Critical Overview of a Recent Approaches

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Disaster risk reduction has been the call of the hour with the increasing incidences of disasters across the world and Local Governments are the first line of response and defense to disasters. With a number of other projects and initiatives functioning across the world, "Making Cities Resilient—My city is getting ready" is one of the recent and most important international disaster risk reduction campaigns initiated by the United Nations International Strategy for Disaster Reduction along with other partners. The campaign provides a self-assessment tool to the Local Governments that can help them in identifying their gaps and challenges. The main aim of this paper is to critically analyze the Local Government Self-Assessment Tool and the indicators (derived from Hyogo Framework for Action) formulated in this campaign and provide suggestion for improvement in it. Anomalies have been observed in the questionnaire and it can be interpreted that the question indicators mainly aimed at the access of financial resources, thus overlooking the social aspects of the vulnerable and affected population. The paper emphasized the assessment of the answers to the questions to be more quantitative than being qualitative, which will assist the decision makers in effective policy planning and management.

KEY WORDS: cities, disaster risk reduction, local governments, ten essentials, local government self-assessment tool

Introduction

Cities are identified as places where livelihood opportunities, economic security, food availability, and political accountability provide a buffer from environmental changes. Virtually all of the world's future population growth is predicted to take place in cities and their urban landscapes—the UN estimates a global increase from the 2.9 billion urban residents in 1990s to a staggering 5.0 billion by 2030. By 2030, 1 in 4 persons will live in a city of 500,000 people; and 1 in 10 persons will live in a city of 10 million population. Urbanization is increasingly located in the developing countries: in 1970s, 50% of urban residents lived in developing countries, whereas it is increased to 66% in 1990s, and is projected to be 80% by 2020. Most of this growth will occur in the developing

countries of Asia, mainly in small and medium sized cities and also in the megacities. Disaster risk to cities comes from increasing poverty, inequality and failures in governance, high population density, crowded living conditions, and the location of residential areas close to hazardous industry or in places exposed to natural hazard (including the modification of environments which generates new hazard, e.g., through the loss of protective mangroves to urban development, or subsidence following ground water extraction).

Natural hazards can result in massive destruction in cities, particularly for low-income residents. In the past 2 years alone, major disasters—such as earthquakes in Japan (2011), Haiti (2010), Chile (2010), and China, (2010); and flooding in China (2010), Pakistan (2010), and Brazil (2010, 2011)—have killed many. Of the total 633 cities with a population of 750,000 or more in 2011 (representing 1.6 billion people), 374 cities (or 59%, or 977 million people) have relatively high risk of exposure to anyone type of natural hazards (Gu et al., 2011). Currently, 8 out of the 10 most populous cities in the world have moderate to high earthquake hazard. Similarly, 8 out of 10 of the most populous cities are located on the coast and are vulnerable to storm surge and tsunami waves (ADB, 2008). Not only are urban disasters becoming more common, they are also becoming increasingly expensive and their economic impact magnified. The estimated economic cost of the 2011 Japan earthquake and tsunami was US $235 billion; making it the most expensive natural disaster in world history while the Christchurch earthquake is estimated to have cost insurers $17–25 billion (Kim, 2011; Rotherham, 2011).

Disaster mitigation and response is a multi-agency and multi sectoral activity and most countries have established national disaster response agencies, which may be decentralized to regional, district, and village levels (Osei, 2007). Local Government is a huge service provider to the local community and has been identified as one of the key stakeholders in disaster risk reduction and disaster preparedness process as they are in charge of critical development functions to reduce disaster risks, such as land use planning, urban development planning, public works, construction safety and licensing, social services and responding to the need of the poor and the under privileged and implementation and strengthening of the decentralization process (UNISDR, 2010; UN HABITAT, 2007). The term Local Government encompasses urban and rural communities of different size and levels which includes regional, provincial, metropolitan, city, municipality, township, and village councils (The Incheon Declaration, 2009). Hyogo Framework for Action by Local Stakeholders, developed by Kyoto University in collaboration with United Nations International Strategy for Disaster Reduction (UNISDR), is a significant document that provides guidance to assess the capacity of local stakeholders to disaster risk reduction due to its comprehensive and widespread application. According to Manyena (2006) development of disaster resilience by local authorities are largely dependent on the capacity of local authorities and this emphasize the need of capacity development of Local Governments in order to implement proper disaster risk reduction initiatives. Therefore it is imperative to identify the challenges faced by

Local Governments in implementing disaster risk reduction initiatives and to examine how the Local Governments can be empowered and governance can be reformed to ensure successful implementation of disaster risk reduction initiatives at the Local Governmental level.

Disaster risk reduction (henceforth will be mentioned as DRR) aims at analyzing and reducing the causal factors of disasters through systematic efforts. Disaster preparedness is a subset of DRR and involves those efforts that lead to disaster risk reduction before the disaster occurs. DRR assessment tools have been developed by a range of institutions, including research centers, government agencies, the UN, NGOs, and International Governmental Organizations (IGOs). These include tools targeted for use at the international to the local levels, implemented in cooperation with diverse partners, and in response to numerous hazards.

In relation to this, UNISDR has specifically addressed the 2010–2011 world disaster risk reduction campaign to Local Governments under the theme of "Building resilient cities." Building on previous campaigns focusing on education and safety of schools and hospitals, during the 3rd International Disaster and Risk Conference (IDRC) Davos 2010, UNISDR launched the campaign "Making cities resilient - My city is getting ready." The target for 2010 was to achieve at least twenty five role model resilient cities/Local Governments, and fifty additional participating ones. By 2011 almost a thousand cities and Local Governments had signed up for the campaign with many hundreds more in the pipeline showing that the targets had been far exceeded in less than 2 years. Based on the success and stock-taking by partners and participating cities in the first phase (2010–2011), the campaign entered its second phase (2012–2015). The campaign of "Making cities resilient - My city is getting ready" shift its focus to more implementation support, city-to-city learning and cooperation, local action planning and monitoring of progress in cities. UNISDR is spearheading the current campaign to create global awareness of the benefits of disaster risk reduction activities and empower people to reduce their vulnerability to hazards. UNISDR is the custodian of this framework, which is applied by governments and other stakeholders.

In lieu of above, this paper mainly aims at critically analyzing the Local Government Self-Assessment Tool (LGSAT)—the tool provided to the participating Local Governments to assess their resilience to disasters as a part of "Making Cities Resilient—My City is Getting Ready" campaign. A detailed insight of the campaign is discussed with further investigation in to the conceptualization of the 'Essentials" and their links with HFA. Literature review and linkages between LGSAT and other policy instruments [Millennium Development Goals (MDG), Global Assessment Report (GAR) and Hyogo Framework for Actions (HFA)] has been studied to analyze the effectiveness of LGSAT. Finally, the paper will conclude with the challenges and subsequent suggestions that can be used for the better performance of this campaign and also for similar other future initiatives for disaster risk reduction.

"Making Cities Resilient—My City Is Getting Ready": The Campaign

This section gives details on the campaign and its components, as listed in the official document (UNISDR, 2012) for better insight. The campaign is coordinated by UNISDR secretariat, with support from local, regional, and international partners and participating cities and Local Governments, such as United Cities and Local Governments (UCLG), ICLEI-Local Governments for Sustainability, CITYNET and the Earthquake Megacities Initiative (EMI); international organizations such as the European Commission (ECHO), the World Bank Global Facility for Disaster Reduction and Recovery; UN agencies and programs, with UNHABITAT in the lead; NGOs and their networks(notably the Chinese-based World Cities Scientific Development Alliance—WCSDA); the Global Network of Civil Society Organizations for Disaster Reduction; PLAN International; GROOTS International (with the Huairou Commission);academia and private sector companies, through the UNISDR Private Sector Advisory Group; national associations of Local Governments; and national authorities and National Platforms for Disaster Reduction.

