

Assessing city resilience: lessons from using the UNISDR Local Government Self-Assessment Tool for Battambang town, Cambodia



Final report

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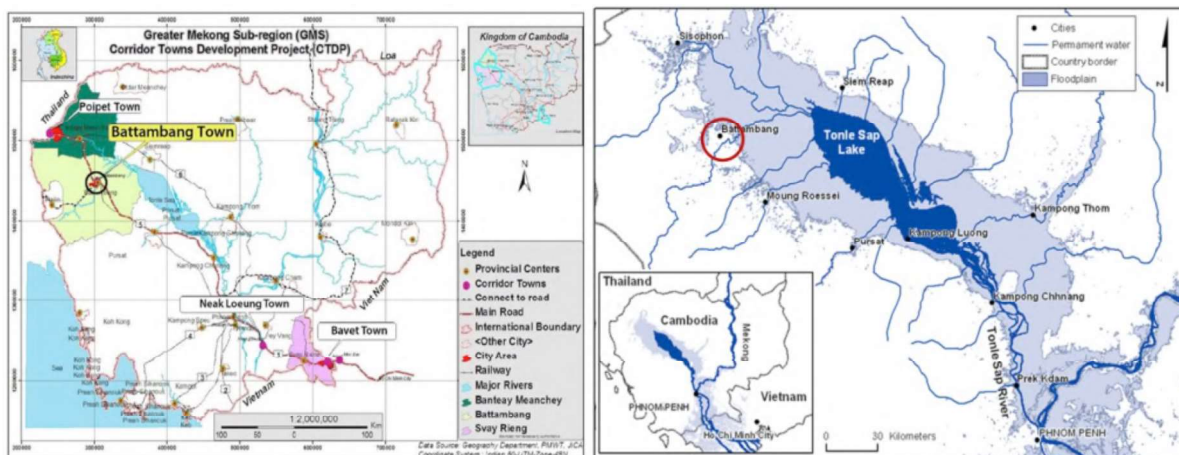
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1. Introduction

Battambang is situated about 300 kms from Southwest of Phnom Penh. Its territory covers an areas of 1,137,727 ha of which majority are dominated by agricultural and forest land. The province is divided with 13 administrative districts and one town (Battambang town) with total population around 1.2 million by 2015.

Its town is one of the secondary towns classified within the country and plays a key role as a provincial center and strategic location within the country. It has a long history and culture influenced by : neighboring countries, the colonial administration, the post-independence period, coup civil war (Chhuong1974, Molyvann 2003, Kubota 2011), and depopulation during the Khmer Rouge genocide (1975-78). The town covers an area of 115.44 km² (74% is agricultural land) and consists of 10 Sangkat (Communes) with 62 villages with population of 157,749 by 2015, more than 10% of total population in province. It is one of the secondary towns with long history of development, settlements, cultural heritage with strategic locations, link to Tonle Sap Lake, river system and national and international connectivity.

Figure 1: Strategic location of Battambang town



Sangker River flows across the town, divides into two parts: east and west banks, then flows into Tonle Sap Lake. Throughout history, the town physical development and urbanization has started with more than 200 years starting from pre-colonial time by transforming from a small fishing village with population around 25,000 stretched along the banks of the Sangké River from 18th to 20th century (Chhoung 1974), the colonial and post-colonial periods. People settlements had been recorded by Chhoung (1974) and Molyvann (2003) since before colonial periods. Key events were also recorded which include invasion from neighboring countries, colonization, civil wars and the national and regional integration.

The later periods show the town has become and reactivate itself as a center of connectivity with neighboring countries and other provinces within the country through trade and communications,

and mobility. With many natural resources, and cultural heritage- including thousands of colonial styles buildings and Khmer temples, the town is ideally suited and strategically located for cross border and regional economic cooperation. However, its current rapid urbanization has posted threat from climate change impact due to land use change and changes in hydrological flows from up-downstream. There is also a shift in spatial orders of mega-urbanization and spillover effect of growth poles through regional connectivity which remains problems for both urban planners (Douglas 1995) and vulnerable group in coping with new urban space and impact of climate change (Wamsler 2014).

