

Challenge of Local Responses to Climate Change; Perceptions of Urban Planning Practitioners in Sri Lanka

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ABSTRACT— *This study attempts to explore the key factors influence on integrating climate change adaptation into urban planning at local level with special reference to Sri Lankan coastal urban localities. Based on the reviewed literature, key factors have been discussed in this paper are (i) Decision making power and legal framework, (ii) Financing and other resources, (iii) Access to localized knowledge, information and technical skills, Institutional capacity and resources, and (iv) Community awareness and perceptions. The study has synthesized the key factors that constraint the integration of climate change responses in urban planning practice; in comparison to the challenges revealed through comprehending the literature and the challenges perceived by the urban planning practitioners of Sri Lanka.*

Keywords— Climate change, Adpatation, Urban Planning Practice, Public Participation

1. BACKGROUND OF THE STUDY

A large share of the world's urban centers is located in low-lying coastal areas which are particularly vulnerable to storm surge and water-related calamities, increasing the risk to property, livelihoods and urban infrastructure (OECD 2010, Cities and Climate Change). Settlements in coastal lowlands are especially vulnerable to risks resulting from climate change, yet these lowlands are densely populated and growing rapidly (McGranahan, et al., 2007).

Urban areas located in coastline of Sri Lanka are considered as the most vulnerable areas for climate change in the country. Coastal urban areas of Sri Lanka occupy 3/4 of the country's urban population and 80% of its economic infrastructure networks. These areas are highly vulnerable to potential climate change impacts such as the sea-level rise, flooding, salination of water resources, storm surges, cyclones, and droughts. Further, "the coastal zone accounts for 43% of the nation's GDP so impacts on coastal settlements translate into substantial impacts on the nation's economy" (Disaster management Centre, 2010 cited in Sector Vulnerability Profile, Climate Change Secretariat, Ministry of Environment, Sri Lanka, 2010 p-11). Hence, it indicates the need of appropriate climate change adaptation measures for coastal cities in Sri Lanka in order make them safe and resilient.

As mentioned in the OCED Policy Guidance, Integrating Climate Change Adaptation into Development Co-Operation 2009, climate change adaptation in local level is important for three main reasons: (1) climate change impacts are manifested locally, (2) vulnerability and adaptive capacity are also realized locally, and (3) adaptation action is best observed at local levels. Consequently, the need of practicing climate change adaptation actions at local level obtains an utmost importance.

'There is a need for the developing countries to prepare more detailed plans of adaptation to climate change including policies and ensuring their compatibility with action plans under other multilateral, environmental agreements (such as biodiversity and desertification) as well as with other... sustainable development plans or strategies' (Huq, 2002 cited in Adger et al, 2003 p-189). Increased climate hazards coupled with rapid urbanization are likely to put increased strain on the capacity of local governments as they attempt to respond to the vulnerabilities of the urban population (Tanner, et al., 2009 p13.). Urban development plans can be recognized as one of the most effective options available for implementing climate change adaptation actions at local level in Sri Lankan urban areas (Weerasoori, 2014, Personal Communication). Urban development plans in Sri Lanka is a legalized, institutionalized, authentic instrument which follows integrated

spatial planning approach while being associated with environmental, economic, socio-cultural, physical and technical dimensions. Therefore, urban development plans have been recognized as a versatile enough tool to address climate change impacts on Sri Lankan urban areas.

In response, Different approaches and frameworks have been developed internationally for integrating climate change adaptation into development planning by various organizations. They imply different processes and toolkits to achieve their targets in relation to climate change adaptation. Cities and Climate Change Initiative (CCCI) and Hyogo Framework for Action (HFA) are such methodologies adopted in number of cities worldwide. In many countries, climate change adaptation strategies have been mainstreamed into development planning process either at multiple spatial levels such as national level, regional level, city level and community level or sector-based policies at national level.