The campaign targets the mayors and Local Government leaders of cities and towns of different sizes, characteristics, locations and risk profiles. Local Governments are invited to join and support the campaign in either of the following ways: as "Resilient City Role Model," as "Champion" for resilient cities, as "Resilient City Participant" city/Local Government, or as participant in "City-to-City Learning." The campaign also targets the civil society, planners and urban professionals, as well as national authorities and community groups to engage with Local Governments and subsequently develop innovative solutions to reduce disaster risks.

The definition of resilient city needs to be understood in this context as follows (UNISDR, 2012)

- disasters are minimized with populations living in safe housing,
- an inclusive, competent and accountable Local Government is concerned about sustainable urbanization,
- the local authorities and the population understand their risks and develop a shared, local information base on disaster losses, hazards and risks,
- people are empowered to participate, decide and plan their city together with local authorities and value local and indigenous knowledge, capacities and resources,
- steps are taken to anticipate and mitigate the impact of disasters, incorporating monitoring and early warning technologies,
- there is an ability to respond, implement immediate recovery strategies and quickly restore basic services to resume social, institutional and economic activity after such an event,
- an understanding exists that most of the above is also central to building resilience to adverse environmental changes, including climate change, in addition to reducing greenhouse gas emissions.

"Making Cities Resilient" (MCR) campaign has threefold objective to:

1. **Know more**, by raising awareness of citizens and governments at all levels of the benefits of reducing urban risks.
2. **Invest wisely**, by identifying budget allocations within Local Government funding plans to invest in disaster risk reduction activities.
3. **Build more safely**, by including disaster risk reduction in participatory urban development planning processes and protect critical infrastructure.

Ten Essentials of the MCR Campaign

The campaign primarily revolves around the ten essentials, as listed in Table 1 on the next page.

Local Government Self-Assessment Tool (LGSAT)

This toolkit formulates the primary mode of measurement of a city's resilience through a set of 41 questions based on each of the ten essentials, and builds upon the priorities and national indicators of the Hyogo Framework for Action (UNISDR, 2012). The purpose of the toolkit is to provide assistance to the Local Governments to set baselines, identify gaps and have comparable data across Local Governments, within the country and globally, to measure advancements over time. It also provides opportunities to the Local Government to engage with different stakeholders to have a better understanding of the specific issues. The information gathered through LGSAT would complement the information gathered through the national Hyogo Framework for Action monitoring system (HFA Monitor). The LGSAT can be filled by an online system and template, which includes local context indicators, presented as "key questions," each of which shall be assessed on a scale from 1 to 5, as indicated in Table 2. The self-assessment is suggested to coincide with the national HFA monitoring cycle, to be undertaken every 2 years.

Methodology

The present study is based on secondary data collection, mainly published by UNISDR explaining Making Cities Resilient campaign and other related documents reporting the successful case studies. Moreover, to examine the origin of LGSAT from Hyogo Framework of Action (HFA) as well as its linkage to other DRR policy instruments, various documents on Millennium Development Goals (MDGs) and Global Assessment Report (GAR) have been studied. An attempt has been made in this paper to establish the link between LGSAT and MDG and GAR and identify the gaps in LGSAT. The principal objective of this comparative study is to investigate the utility, if there is any, of this new campaign and the self-assessment tool, as there are already many tools functioning at present, to measure local Disaster Risk Reduction initiatives and disaster preparedness.

Each of the 41 question indicators given in the LGSAT has been carefully studied to critically analyze the holistic approach of the campaign. The self-assessment

Table 1. The Ten Essentials of the Campaign. (Source: UNISDR, 2012)

Essential 1: *Institutional and Administrative Framework*	Put in place organization and coordination to understand and reduce disaster risk, based on participation of citizen groups and civil society. Build local alliances. Ensure that all departments understand their role to disaster risk reduction and preparedness.
Essential 2: *Financing and Resources*	Assign a budget for disaster risk reduction and provide incentives for homeowners, low-income families, communities, businesses and public sector to invest in reducing the risks they face
Essential 3: *Multi-hazard Risk Assessment—Know your risk*	Maintain up-to-date data on hazards and vulnerabilities, prepare risk assessments and use these as the basis for urban development plans and decisions. Ensure that this information and the plans for your city's resilience are readily available to the public and fully discussed with them.
Essential 4: *Infrastructure Protection, Upgrading and Resilience*	Invest in and maintain critical infrastructure that reduces risk, such as flood drainage, adjusted where needed to cope with climate change
Essential 5: *Protect Vital Facilities: Education and Health*	Assess the safety of all schools and health facilities and upgrade these as necessary
Essential 6: *Building Regulations and Land Use Planning*	Apply and enforce realistic, risk compliant building regulations and land use planning principles. Identify safe land for low-income citizens and develop upgrading of informal settlements, wherever feasible.
Essential 7: *Training, Education and Public Awareness*	Ensure education programs and training on disaster risk reduction are in place in schools and local communities
Essential 8: *Environmental Protection and Strengthening of Ecosystems*	Protect ecosystems and natural buffers to mitigate floods, storm surges and other hazards to which your city may be vulnerable. Adapt to climate change by building on good risk reduction practices.
Essential 9: *Effective Preparedness and Early Warning Response*	Install early warning systems and emergency management capacities in your city and hold regular public preparedness drills
Essential 10: *Recovery and Rebuilding Communities*	After any disaster, ensure that the needs of the survivors are placed at the center of reconstruction with support for them and their community organizations to design and help implement responses, including rebuilding homes and livelihoods

Table 2. LGSAT Level of Progress and Their Description

Level of Progress	Description of Level of Progress for Overall Ranking for Each Question (Add Narrative Comments on Context and Challenges)
5	Comprehensive achievement has been attained, with the commitment and capacities to sustain efforts at all levels
4	Substantial achievement has been attained, but with some recognized deficiencies in commitment, financial resources or operational capacities
3	There is some institutional commitment and capacities to achieving DRR, but progress is not comprehensive or substantial
2	Achievements have been made but are incomplete, and while improvements are planned, the commitment and capacities are limited
1	Achievements are minor and there are few signs of planning or forward action to improve the situation

questionnaire filled by some of the Local Governments like Hyogo Prefecture, Kobe, Mumbai, etc. were reviewed to have an insight of the Local Governments and analyses their perspectives for filling up the form. The reports of these cities are used as case studies for understanding the viewpoint of local governments while carrying out the self-assessment. Also good practices of the local governments, as reported by UNISDR's report on the campaign, from many countries are used as examples while discussing the essentials.

Along with the indicators, the appropriateness of the qualitative scale proposed by LGSAT has been tested by doing various literature reviews. The authors analyze the LGSAT tool to ascertain the extent to which the HFA priorities have been represented in LGSAT. Thus HFA is critically reviewed and has been used as a baseline for the assessment of LGSAT. The HFA actions are analyzed and its link with the question indicators of LGSAT are studied in detail. This analysis is significant at this junction as the campaign is at an early phase of its implementation and it is necessary to identify the gaps in it and suggest improvements to make it better.