Local Government Self-Assessment Tool (LGSAT) for disaster resilience in the urban areas and cities will help to set baselines, identify gaps, plan actions and have comparable data across local governments, within the country and globally, to measure advancements over time. By using this universal tool, cities and local governments can argue for priority setting and budget allocations within the city council and with the national government.

The main purpose of the Local Government Self-Assessment Tool is to:

- Help local governments engage with different stakeholders to map and understand existing gaps and challenges in disaster risk reduction in their city or locality.
- set a baseline and develop status reports for cities and municipalities which can be used to commit in making city resilience campaign with its ten essentials.
- Complement information gathered through the national Hyogo Framework for Action (HFA) monitoring system by providing local-level information.

2. The methodology

This assessment was undertaken as a multi-stakeholder process. Key actors involved with this discussion and evaluation included:

- a. Technical working group of Battambang municipality. These participants include deputy municipal governors, chief office of land use and cadaster, chief of office of public work, town beauty, waste management, and deputy provincial director of public work of transportation.
- b. Provincial department of Environment (POE)
- c. University of Battambang (UBB)
- d. Aphiwat Srey (AS), NGO working on climate smart agriculture
- e. Comped, NGOs working with municipality on waste recycling and informal education for disadvantage children at dump site.
- f. Community Management Development Partner (CMDP), NGOs working with urban informal settlement and improvement.

The validation workshop was also conducted on 26 March 2018 with 31 participants which included representative from provincial line departments, the NGOs include all key stakeholder working on urban issues, representative from University of Battambang, private sectors working on urban waste management, relevant municipality offices and representative from six communes. The validation workshop was chaired by the deputy municipal governor.

Figure 2 Method and assessment process



The assessment tool is flexible ranging from focus group discussion, individual interview based on checklist and plenary discussion. This framework is based on expert judgment and qualitative approach. It is important to interpret and summary key finding and conclusion within each selected essential linking to social, political, capacity and institutions of the local governments, regulation and policy status and so on. The status and level of progress in the self-assessment shall be measured on a scale of 1-5, which will help score progress over time. Table below describes the level of progress for overall ranking for each question.

1 (low)	2(below average)	3 (average)	4 (medium)	5 (high)
Achievements are minor and there are few signs of planning or forward action to improve the situation.	Achievement have been made but are incomplete, and while improvements are planned, the commitment and capacities are limited.	There is some institutional commitment and capacities to achieving Disaster Risk Reduction (DRR), but progress is not comprehensive or substantial.	Substantial achievement has been attained, but with some recognized deficiencies in commitment, financial resource or operational capacities	Comprehensive achievement has been attained, with the commitment and capacities to sustain efforts at all levels.

The total scores have been converted into average means for analysis purposes. The result was presented during the validation workshop base on each key essential findings where participants can clarify and provide additional inputs.

3. Summary key findings

Below is the summary of key findings from the proposed 10 essentials with key questions or core indicators (41) and level of its progress which served as the baseline for future decision-making and planning.

- Essential 1:Put in place organization and coordination to clarify everyone's role and responsibility

- Essential 2: Assessing a budget and provide incentives for homeowners, low-income families and the private sectors to invest in risk reduction
- Essential 3: Update data on hazards and vulnerability, prepare and share risk assessments.
- Essential 4: Invest in and maintain risk reducing infrastructure, such as storm drainage.
- Essential 5: Assess the safety of all schools and health facilities and upgrade these as necessary
- Essential 6: Enforce risk-compliant building regulations and land use planning, identify safe land for low-income citizens
- Essential 7: Ensure education programmes and training on disaster risk reduction are in place in schools and
- Essential 8: Protect ecosystems and natural buffers to mitigate hazards, adapt to climate change.
- Essential 9: Install early warning systems and emergency management capacity
- Essential 10: Ensure the needs and participations of the affected population are at the center of reconstruction.