1.1 Integrating Climate change Adaptation at different levels of planning

Different practices followed under various contexts were studied to understand the processes how different countries have integrated climate change adaptation into urban planning. A selected set of practices of Germany, Ireland, London, New York, Finland, Canada were studied for developed countries while another set of practices in Thailand, Bhutan, Colombia, Bangladesh, Indonesia and Philippine were studied for developing countries respectively.

Accordingly, it was reviewed that climate change adaptation is integrated with spatial planning at different levels following diverse approaches. Practices in most of the developed as well as developing countries such as Ireland (Department of the Environment, Community and Local Government, 2012), Canada, (Feltmate & Thistlethwaite, n.d.), Colombia (Adams & Castro, 2013), Indonesia and Philippine (Lasco, et al., 2007) development and implementation of sectoral and local adaptation actions are initiated under national climate adaptation policies. Adaptation measures are prioritized for different sectors based on experts' opinion on the relevant subject areas. Adaptation actions have been initiated under the national climate adaptation policy in Germany (Schuchardt, et al., 2008), Bangladesh (Lhendup, 2012) and Bhutan (Pervin, 2013) which is implemented at national level. City level sector-based strategies for mainstreaming adaptation actions into urban planning process are developed in London and New York cities (Johnson & Breil, 2012).. Apart from that, in Lao-oi district of Thailand, climate change adaptation is mainstreamed into community development planning process (Chinvanno, S. & Kerdsuk 2013). It is developed to minimize the effects of flood on rice farming which is their main source of livelihood. Although these have been reviewed in this study as the most prominent practices followed in some developed and developing countries to mainstream and integrate climate change adaptation into urban planning, there can be numerous other methods practice in all over the world. Nevertheless, according to the findings it was clear that, climate change adaptation can be integrated at different tiers including national level, regional level, city and communal levels. However, this study has mainly focused at local level, which includes city and communal, as it is much relevant to the Sri Lankan context where the urban domain consist of small and medium townships.

1.2 Objective of the study

While understanding different practices on integrating climate change adaptation into urban planning in various contexts, it is important to explore the influential factors which determined the level where integration operates. Therefore, this study attempts to explore the key factors influence on integrating climate change adaptation into urban planning at local level with special reference to Sri Lankan coastal urban localities.

1.3 Methods of the study

Preliminary study about the limitations of integrating climate change adaptation practices is done in order to understand the background of the subject and to study how different countries are practicing climate change adaptation in different contexts. With the background understanding, the next step was to identify the best practices to integrate climate change adaptation with urban planning. The best practices were identified separately for developed and developing countries. In the next step, the factors that would influence on localizing climate change adaptation practices were identified through a comprehensive literature review.

There are different approaches and frameworks that have been developed internationally for integrating climate change adaptation into development planning. In Sri Lankan context some of these approaches had been implemented by different organizations and there were professionals who have been engaging with those activities for many years. Since the important factors in localizing or customizing climate change adaptation practices were identified in the previous step, the relevance of these factors with respect to the Sri Lankan context was assessed according to the perception of those practitioners.

Professionals with good experience in this subject area were selected for this and their ideas on challenges and positive-negative aspects of key factors influencing on integrating climate change adaptation into urban planning were discussed in relation to the locally adopted international approaches (ex: HFA, CCCI etc.) through an interview which conducted using a semi-structured questionnaire. The opinions of the experts' have been analyzed and compared with the findings of literature review as discussed in this paper.

2. KEY FACTORS INFLUENCE ON INTEGRATING CLIMATE CHANGE ADAPTATION INTO URBAN PLANNING

These factors are identified in most of the studies as critical factors, challenges or as barriers for effective adaptation planning in local governments. According to the reports of Australian Local Government Association, they identifies that main barriers arise from: lack of decision making power, lack of consistency, lack of clear guidance, materials and expertise and lack of funding (Australian Local Government Association, 2011). Challenges identified for local government of New Zealand indicates basically four factors such as Access to reliable and relevant data, Climate change will impact on different councils in different ways, Challenges in translating the big picture to regional and local levels, Need to manage political risks and get councilor 'buy-in' and support (Hunter , et al., 2010). Kobane referring to Cape Town mentions: "However, it has not been easy sailing for the city there have been key challenges facing Durban with respect to implementing its climate change plans and policies. These challenges include: a lack of co-ordination between the various departments within the eThekweni municipality, a lack of co-ordination across the different spheres of government, weak co-operation and exchange of information between eThekweni and other municipalities in the country, a lack of understanding and knowledge of climate change issues among municipal officials, and limited community awareness about, and involvement in, the issues" (Kabane, n.d.).