LGSAT and Related Disaster Risk Reduction Policy Instruments

Since 2007, national governments and regional intergovernmental organizations regularly review their progress in DRR. MCR campaign has triggered the campaign members to realize the importance of establishing a framework or baseline and a complementary prevalent review processes at the local level towards disaster preparedness. LGSAT is developed through global consultation with various UNISDR's partners and is based on several key assessments such as Millennium Development Goal (MDG), Global Assessment Report (GAR), Hyogo Framework for Action (HFA), and a Guide for Implementing the HFA by Local Stakeholders (LHFA) (UNISDR, 2012). These are numbers of knowledge strands, which have been woven into the evolution of LGSAT for making the cities resilient.

As the LGSAT is based on the aforementioned related DRR policy instruments (MDG, GAR, and HFA), it has certain linkages with all of them. For example, the crucial issues such as poverty, hunger, environmental sustainability, risk and hazard assessment as well as financing and resources, can be identified in these policy instruments and are considered and agreed by the stakeholders as the essentials in creating resilient cities to disasters. Thus, the adoption of the above-mentioned crucial issues has made those disaster risk reduction policy instruments as the foundation of LGSAT. The following sections illustrate the linkages between LGSAT with those other disaster risk reduction policy instruments.

LGSAT and Millennium Development Goal (MDG)

The MDG comprises of eight international goals that aims to encourage development by improving social and economic conditions in the developing countries. The MDGs were made to operationalize these ideas by setting targets and indicators for poverty reduction in order to achieve these rights, the

declaration set on a 15-year (Deneulin and Shahani, 2009; Kabeer, 2010). The following eight goals are: (1) Eradicate extreme poverty and hunger, (2) Achieve universal primary education, (3) Promote gender equality and empower women, (4) Reduce child mortality rates, (5) Improve maternal health, (6) Combat HIV/AIDS, malaria, and other diseases, (7) Ensure environmental sustainability, (8) Develop a global partnership for development.

The aforementioned goals are the basic references, incorporated within the Ten Essentials for making a resilient city. For example, eradicate extreme poverty and hunger (Goal 1) contributes to Essential 2 (assign a budget for DRR and provides the incentives for that) (Table 3). This will encourage public and private sector participation in developing awareness that promote resilience actions for the general public, home owners, etc. It will trigger the development of a strategy to support, that is, cash grants, soft loans for restarting livelihoods and to begin more sustainable rebuilding in disaster affected communities. Goal 1 is also contributing to Essential 6 (enforce risk compliant building regulations and land use planning, identify safe land for low-income citizens) (Table 3) in terms of developing a participatory mechanism to reduce risk in vulnerable settlements and relocating the informal settlements to safer locations while improving the quality of life addressing the livelihood needs and patterns. Moreover, it contributes to Essential 10 (ensure that needs and participation of the affected population are the center of the reconstruction) (Table 3) in terms of carrying out activities that enable the city to return to levels of normalcy as quickly as possible. Subsequently, Goal 7 (ensure the sustainability of the environment) contributes to Essential 8 (Table 3). For example, it relates with raising the awareness of the impact of environmental change and degradation of ecosystems of disaster risk, in terms of recognizing and communicating the multiple functions and services, that ecosystems provide to a city. It also refers to educate the public about the negative consequences of global warming and climate change. Furthermore, promoting the green growth and ecosystem protection in planning for sustainable livelihoods and development such as considering integrating ecosystem into future planning processes is crucial. Following are two other activities that describe the promotion of green growth: reducing the greenhouse gas emissions and promotes the transition to a green economy; and invests in risk reduction and ecosystem-based measures to adapt to climate change.

Lastly, Goal 8 (develop a global partnership for development) contributes to Essential 1 (Table 3), in terms of creating alliances and networks beyond the city. These will allow the development of partnerships with international universities, exchange program with cities in other countries, and the participation in the regional and international. Thus, the global campaign increases the local-national-international cooperation.

LGSAT and Global Assessment Report (GAR)

Aside from the MDGs, the GAR of year 2009 and 2011 are also the foundation in shaping the city resilience. For example, Chapter 3 underlines the deconstruction

Table 3. Linkages and Contribution of MDGs, GAR and HFA to the Ten Essentials and Key Questions of LGSAT

Ten Essentials	Key Questions (Key words)	5 HFA Priorities and Its Indicators	MDG	GAR
1. Institutional and administrative framework	1. Local Government equipped with capacities (knowledge, experience, official mandate) for DRR and CCA	Priority 1 Indicator 1.1	*Goal 8: Develop a global partnership for development*	
	2. Extent of partnership between communities, private sector, and local authorities to reduce risk	Priority 1 Indicator 1.1		
	3. Extent of Local Government support to vulnerable groups to actively participate in risk reduction	Priority 1 Indicator 1.3	Create alliances and networks beyond the city	
	4. Extent of Local Government participation in the national DRR planning	Priority 1 Indicator 1.4		
2. Financing and resources	5. Accessibility of Local Government to financial resources for DRR	Priority 1 Indicator 1.2	*Goal 1: Eradicate extreme poverty and hunger*	*GAR 2011: Opportunities and incentives for DRR*
	6. Financial allocation of Local Government for DRR activities, response, and recovery	Priority 1 Indicator 1.2		
	7. Scope of financial services available to vulnerable households for pre-disaster	Priority 4 Indicator 4.2	Developing awareness that promote resilience actions for the general public, home owners, etc.	Integrating DRR into public investment decisions, social protection (conditional cash transfer, micro-insurance, temporary employment programs)
	8. Financial services available to vulnerable households for post-disaster	Priority 4 Indicator 4.2		
	9. Establishment of economic incentives in DRR for households and businesses	Priority 4 Indicator 4.3		
	10. Extent of local business associations support efforts of small enterprises for post-disaster continuation	Priority 4 Indicator 4.3		
3. Multi-hazard risk assessment—know your risk	11. Local Government conduct thorough risk assessment	Priority 2 Indicator 2.1		*GAR 2009: Risk Patterns and poverty trends at the local level*
	12. Risk assessments regularly updated	Priority 2 Indicator 2.1		
	13. Regularity of Local Government in communicating hazard trends and risk reduction measures to community	Priority 3 Indicator 3.1		*Urban and local governance, poverty, and disaster risk*
	14. Local Government risk assessments link to, and supportive of, risk assessments from neighboring local authorities and state or provincial government risk management plans	Priority 2 Indicator 2.4		
	15. Disaster risk assessment incorporated into all relevant local development planning on a consistent basis	Priority 2		Developing and storing national disaster database, risk communication, loss economic assessment, interpretation of

(*Continued*)