Essential 1: Put in place organization and coordination to clarify everyone's role and responsibility

The result shows that there is organization and coordination in place with mostly through provincial and district disaster management committee of which provincial and municipal governors are chaired. However, full functioning of this institutions and coordination remained weak, instead more visible with provincial leadership as an individual model. However, there are wide range of partnership between civil societies (NGOs), bilateral aid and support. For instance, CMDP working with municipality and urban slum to build drainage system, while Habitat-Cambodia assist social land confession of urban poor in building houses, and other social infrastructure which is more normal development project rather than dealing with climate change and disaster specifically. Other partners reported by the stakeholders include ADB working on water supply, sanitation, water treatment plant while JICA support drainage system and China fund more work on multicourse dams and flood controlling system.

There are also different working group from political party, in particular from the ruling party as humanitarian foundation for vulnerable groups such as children, women and elders.

Existing municipal strategies, legislation and mandate often lack of clear definition of both institutional cooperation and institutional individual responsibilities for risk reduction, adaptation and border between them. There was an attempt to create Core Working Group in dealing with climate change and natural disaster within the town level in 2015. With Technical Support from ADB, the Battambang Core Group will conduct studies and produce policies and plans related to climate change resilience and share that information with other relevant agencies. In addition, the Core Group would be the body that gives the green light for infrastructure proposals. To do so, it will have to cooperate with relevant organizations at the national, provincial, municipal, and international levels, and work with development planners both local and international levels and with the private sector. It will need legislative endorsement from the national government in order to have the authority to carry out this task. The Core Group will serve as the focal point on raising awareness on climate change, mainstreaming climate change into infrastructure

development, and organizing training on how to plan and build green infrastructure (ICEM 2015). Up to now, this working is functioning as normal practice with sectoral based approach as before.

Scoring result (Essential 1)	A	B	C	D	F	G	Mean s
1. How well are local organizations (including local government) equipped with capacities (knowledge, experience, official mandate) for disaster risk reduction and climate change adaptation?	3	2	2	4	3	3	2.83
2. To what extent do partnerships exist between communities, private sector and local authorities to reduce risk?	4	2	3	4	4	4	3.50
3. How much does the local government support vulnerable local communities (particularly women, elderly, infirmed, children) to actively participate in risk reduction decision making, policy making, planning and implementation processes?	3	4	2	3	4	3	3.17
4. To what extent does the local government participate in national DRR planning?	3	3	2	3	4	3	3.00

Essential 2: Assessing a budget and provide incentives for homeowners, low-income families and the private sectors to invest in risk reduction

The result from assessment and interview shows that there is no formal budget to support for this sectors but mostly through the Political Working Group (PWG) managed by political parties. One of the dominant one is through Cambodian People Party (CPP) who has established off-budget from formal government to support newly born baby, married and death with 200,000 Riel/each. If they found people are in need such as old age, they come to visit and provide fund. During the validation workshop, many participants also did acknowledge that more financial support from the political party for emergency work in the town.

In addition, certain fund such as emergency relief and line department and in particular through Red-cross and some local NGOs such as Habitat-Cambodia. Micro-finance such as Amret, Far Ponleu, the NGO who is working with vulnerable groups, women empowerment while Habitat helps mobilize load from other sources for urban poor within their target with not exceed US\$3,000 loan with less interest rate compared with standard rate. There is also available chamber of commerce within the province, but they are mostly working with the members such as rice producers such as buying and selling rice but still seek for cassava market. We do not see much on the helping system. Many associations are initiated but not work well. Risk assessment was unclear but there is report mention within investment plan such as commune investment plan of three or five year rolling.