The UNDP referring to the numerous contributions to the UNFCCC with regard to the African continent -including a programme to support an integrated and comprehensive approach to climate change adaptation which targets 21 countries in an attempt to support their national development processes to incorporate climate change risks and adaptation opportunities- have identified a number of adaptation-related challenges which include: Institutional capacities, relationships, policies and practices to assess and manage climate change risks that are not developed sufficiently to create an enabling environment, with corresponding political and social champions to support the formulation and implementation of efficient solutions to a problem that has complex multi-sector effects; Limited knowledge of the most appropriate adaptation policies and measures hinders countries from preparing themselves with the necessary institutional capacities to support climate risk management; and limited financing options to sustain scaled-up adaptation measures remain a constraint (Govender, n.d.).

Climate Governance in Africa emphasizes the critical factors for climate change governance in National level as matters of equity, provision of finance for adaptation, transparency, accountability, public participation and access to information (Madzwamuse, 2010). With reference to Integrated Metropolitan Environmental Plan (IMEP) in city of Cape Town, key factors are highlighted; "It is therefore quite clear that the City of Cape Town has allocated resources and expertise to researching and increasing local understanding of the risks and challenges posed by climate change, and is thus making an intensive effort to prioritize climate change in its development and policy programme. Although huge financial and other resources have thus far been increasingly directed at addressing climate change as a strategic policy issue in the municipality, there remains a concern that even more resources are needed, including greater capital and operating budgets, to implement and rollout specific climate change programmes and projects" (Kabane, n.d.).

Based on the reviewed literature, for the purpose of this study, the key factors to integrate climate change adaptation were synthesized as (i) Decision making power and legal framework, (ii) Financing and other resources, (iii) Access to localized knowledge, information and technical skills, Institutional capacity and resources, and (iv) Community awareness and perceptions.

2.1 Decision making power and legal framework

Lack of decision making powers within local authorities has been widely addressed in many countries. "When managing climate change risks, one issue Councils face is that there is currently no power for a Council to make a —decision. In many states, such as Victoria, there is no mandatory trigger for changes to use or new development near the coast. Without a permit trigger allowing a Council to make a decision, property owners can intensify the use of their land and Councils are powerless to prevent such developments" (Australian Local Government Association, 2011)

"The city manager can only act on adaptation if enabled by legislative and administrative powers for climate policy measures. In many countries [especially of the global south], some key political powers needed for urban action reside at the central level' (Hansjürgens and Samaniego, 2007).

This situation does not prevail as it is in Sri Lankan context. Local authorities have strong legal powers to make decisions —controlling or promoting- on physical development. 'The Local Government System consisted of Municipal Councils, Urban Councils, Pradeshiya Sabhas which are govern by three main laws : Municipal Councils Ordinance (1947), Urban Councils Ordinance (1939) and Pradeshiya Sabhas Act (1987) (Ministry of local government, 2014). Accordingly, they have decision making powers on public health, environmental sanitation, public thoroughfares and public utility services.

“Planning is primarily a state-based responsibility. As a result of this, Councils must act within the legislative frameworks developed by State or Territory government agencies [to the extent they have in fact developed those frameworks]. There is contention regarding what degree of guidance should be provided to Councils by State / Territory or Federal governments to ensure consistency in adaptation strategies and to what extent local circumstances should determine the approach adopted”. (Australian Local Government Association, 2011). In Sri Lanka, physical planning undertake at national and regional levels according to the Town & Country Planning Ordinance whereas Local authorities are powered as the implementing body of Housing and Town Improvement ordinances, 1919 which is capable of addressing many of the urban planning issues. Recently, this was further empowered by making ‘major local development initiatives in urban areas are also linked directly to and coordinated by the local authorities deriving strength and support from the Urban Development authority Act and the Urban settlement Development Authority Act’ (Government Notifications - No. 1632/26, 2009, p. 2).