Ten Essentials	Key Questions (Key words)	5 HFA Priorities and Its Indicators	MDG	GAR
				underlying risk trends, aspect of urban poverty and its DRR
		Indicator 2.1		
4. Infrastructure protection, upgrading and resilience	16. Land-use policies and planning regulations for housing and development infrastructure take current and projected disaster risk (incl. climate-related risks) into account	Priority 4 Indicator 4.1		
	17. Critical public facilities and infrastructure located in high-risk areas assessed for all hazard risks and safety adequately addressed	Priority 4 Indicator 4.4		
	18. Measures being taken to protect critical public facilities and infrastructure from damaged during disasters are adequately addressed	Priority 4 Indicator 4.4		
5. Protect vital facilities: education and health	19. Local schools, hospitals, and health facilities received special attention for all hazard risk assessments	Priority 2 Indicator 2.1		
	20. Main schools, hospitals, and health facilities safe from disasters so that they remain operational during emergencies	Priority 2 Indicator 2.1		
	21. Local Government has special programs in place to regularly assess schools, hospitals, and health facilities for maintenance compliance with building codes	Priority 4 Indicator 4.6 (?)		
	22. Regular disaster preparedness drills undertaken in schools, hospitals, and health facilities	Priority 5 Indicator 5.2		
6. Building regulations and land use planning	23. Enforce risk-sensitive land-use regulations, building codes, and health and safety codes across all development zones and building types	Priority 4 Indicator 4.1	*Goal 1: Eradicate extreme poverty and hunger*	*GAR 2011: Opportunities and incentives for DRR*
	24. Existing regulations strongly support DRR	Priority 4 Indicator 4.1	Reduce risk in vulnerable settlements	Land-use planning and building regulations, land-use zoning, hazard zonation
7. Training, education andpublic awareness	25. Local Government conducts awareness building/education programs on DRR and disaster preparedness for communities	Priority 1 Indicator 1.3		
	26. Local Government provides training in risk reduction for local officials and community leaders	Priority 1 Indicator 1.3		
	27. Local schools and colleges include DRR courses, education or training as part of educational curriculum	Priority 3 Indicator 3.2		

(*Continued*)

Ten Essentials	Key Questions (Key words)	5 HFA Priorities and Its Indicators	MDG	GAR
	28. Citizens are aware of evacuation plans/drills	Priority 5 Indicator 5.2		
8. Environmental protection and strengthening of ecosystems	29. DRR policies, strategies, and implementation plans of Local Government integrated into existing environmental development and natural resource management plans	Priority 4 Indicator 4.1	*Goal 7: Ensure environmental sustainability*	*GAR 2011: Opportunities and incentives for DRR*
	30. Civil society organizations and citizens participate in the restoration, protection, and sustainable management of ecosystem services	Priority 4 Indicator 4.1	Raise awareness of the impact of environmental change and degradation of ecosystems on disaster risk	Planning for DRR and CCA (reducing risk through biodiversity conservation)
	31. Local Government support the restoration, protection, and sustainable management of ecosystem services	Priority 4 Indicator 4.1		
	32. Private sector participate in the implementation of environmental and ecosystems management plans	Priority 4 Indicator 4.1	Promote green growth and ecosystem protection in planning for sustainable livelihoods and development	Ecosystem-based DRM
9. Effective preparedness and early warning response	33. Local institutions have access to financial reserves to support effective disaster response and recovery	Priority 5 Indicator 5.3		
	34. EW centers established, adequately staffed, and well-resourced at all times	Priority 2 Indicator 2.3		
	35. EWS allows for adequate community participation	Priority 2 Indicator 2.3		
	36. Local Government have an emergency operations center and/or an emergency communication system	Priority 5 Indicator 5.2		
	37. Training drills carried out with the participation of all government, NGOs, local leaders, and volunteers	Priority 5 Indicator 5.2		
	38. Availability of key resources for effective response	Priority 5 Indicator 5.2		
10. Recovery and rebuilding communities	39. Access of Local Government to resources and expertise to assist victims of psycho-social impacts post-disaster	Priority 5 Indicator 5.3	*Goal 1: Eradicate extreme poverty and hunger*	
	40. DRR integrated in post-disaster recovery and rehabilitation	Priority 4 Indicator 4.5 (?)	Carry out activities that enable city return to levels of normalcy as quickly as possible	
	41. Contingency Plan includes outline strategy for post-disaster recovery and reconstruction (needs assessment and livelihoods rehabilitation)	Priority 5 Indicator 5.2		

of disaster risk in terms of patterns and poverty trends at the local level and chapter 4 highlights the urban and local governance, poverty, and disaster risk (UNISDR, 2009). The chapters mainly point out ways to local authorities in developing and storing the national disaster databases, and reporting the disaster losses, hazard events and disasters. The latter one verbalizes on how the risk communication plays a major role in the risk assessment. Moreover, chapter 3 imposes the disaster loss assessment by spatial distribution of risk, interpretation of underlying risk trends and the kinds of data that are needed to provide insight into the increased trend of extreme weather-related risks. These determine the aspect of urban poverty that has the implication for every day urban communities' risk and implies that extensive and intensive disaster reduction is utmost needed. All these contribute to Essential 3 (Table 3), where one of the aspects in making the city disaster resilient is the conduction of the risk assessment. It covers the maintenance of keeping data on hazards and vulnerabilities up dated, utilization of the result risk assessment as the basis for urban development plan and decisions, and ensuring that information and the plans are readily available and communicated to the public.

Subsequently, the Global Report on Assessment in year 2011 specifically discussed about the incentives and subsidies for DRR and contributes to Essential 2, 6, and 8 of the LGSAT (Table 3). The local authorities can provide communities opportunities and instruments for DRR, which can help them in defining approaches to risk governance (UNISDR, 2011). Particularly, UNISDR (2011) mentions that those instruments are supported by a political commitment and policy coherence among different levels of government, competent and accountable local governments, and partnerships with civil society and low-income households and communities. These include, integrating the DRR into public investment. According to UNISDR (2011), if the public investment becomes a vehicle for disaster risk management (DRM), disaster-related losses and costs are reduced and social and economic development stimulated. This can be a powerful incentive for the governments. A distinctive example is building earthquake-resistant schools that can improve the education while saving the children's lives.

Moreover the incentives, social protection for strengthening resilience to disasters provide mechanisms that can be adapted to protect the vulnerable before, during, and after the disaster. Programs such as conditional cash transfers, temporary employment programs, and micro-insurance schemes are examples of such mechanisms, which can increase household resilience and buffer against the impacts of disasters. Thus they contribute for making cities resilient. Subsequently, planning for risk reduction and climate change adaptation (CCA), ecosystem-based DRM, and land-use planning and building regulation represent opportunities for DRR. Aforementioned opportunities drive the local governments in applying and enforcing realistic, risk compliant building regulations and land-use planning principles in order to identify safe land for low income citizens and upgrade the informal settlements wherever feasible. In addition, protect the ecosystems and natural buffers to mitigate

climate-related hazards are needed as well in creating resilience for cities (UNISDR, 2012).

LGSAT and (Local Stakeholders) Hyogo Framework for Action (HFA)

A major driver to address the resilience of cities is enabled through the international recognition that actions to reduce the risks to potential disasters need to be addressed comprehensively as the policy document HFA (Joerin and Shaw, 2011; UNISDR, 2012). It comprises of five key areas of priorities (making DRR a priority, improving risk information and early warning, building a culture of safety and resilience, reducing the risks in key sectors, and strengthening preparedness for response) that help governments develop frameworks that address disaster risks. They shall lead governments onto path where they become (more) resilient to disasters, thus HFA acts as the fundamental guidance in making cities resilient. Since the impacts of disasters are immediately and intensively felt at the local levels, local DRR actions are being called. Therefore, the most effective process in which the HFA would be implemented is at the local level (Matsuoka and Shaw, 2011). As the follow up, Local-Stakeholders HFA (LHFA) is developed in facilitating local governments and its stakeholders to translate the words of key priorities into actions. Thus, the LHFA customizes the "words into actions" to local/city government level by provided them related tasks, national-local HFA monitor indicators, guiding questions, and tools for each key area of priority. Local/city governments, who wish to undertake a review or progress against DRR at the local level using HFA and LHFA as basic references, are simultaneously making their cities resilient to disasters. Thus, HFA and LHFA are the basic paths which are referred for the development of the Ten Essentials of Making Cities Resilient Campaign. Table 3 summarizes how the Ten Essentials of Making City Resilient Campaign and the key questions of LGSAT can be linked to MDGs, GAR and HFA.