Scoring essential 2	A	B	C	D	F	G	Means
5. To what extend does the local government have access to adequate financial resources to carry out risk reduction	2	4	2	3	3	2	2.67

activities?							
6. To what degree does the local government allocate sufficient financial resources to carry out DRR activities, including effective disaster response and recovery?	3	1	2	2	4	3	2.50
7. What is the scope of financial services (e.g. saving and credit schemes, macro and micro insurance) available to vulnerable and marginalized households for pre-disaster times?	2	1	2	2	4	2	2.17
8. To what extent are microfinancing, cash aid, soft loans, loan guarantees, etc. available to affected households after disasters to restart livelihoods?	1	3	1	2	3	3	2.17
9. How well established are economic incentives for investing in disaster risk reduction for households and businesses (e.g. reduced insurance premiums for households, tax holidays for businesses)?	1	2	1	2	3	3	2.00
10. To what extent do local business associations, such as chambers of commerce and similar, support efforts of small enterprises for business continuity during and after disasters?	1	3	1	2	4	2	2.17
11. To what degree does the local government conducted through disaster risk assessments for key vulnerable development sectors in your local authority?	3	5	3	3	4	4	3.67

Essential 3: Update data on hazards and vulnerability, prepare and share risk assessments.

As mentioned in some part of essential 2, data update on hazard and vulnerability was not regularly done by municipal authority. These works are mostly done by partners such as Plant International and Community Management and Development Partner (CMDP) who recently provided training on Climate Change and Disaster Risk Reduction to commune officials, and urban community members with an attempt to mainstream into commune and municipal planning. Municipal authority also did visit every village for data collection and mapping flood with long term and short term plan (5 year plan). In addition, provincial office often focus on urban roads, water and lighting Public Street for city beauty.

Overall, since 2015 there is an attempt to integrated climate change and disaster management into land use planning within both municipality and commune level.

Knowledge transfer within vertical and horizontal remains high based on scoring result. Vertical flow of data, in particular between municipality to provincial level and down to village level while horizontal flow of data and knowledge between cities seems above average as city authorities remain key players in urban risk reduction and adaptation.

Scoring essential 3	A	B	C	D	F	G	Means
12. To what extent are these risk assessments regularly updated; e.g. annually or on a bi annual basis?	3	4	2	3	4	4	3.33

13. How regularly does the local government communicate to the community information on local hazards trends and risk reduction measures (e.g. using a Risk Communications Plan), including early warnings of likely hazard impact?	4	3	2	2	5	4	3.33
14. How well are local government risk assessments linked to, and support of, risk assessments from neighboring local authorities and state or provincial government risk management plans?	3	5	2	4	5	5	4

Essential 4: Invest in and maintain risk reducing infrastructure, such as storm drainage

As the city has expanded rapidly, majority of newly built environment have been constructed, mostly the conversion of former rice field into real estate. For instance, Borey Romchek (name of real estate and housing company), the pond to retain water and flood were constructed while its soils were used to build up newly developed areas for housing construction. In contrast, many wetland ponds were also filled up and replaced by constructed drainage system to release rain storm water shifting water direction. The process has result with more house developed which include commercial areas as well more people and road expansion within the proposed locations. This means the newly established built environment in higher elevation while at the same time flooding's others villages and households.

Scoring essential 4	A	B	C	D	F	G	Means
15. How well are disaster risk assessments incorporated into all relevant local development planning on a consistent basis?	3	4	2	3	3	3	3
16. How far do land use policies and planning regulations for housing and development infrastructure take current and projected disaster risk (including climate related risks) into account?	5		3	3	2	5	3
17. How adequately are critical public facilities and infrastructure located in high-risk areas assessed for all hazard risks and safety?	2	3	2	2	4	5	3
18. How adequate are the measures being taken to protect critical public facilities and infrastructures from damage during disasters?	3	5	2	3	3	5	3.5

Essential 5

Assess the safety of all schools and health facilities and upgrade these as necessary

The municipality authority do acknowledge there is changing urban landscape with many newly developed areas. As the result, formers schools and hospital exist for long time are vulnerable to floods both from torrential rain and water spill over from the river. For instance, Neth Yong school built during 1960s and others key public buildings nearby are also vulnerable to flood. Some health post at the commune level are also vulnerable to floods. Some efforts have been done through mostly private sector such as emergency help from medical doctors and ambulance from private clinics.