‘Adaptation issues are in most cases regional or local by nature. This means that risk management (e.g., infrastructure planning, sanitation, resource management, or measures for residents’ health) is primarily a task that is under local management. Equipping city managers with the information and authority to deal with adaptation issues is therefore a vital prerequisite’ (Hansjürgens and Samaniego, 2007). In Sri Lanka, this power has been strengthened by the National Policy on Local Government ‘The Policy shall also ensure that, as the planning authority of the area of jurisdiction, the local authority shall be pro-actively involved in disaster preparation, mitigation and management within the overall District Framework for disaster management. 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’ (Government Notifications - No. 1632/26, 2009, p. 5). Moreover, local authorities represent the local disaster management committees which established under the national ministry of disaster management too.

Accordingly, it can be clearly stated that legal provisions and powers to make decisions are well established in Sri Lankan situation unlike many of the other countries in the world. Next, the attention was paid on the operational barriers of decision making. “The literature suggests that the most frequent cross-scale barriers that are experienced relate to policy and governance arrangements, followed by operational barriers that often arise within local government but may be driven by deeper external processes.

- Lack of suitable governance framework for climate risk management in cities
- The complexity of institutional and inter jurisdictional arrangements hinder early consideration of risks from climate change
- Lack of a national mechanism for collaboration
- General lack of policy support and directions from other Government departments
- Legal uncertainty & Challenges
- Lack of consistency between policies of different departments within a jurisdiction
- Short –term political view/agendas” (Gero, et al., 2012)

The most stated operational challenge was the lack of political will and commitment to act on climate change at local level. Many of the plans which have been prepared under the above mentioned provisions stuck at implementation due to poor political leadership. Many cases of political interferences had been faced by the practitioners during implementation.

“Over the last three years there has been substantial development in the updating of state and local planning schemes to include specific provisions for climate change impacts and adaptation strategies. However, there has been little consistency in the way this has been carried out and the resulting provisions vary between the approaches adopted by State and Local government within the same jurisdiction and at both levels of government across jurisdictions. Variations between state and territory jurisdictions in the guidelines provided to Councils” (Australian Local Government Association, 2011). Financial and behavioral barriers are also present and are likely to influence the degree to which other barriers manifest in the broader multi-level governance system (Gero, et al., 2012).

In Sri Lankan situation, this is possible to address to some extent through urban Development plan which makes provisions to plan for broader geographic units. However, despite several co-ordinatory attempts have been taken over last decade, the decision making on cross-boundary issues seems still blurry in practice.

2.2 Financing and other resources

Costs are a crucial factor in explaining the lack of widespread citywide climate protection activities (Harrison and McIntosh Sundstrom, 2007).

Financial barriers over any development project are a typical character in many of the government institutions in developing world yet it has been even stated by the practitioners in developing world as a common challenge faced worldwide: ‘A large barrier which faces Councils with the development and implementation of climate change initiatives is the ability to obtain financial resources and skills within the organization’ (Australian Local Government Association, 2011).

‘To develop adaptation strategies, empowered city managers also need financial resources and competencies for managing them on a long-term basis.....One could argue that it is sufficient for senior levels of government to allocate funds to city managers for financing public expenditure and meeting the cities’ adaptation requirements. This, however, seems neither feasible nor adequate’. (Hansjürgens and Samaniego, 2007)

Kabane referring to the city of Cape town mentioned that, ‘Although huge financial and other resources have thus far been increasingly directed at addressing climate change as a strategic policy issue in the municipality, there remains a concern that even more resources are needed, including greater capital and operating budgets, to implement and rollout specific climate change programmes and projects’ (Kabane, n.d.).