Based on the illustration of the above linkages of LGSAT and other related DRR policy instruments (Table 3), it gives a clear guidance on how the path to a resilient city would be. LGSAT is incorporating crucial elements and key trends on resilience building in cities. However, measurable indicators that cities can quantitatively refer upon their resilience building is lacking in these instruments. These disaster risk reduction policy instrument provide only the direction to which cities should aim for in their resilience building and assessment. Clearly, a more descriptive quantifiable risk reduction and resilience indicators have to be endorsed, of which cities need to hold on to as their initial takeoff point decision in resilience building and assessment. More to the LGSAT tool analysis is described in the following section.

Local Government Self-Assessment Tool (LGSAT): Analysis

For the sake of uniformity and clarity, there is a need of single comprehensive tool to probe the existing gaps and challenges in disaster risk reduction in cities.

Various tools are developed and existing till date that assesses the DRR initiatives and disaster preparedness at different scales. The following analyses are expected to examine contents of LGSAT, especially the ten essentials that are baseline for the development of different question indicators. Also, the development of LGSAT, which is reported to be derived from HFA as per the different documents published by UNISDR, is also investigated. The analysis is expected to answer the utility of LGSAT among the various DRR tools that are existing now. Also the effectiveness of qualitative scale of assessment is argued in the coming sections.

Conceptualization of the Essentials

DRR is considered to encompass social, economic, institutional, physical and environmental dimensions. It requires the formulation of forward-looking policies pertaining to social development, economic growth, environmental quality, institutional capacity and physical dimensions (UN, 2002). Hence, it is important to develop disaster risk reduction measures in this line and the local stakeholders —HFA identified the importance of the cities and local authorities in reducing disaster risk along with these dimensions. The Self-Assessment tool developed in this campaign followed this local stakeholders-HFA to develop ten essentials which are the basis for the development of LGSAT. The derivation and basis of the essentials are discussed in the following paragraphs.

Essential 1 called for the establishment of designated office like a Disaster Management Authority or Disaster Planning and Management Bureau which will work at the local level with cross-sectoral collaboration from different government departments as well as different stakeholders (Table 1). Political will, transparency, responsiveness, consensus orientation, equity, effectiveness, efficiency, accountability and strategic vision are key factors when implementing a governance structure aimed at sustainable development and disaster risk reduction (UNDP, 2004). Based on this, Essential 1 calls for enforcement and enactment of efficient governance. The role of private sectors in disaster risk reduction has also been identified and included in this campaign unlike HFA. Case studies from countries like Fiji, Vietnam and Bangladesh have been cited as good practices in UNISDR's Making Cities Resilient campaign report (UNISDR, 2010). The Provincial Administration is instrumental in coordinating, hosting, facilitating and participating in stakeholder meetings, workshops and trainings. Action Plans have been developed that emphasize the public-private partnership for disaster risk reduction at the local or city level. Similarly, the Bangladesh Cyclone Preparedness Program is a particularly successful example of the effectiveness of community participation in disaster preparedness: following the 1970 cyclone which killed 500,000 people, the government and the Bangladesh Red Crescent Society began working together to improve coastal warnings and evacuation (UNISDR, 2010). All these disaster preparedness efforts are a step towards reducing the risk and loss from disasters and set an example from other urban areas that are exposed to similar disaster risks.

Likewise, Essential 2 calls for the assessment of the capability of Local Government in providing the basic social protection and development to the community (Table 1). Social protection aims to protect poor and vulnerable households from the shocks and stresses that have negative impacts on their wellbeing. Social development can also be considered as adaptation measures as it addresses both vulnerability and resilience building by providing both financial and productive assets. Access to microfinance, soft loans, cash aids, basic social transfers or safety nets regarding food or cash and access to common property resources are some of the basic social aspects that reduce vulnerability, thus building resilience. For instance, in Colombo, Sri Lanka, the municipal council has created a disaster fund in their annual budget that provides relief funds to the disaster-affected people. Similarly, access to other social aspects like food security initiatives, hazard insurance, and mutual assistance system or social networks are important aspects of reducing risk. Multi-stakeholder involvement, strengthening the social alliances and networking, makes social development initiative more fruitful. The Local Government should involve local businesses, chamber of commerce and other private enterprises in disaster risk reduction planning and convince them to invest in the risk reduction measures (Essential 2). In relation to Essential 2, Essential 9 emphasizes the implementation of provisions for providing incentives to households or business enterprises for investing in disaster risk reduction measures in the Local Government. To carry out effective recovery after a disaster, the local institutions should have access to financial reserves (Table 1). For example, In South Africa, Local Governments have an access to funding provided under the Disaster Risk Management Act and the Social Assistance Act, only when a disaster is declared.

In addition to good governance and social protection, environmental management has been identified as one of the most significant aspect for reducing disaster risk. Incidences of forests, on mountainous slopes, protecting the communities from landslides or mangroves protecting the coastal ecosystem as well as community or green belts protecting the flood waters from entering into a city are plenty. For example, in India, 2004 tsunami-hit Nagapattinam in Tamil Nadu suffers the damage of 6,073 ha of agricultural land along with paddy and groundnut crops, due to intrusion of seawater inland which is attributed to absence of mangroves and other coastal vegetation (Kathiresan and Rajendran, 2005). At the same time, villages behind the mangrove forests, in Cuddalore district of the same state, suffered less damage from the 2004 tsunami. Hence, assessment of the integration of environmental management, protection and conservation of natural resources and participation of local community in natural resources management is utmost needed to achieve resilience as stated in Essential 8 (Table 1). By integrating environmental management into disaster risk reduction plan, planners can consider how changing land use, levels of agricultural production and loss of vital ecosystems, for instance, will affect community resilience against potential disasters. The environmental initiatives, taken as disaster risk reduction measures, may also help the community, in turn, to be prepared for the future stressful environmental conditions.

As per the different dimensions of DRR, physical dimension of disaster risk reduction is a broad concept that includes risk assessment to building of infrastructures in disaster prone areas to early warning systems, land use planning and maintenance of critical infrastructure like hospitals and schools. Essential 10 marks the reconstruction phase after a disaster also as a physical aspect of risk reduction (Table 1). The primary requirement, before any disaster risk reduction practice is undertaken, is to analyze the risks, which the area may confront to. Preparation of hazard maps, vulnerability assessment and risk communication are some of the important factors to be emphasized by local authority (Essential 3). For example, disaster risk management profile is developed by Dhaka, the capital city of Bangladesh, which in turn resulted in formulation of various disaster risk reduction projects. Similarly many cities have committed to the UNISDR global campaign on "One Million Safe Schools and Hospitals" and resulted in construction and maintenance of many schools and health facilities. Providing training, education and public awareness about disaster risks is one the most potential requirement for cities to achieve resilience as per Essential 5 and 7. For example, 3,000 students from 35 schools and 600 college students have been trained in disaster management planning and safety tips in Bhubaneswar. The local community should be aware of the disaster drills, local weather reports, early warning systems and location evacuation shelters and escape routes (Essential 9). To address the lack of knowledge about disaster risk reduction, Mumbai, Bhubaneswar, Thimphu, and cities in Pakistan offer training to core service professionals and Local Government workers. Various emergency FM radio stations across some cities in Japan and Indonesia disseminate information regarding disaster risk reduction to the local community.

An initial challenge is often the lack of interest and capacities for disaster risk reduction by Local Governments. This is oftentimes a reflection of weak local governance capacities. Support from partners, such as national government, NGOs, private sectors and UN agencies, can play catalytic roles to fill the initial gaps. The challenge is to build up a planning process where people participate, decide and plan their city together with the Local Government authorities, based on their capacities and resources. Though the Ten Essentials of LGSAT covered nearly all the aspects to achieving resilience, it has been observed that the LGSAT mostly revolved around the assessment to financial resources. Natural resources and social development gets lesser attention. In addition it has also been observed that more emphasize was given on infrastructural protection as nearly three essentials called for building codes, protection of infrastructures and facilities. In the recovery phase, important issues like providing basic relief funds and their distribution to the affected community, disposal and management of disaster waste and providing options for alternate livelihood opportunities for the jobless has not been properly discussed. In the following sections, attempts have been made to find out the link between HFA and LGSAT and inquire if there is any, at all, need of this tool.

LGSAT: Linkage to HFA

As reported in the UNISDR published report, forty-one questions of LGSAT has been directly derived from the priorities and core indicators of HFA (UNISDR, 2012). Figure 1 shows how the ten essentials emerge from the five priorities of HFA. Further insight shows that maximum numbers of questions (6) in LGSAT are formulated from Essential 2 (Assign a budget) and Essential 9 (Early warning and emergency). Essential 2 in turn is derived from HFA priority 1 (Local/city governance) and 4 (Vulnerability Reduction) and Essential 9 in derived from HFA priority 2 (Risk Assessment and Early Warning) and 5 (Disaster preparedness). In another way it is observed that HFA priority 4 (Vulnerability Reduction) is one of the most important priority from which 7 out of 10 essentials have emerged. This can be attributed to the maximum number of core indicators under priority 4 starting from the integration between DRR policy and planning and their links to environmental management and climate change to land use planning and integration of DRR measures in recovery and rehabilitation processes.

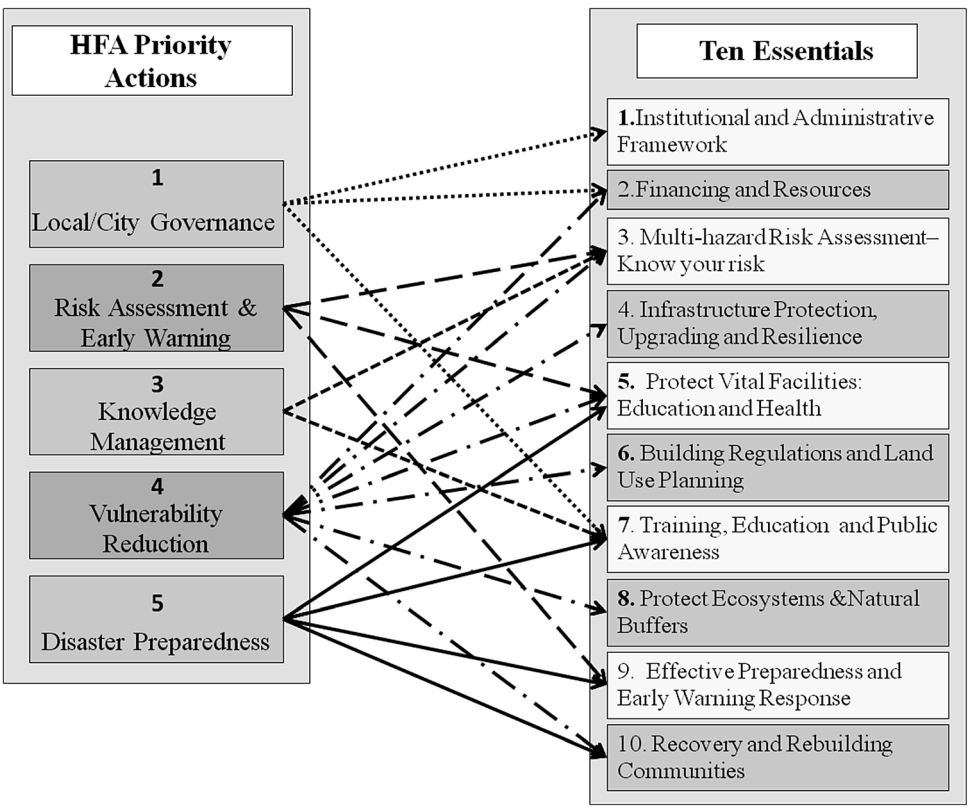

Figure 1. The Link Between in HFA Priority Actions and Ten Essentials.

When the HFA core indicators were compared to LGSAT questionnaire, few anomalies were observed. For example, questions under essential 2, which are indicated to be derived from core indicator 4.2, involves issues like scope of financial services available to vulnerable households and availability of micro-finance, cash aid or soft loans to affected households after disaster. However, HFA core indicator 4.2 proposes the implementation of social development policies and plans to reduce the vulnerability of the population at risk like access to basic social services during and after disasters, social protection schemes, social safety nets, food security initiatives etc. Hence, the LGSAT questions stressed more on financial resources, unlike as stated in HFA. Similarly, LGSAT questions like the extent to which local schools, hospitals and health facilities received special attention for "all hazard" risk assessments (question no. 19) or how safe are the schools, hospitals, and health facilities from disasters to remain operational during emergencies (question no. 20) are more related to core indicator 4.4 which deals with disaster prepared of critical facilities. However, in the LGSAT, it has been cited that the above questions are derived from HFA core indicator 2.1 which deals with national and local risk assessments based on hazard data and vulnerability information. Likewise, LGSAT question no. 40, which is stated to be derived from HFA core indicator 4.5, calls for integration of disaster risk reduction measures into post-disaster recovery and rehabilitation activities (i.e., build back better, livelihoods rehabilitation). In contrast, it has been observed that the question related more closely to HFA core indicator 4.2 (Social development policies and plans are being implemented to reduce the vulnerability of populations most at risk.) and core indicator 4.3 (Economic and productive sectoral policies and plans have been implemented to reduce the vulnerability of economic activities). Though questions have been said to be derived from core indicator 4.5 and 4.6, the core indicators are not stated in any of the LGSAT documents or campaign documents.

The Qualitative Scale of LGSAT

Identifying and measuring risks and vulnerabilities before a disaster occurs—and also after disasters have happened—are essential tasks for effective and long term disaster risk reduction. In recent years, an increasing number of global and local initiatives have been launched to measure risk and vulnerability with a set of indicators and indices like Climate and Disaster Resilience Initiative (CDRI), LGSAT, HFA, Disaster Risk Index (DRI), The Community-Based Risk Index etc. Various scales of evaluation, quantitative and/or qualitative, has been used in all these initiatives. In this regard, disaster risk assessment is not limited to quantitative approaches; rather, it encompasses both quantitative and qualitative methods to describe and operationalize vulnerability (Birkmann & Wisner, 2006).