While many of the practitioners worldwide have been repeatedly mentioning the inadequacy of finance as a limitation, many of the local practitioners too agreed with the same. Yet, there were some alternative opinions which stated this as not as a matter of availability of funds rather it as a matter of allocation. The same opinion has been supported by as: ‘Councils, particularly smaller councils, struggle to obtain resources due to budgetary constraints, and have difficulty processing the lag time between seeing the direct benefits or outcomes of climate change initiatives and their implementation. A lack of immediacy is created with climate change which can impact on the support for initiatives both internally and externally leading to affects on resource allocation’. (Australian Local Government Association, 2011)

“Financial and behavioral barriers are also present and are likely to influence the degree to which other barriers manifest in the broader multi-level governance system.

- Limited funding/ resources from state & territory government for climate change action, particularly to fund additional staff to lead climate change initiatives within council.
- Competing priorities for funding.” (Gero, et al., 2012)

Some of the local practitioners stated that there are no budgetary constraints as many international grants are available. However, a quite a few agreed that some of the local authority outreach towards private sector partners and international donors are not favorable to continue projects.

2.3 Community awareness & perceptions

This Cognitive & Cultural factors are also a significant challenge which can be determined by:

- Community preferences
- Behavioral barriers
- Lack of social cohesion
- Reluctance to change/accept new technology
- Community awareness & perceptions

(Gero, et al., 2012)

In all of the projects that considered in this study, community awareness on the basics climate change impacts had been recorded above average. According to the opinion of practitioners, the community awareness and involvement was in many of the local level project had been taken place at satisfactory level. Despite the differences in their opinions community culture in Sri Lankan development project sphere was well participatory and negotiable.

2.4 Institutional capacity and resources

Developing climate change capacity of local governments requires a national-level response. One approach could be

integrating climate change into the curricula of the core local government training programmes and in the “tool box” of national agencies providing technical backstopping and monitoring performance of local government ” (UNDP, UNCDF, UNEP, 2010).

Gero has emphasized the key areas where local authorities find the limitations in terms of their capacity as per the findings of his recent works.

- Constraints to integrating information about hazard exposure and vulnerability into local planning processes and development agendas
- Limited knowledge and technical capacity to assess and reduce climate risk.
- Limited access to information that is scientific, local government specific and at a local scale as well as maps and models for communication and to inform decision making Limited capacity and resources within Councils for adaptation planning
- Limited capacity and resources within Councils for adaptation planning (Gero, et al., 2012)

The practitioners perception of Sri Lanka was quite challenging as many of the interviewees mentioned that the technical capacity of many of the institutions are at satisfactorily level due to a flux of programmes has been implementing over last decade. Further, they mentioned that, many of the experts in other institutions, private section and NGOs are willing to provide their knowledge with local authorities. The only recorded limitation under this head was lack of flexibility and adaptability of local authority officers to deal with the risk and uncertainty of climate change.

3. CONCLUSION

In comparison the challenges revealed through comprehending the reviewed literature and the challenges perceived by the urban planning practitioners of Sri Lanka who participated in this survey, the following two points has been concluded regarding the current status of local level response to climate change in Sri Lanka. First, in spite of the limitations identified, the legal provisions and institutional framework of the country is relatively stronger unlike in many other countries in developing world. Second, the most influential factors which determined the poor integration of climate change response at local level urban planning in Sri Lanka are: lack of political will and commitment at local level and absence of a defined framework to deal with cross-sectoral impacts of climate change among local authorities. Financial constraints and lack of resources were another issues but it was generally recommended to improve the legal, procedural and behavioral flexibilities of local authorities to strengthen the partnership with private sector, civic societies and donor communities to overcome these constraints.

4. ACKNOWLEDGEMENT

This research explicitly acknowledges the financial assistance provided by University Research Grant Commission under the research titled ‘A Planning approach to integrate climate change adaptation into City Development Plans of coastal urban areas, Sri Lanka’.

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