In "Making Cities Resilient—My City is Getting Ready," two types of scoring scales are used for assessing the level of achievements. The 1–3 scale in the Nomination Form is meant to serve as an initial, "first-step" in evaluating a city's level of disaster risk reduction activities. This helps both the city and the

campaign get an initial snapshot of the areas of success to date and the main challenges facing the city. The Local Government Self-Assessment Tool is designed to enable cities to undertake a more robust assessment of achievements and gaps based on 41 indicator questions derived from the Ten Essentials. The two additional scales of progress (1–5) in the LGSAT give cities the opportunity to provide a more precise evaluation of their successes and challenges. These two levels of achievements may result in confusion because the city which has ranked itself as 3 (in place, well-functioning or N/A) for a question indicator in nomination form may find it difficult to rank itself for the same question in the LGSAT questionnaire form. It is difficult to assess how much of disaster risk reduction measure is well functioning and the perception may differ from person to person. Hence, this involves a multi-stakeholder participation.

In terms of scaling, in LGSAT the Local Governments are recommended to fill up a questionnaire having 41 questions and rank themselves in a scale of 1–5 (from minor achievement to comprehensive achievement) (Table 2). But, as the concerned authorities have to rank by themselves, the results of their analyses may be partial or misleading. In spite of being a multi-stakeholder process, there need to be a monitoring body who will check the responses to the question and do the self-evaluation. Also, some ideal examples of standard measures for each level of achievements based on the demographic, social, geographical, political and cultural aspects of cities, proposed by a deciding authority, should be set so that the Local Government can decide their level of progress properly.

With respect to scoring, questions of LGSAT like "How well are local organizations (including Local Government) equipped with capacities (knowledge, experience, official mandate) for disaster risk reduction and climate change adaptation?" (Question no. 1 under Essential 1) is a quantitative indicator, and its value is "binary"—defined by either "yes" or "no". Provided a clear definition of such a platform exists, an official will usually be able to say if a platform exists or not. At the same time, the nature and effectiveness of the platform are qualitative characteristics and cannot be deduced from the mere existence of a platform. Sometimes the qualitative scales are based on perceptions rather than on facts and may create misleading results. However, there are many important factors for which indicators are required to be rather qualitative. For example, for the question like "To what extent are micro financing, cash aid, soft loans, loan guarantees etc. available to affected households after disasters to restart livelihoods?" Its value can only be "yes" or "no," but either of these answers could be misleading, for example a country with 95% compliance would still need to report "no." One way to address this problem is to qualitatively assess the indicator using a graduated 5-point scale from "no/minor progress" through to "full/substantial achievement". In this way, the qualitative characteristics become quantified, albeit only on this coarse 5-point scale. Therefore, it is required to transform the qualitative results into quantitative output so that decision making can be more clear and appropriate. Quantification involves developing and/or applying indicators or indexes that measure changes in qualitative impacts, including both perception and observable changes in behavior.

In addition, there should be a provision for different level of progress varying according to the size and other characteristics of the city. According to the caretaking authority of this campaign, UNISDR, urban centers that meet the conventional definition of a "city" in terms of land size, population and/or economy, of different sizes and levels, including regional, metropolitan and provincial areas, as well as municipalities and townships can participate in this campaign. But a major misconception arises when both the province and a city under it or a city and a municipality under it participate in the campaign and fill the LGSAT questionnaire. Therefore, even if the province or city does not take adequate measure for disaster risk reduction, the progress of the city or the municipality under it will enhance its score. This may result in misinterpretation of the results of LGSAT. For example, both Balamban Municipality under Cebu Province, Phillippines and Cebu province itself have participated in the campaign. Similarly, both Ganjam District of Orissa in India and a notified area committee under it, Asika, has participated in the campaign. But it is not clear that if the scores of progress of Asika is calculated when the level of progress of Ganjam is assessed or not. Similar cases are observed in case of many other urban centers across the world.

Conclusion and Way Forward

Cities are complex and dynamic metasystems in which technological components and social components interact. They are made up of dynamic linkages of physical and social networks. Planning for resilience in the face of urban disaster requires designing cities that combine seemingly opposite characteristics including redundancy and efficiency, diversity and interdependence, strength and flexibility, autonomy and collaboration, and planning and adaptability. "Making Cities Resilient—My City is getting ready" has emerged as one of the premier initiatives in assessing the disaster risk reduction measures and calls for disaster preparedness in urban areas. The campaign is becoming bigger with more than a thousand cities participating in this campaign, nearly 100 of them have already filled up the Local Government Self-Assessment questionnaire. It is anticipated that by the end of 2013 another 100 cities will complete their self-assessments. The campaign has also come out with the concept to certify cities, showing extraordinary achievements (in at least five areas of the Ten Essential actions), with designations like "Role Model City" or "Champion."

However, in spite of being an effective tool for assessing disaster resiliency of a city, many anomalies have been observed in the questionnaire and the different question indicators of LGSAT, the main ingredient of this campaign. As discussed in the previous sections, many of the question indicators relate more closely to other core indicators of HFA than those stated in the toolkit. Some of the core indicators were missing from the handbook and other guides provided to the Local Governments, though question indicators derived from them were present in the LGSAT questionnaire. Keeping in mind the importance of LGSAT and its applicability, it is very important to make these anomalies clearly stated in the

documents so that it becomes distinctly understandable to the Local Governments.

Considering other DRR tools developed so far, CDRI-HFA linkages provides an overall and holistic assessment of the tasks required to implement HFA. In addition, CDRI-HFA linkages also provide guidance to the Local Government on how short-term, mid-term and long-term priorities lead to HFA implementation (Matsuoka and Shaw, 2011). CDRI and CBRI (The Community-Based Risk Index) measure on different thematic areas: physical/demographic, social, environmental, and economic vulnerability whereas it has been noticed that the LGSAT question indicators stressed more on financial resources than social development plans and policies. However, similar to CDRI, LGSAT also ensures the alignment of these actions into national and global HFA implementation. Other aspects identified like use of indigenous knowledge in disaster risk reduction, integration of disaster reduction in Environmental Impact Assessment studies, treatment and disposal of disaster debris, plans for management of health and food crises during disaster and post disaster phase, formation of social protection schemes and social safety nets for vulnerable and affected population, risk communication etc. have not been properly addressed in the LGSAT. All these issues and similar other need to be integrated in the campaign to make it more comprehensive and applicable. Moreover, when compared to CDRI and CBRI, LGSAT is a set of question indicators that helps to identify the gaps in disaster risk reduction measures of a city, whereas CDRI provides a baseline about the current condition of a particular area and functions also as an effective planning tool.

After reviewing LGSAT and the participation form submitted by various Local Governments to UNISDR, the need for an effective monitoring authority was widely felt. The Local Governments may state that they have all the necessary disaster risk reduction measures with them, but it becomes crucial to assess and validate if all the measures are well functioning and operational and are sufficient for all the vulnerable and affected population. As discussed in the previous sections, the case studies stated various initiatives that they have taken up for DRR, but a regular monitoring system is absent and hence, is required for the effective assessment and implementation of the disaster risk reduction measures at the local scale. The monitoring committee should include personnel from local communities, academia, businesses, and government offices, women and youth organization, religious bodies etc., because the local people know better about the implementation and progress of the DRR measures. Same or similar committees should decide on the scores or levels of achievements rather than the Local Governments to have a fair evaluation of the achievements.

Even the scaling system for LGSAT questionnaire is more or less perception based. It is not possible to score all the question indicators qualitatively. So, there must be a provision to transform the qualitative scores into quantitative outputs to help in decision-making process like CDRI where proper weights are assigned to each indicator to make the initiative more applicable to the decision makers. The main incentive for the cities to participate in this campaign is visibility, access

to connections, and knowledge. However, sometimes the Local Government encounters more serious issues other than disaster risk reduction, which leads to lesser prioritization of these measures. A monetary incentive, grant in aids, loans or assistance in project approval from national government may attract the Local Governments more to take part in this self-assessment.

For Local Government leaders, reducing disaster risk can be a legacy opportunity, which becomes a political incentive—paying attention to protection will improve environmental, social and economic conditions, including combating the future variables of climate change, and leave the community more prosperous and secure than before. Hence, coming to the actual need of this campaign and a new self-assessment tool, this study critically analyzed its requirement when various initiatives have been already developed and are functioning like MDG, GAR, and HFA which undertook various efforts and suggested measures for effective DRR. As discussed in Section 4, a linkage was found to exist between all these policy instruments and Making Cities Resilient campaign and LGSAT. All these policy instruments worked as a foundation for the evolution of this campaign and the self-assessment tool. Of these, HFA needs a special mention. Making Cities Resilient campaign has been directly derived from HFA for DRR initiatives and disaster preparedness activities at the Local Government level. Therefore, the main question that arises is whether there is any need of this campaign at all, when the HFA is still at its working phase. Moreover, the working period, that is, 2015, is same for HFA/Local HFA and Making Cities Resilient campaign. Hence, the utility of this campaign needs to be cleared to the Local Governments as they have already taken up or is carrying out the Local HFA assessment.

Instead, the authors feel, to achieve the goal of a resilient city, urban hazard mitigation best practices must include both technical and social approaches. A city that seeks social and institutional resiliency would monitor vulnerability reduction, build distributed hazard mitigation capability, develop broad hazard mitigation commitment, operate networked communications, adopt recognized equity standards, assist threatened neighborhoods and populations, and mitigate business interruption impacts. The scale of establishing these measures can be easily carried out after conducting Local-stakeholder HFA or other similar tools presently functioning. Hence, the impacts of LGSAT and this campaign would have been far reaching, if they would have guided the Local Governments on the next steps to follow rather than developing one more tool to assess the scale of disaster preparedness.

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References

Asian Development Bank (ADB). 2008. *Managing Asian Cities: Sustainable and Inclusive Urban Solutions*. Metro Manila, Philippinnes: ADB. http://www2.adb.org/documents/studies/managing-asian-cities/mac-report.pdf

Birkmann, Jörn, and Ben Wisner. 2006. Measuring the un-measurable. The challenge of vulnerability. Source, No. 5/2006.Bonn: United Nations University—Institute for Environment and Human Security. http://www.ehs.unu.edu/file.php?id=212S

Deneulin, Severine, and Lila Shahani, (eds.) 2009. *An Introduction to the Human Development and Capability Approach: Freedom and Agency*. London, United Kingdom: Earthscan.

Gu, C., L. Hu, X. Zhang, X. Wang, and J. Guo. 2011. "Climate Change and Urbanization in the Yangtze River Delta." *Habitat International* 35: 544–52.

Joerin, Jonas, and Rajib Shaw. 2011. "Mapping Climate and Disaster Resilience in Cities." In *Climate and Disaster Resilience in Cities*, Community, Environment and Disaster Risk Management, Vol. 6, ed. R. Shaw, and A. Sharma. Bingley, UK: Emerald Publishers, 47–61.

Kabeer, Naila. 2010. Can the MDGs Provide a Pathway to Social Justice? The Challenges of Intersecting Inequalities, UN MDG Achievement Fund, New York and IDS, Brighton [online]. http://www.ids.ac.uk/index.cfm?objectid=D7AF033EA15A-2AEB-6946038681E30AF9

Kathiresan, Kandasamy, and Narayanasamy Rajendran. 2005. "Mangrove ecosystems of the Indian Ocean Region." *Indian Journal of Marine Sciences*, 34: 104–113.

Kim, Victoria. 2011. Japan Damage could Reach $235 Billion, World Bank Estimates. Los Angeles Times [online]. http://www.latimes.com/business/la-fgw-japan-quake-world-bank-20110322,0,3799976.story. Accessed February 11, 2013.

Manyena, Siambabala Bernard. 2006. "The Concept of Resilience Revisited." *Disasters*, 30(4): 434–450.

Matsuoka, Yuki, and Rajib Shaw. 2011. "Linking Resilience Planning to Hyogo Framework for Action in Cities." In: *Climate and Disaster Resilience in Cities*, Community, Environment and Disaster Risk Management, Vol. 6, ed. R. Shaw, and A. Sharma. Bingley, UK: Emerald Publishers, 47–61.

Osei, Philip D. 2007. "Policy Responses, Institutional Networks Management and Post Hurricane Ivan Reconstruction in Jamaica." *Disaster Prevention and Management*, 16(2): 217–34.

Rotherham, Fiona. 2011. Quake rebuild will eat into GDP. Fairfax NZ News [online]. http://www.stuff.co.nz/business/rebuilding-christchurch/4984173/Quake-rebuild-will-eat-into-GDP. Accessed February 11, 2013.

The Incheon Declaration. 2009. Building a Local Government alliance for disaster risk reduction. Conference on Building A Local Government Alliance For Disaster Risk Reduction, Incheon, South Korea, 11–13 August, 2009.

United Nations. 2002. Report of the World Summit on Sustainable Development. New York, NY: UN. http://www.johannesburgsummit.org/html/documents/summit_docs/131302_wssd_report_reissued.pdf

United Nations Development Programme (UNDP). 2004. Reducing Disaster Risk: A Challenge for Development. UNDP, Crisis Prevention and Recovery, Pisaster Reduction Unit, Geneva. http://www.undp.org/bcpr/disred/english/publications/rdr.htm

United Nations Human Settlements Programme (UN HABITAT). 2007. Enhancing Urban Safety and Security: Global Report on Human Settlements 2007. London, United Kingdom: EarthScanPublishers. http://www.unhabitat.org/downloads/docs/GRHS2007.pdf

United Nations International Strategy for Disaster Reduction. 2009. Global Assessment Report on Disaster Risk Reduction 2009. Geneva, Switzerland: United Nations. http://www.preventionweb.net/english/hyogo/gar/report/index.php?id=9413&pid:209&pil:1

United Nations International Strategy for Disaster Reduction. 2010. Local Governments and disaster risk reduction: Good practices and Lessons learned, A Contribution to "Making Cities Resilient" Campaign [online]. International Strategy for Disaster Reduction—UNISDR. http://www.UNISDR.org/preventionweb/files/13627_LocalGovernmentsandDisasterRiskRedu.pdf. Accessed April 28, 2010.

United Nations International Strategy for Disaster Reduction. 2011. Global Assessment Report on Disaster Risk Reduction 2011. Geneva, Switzerland: United Nations. http://www.preventionweb.net/english/hyogo/gar/2011/en/home/download.html

United Nations International Strategy for Disaster Reduction. 2012. Making Cities Resilient Report 2012: My city is getting ready! A global snapshot of how Local Governments reduce disaster risk. First Edition for the 5th World Urban Forum, 4 September 2012.