There is also a comprehensive assessment with technical support from ADB on flood prone areas within the town but there is systematic response to the key findings. In addition, it seems there was no disaster drill within local school or hospitals while both local dwellers and students develop their own strategies to avoid risk and accidents.

Scoring essential 5	A	B	C	D	F	G	Mean s
19. To what extent have local schools, hospitals and health facilities received special attention for ‘all hazard’ risk assessments in your local authority?	5	3	2	3	2	4	3.17
20. How safe are all main schools, hospitals and health facilities from disasters so that they have the ability to remain operational during emergencies	4	3	3	3	2	4	3.17
21. To what degree do local government or other levels of government have special programs in place to regularly assess schools, hospitals and health facilities for maintenance, compliance with building codes, general safety, weather-related risks etc.?	4	4	3	2	2	2	2.83
22. How far are regular disaster preparedness drills undertaken in schools, hospital and health facilities?	4	3	3	4	3	4	3.50

Essential 6: Enforce risk-compliant building regulations and land use planning, identify safe land for low-income citizens

Municipal authority do claim to have master plan of land use plan in hand such as housing, residential land, and building code but enforcement has been problematic. There is more detail plan on building code in certain areas in term of high and design with special regulation for climate change impact, ventilation, water system (both clean and waste) with proper drainage system. This technical guideline is applied only with those peoples who come to apply for construction with municipal office. In addition, municipal authority claim to lack of enough capacity to control on newly built up areas for construction. For instance, the construction law states that:

If the proposed areas for construction below 500 m², this will be permission from municipality. From 500 m² to 3000m² is under provincial level and from 3000 m² up is the responsibility of the Ministry of Land Management, Urban Planning and Construction (MLMUP). In contrast, land registration and safety is much more enforceable within urban areas compared with construction which are influence by both political intervention and power relations.

Scoring essential 6	A	B	C	D	F	G	Means
23. How well enforced are risk-sensitive land use regulation, building codes, and health and safety codes across all development zones and building types?	4	2	2	3	2	3	2.67
24. How strong are existing regulations (e.g land use plans, building codes, etc.) to support disaster risk	4	4	2	3	2	4	3.17

reduction in your local authority?							
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Essential 7: Ensure education programmes and training on disaster risk reduction are in place in schools and health facilities

Local or municipal authority conduct awareness raising only when there is information projected from ministry level, in particular weather forecast from Ministry of Water Resource Movement and Meteorology (MOWRAM). In recently, Plant and CMDP conducted some trainings on DRR and climate change to their target communities while municipality authority lack of resource to conduct similar training. University of Battambang does have extra curriculum, workshops, trainings are jointly organized at the university but not as officially curriculum. This means there is no DRR training are formally introduced within university level.

There is safety hills reported by municipal authority but there is no clear evacuation plan. Awareness raising within core urban areas are mostly done by provincial governor through his regular campaign of cleaning up the city and traffic laws awareness raising.

Scoring essential 7	A	B	C	D	F	G	Means
25. How regularly does the local government conduct awareness-building or education programs on DRR and disaster preparedness for local communities?	5	3	2	4	3	4	3.5
26. To what extent does the local government provide training in risk reduction for local officials and community leaders?	3	3	2	3	3	3	2.83
27. To what extent does local schools and colleges include courses, education or training in disaster risk reduction (including climate-related risks) as part of the educational curriculum?	4	3	4	3	4	3	3.5
28. How aware are citizens of evacuation plans or drills for evacuation when necessary?	4	2	2	2	3	3	2.67

Essential 8: Protect ecosystems and natural buffers to mitigate hazards, adapt to climate change

Even though with more than 70% of total urban territory are under green zone and mixed agricultural land which include habitat and wetland, the town expansion have moved to these areas by filling up land for construction. Railway Lake (8.5ha) which serves as flood retention and potential creation areas are still under strict law protection from further encroachment for construction. Flood often happen with heaving rain as many drainage system has been blocked with construction and waste disposal.

Flood controlling system across Sangker River has been constructed since 2015 to regulate water flow and floods. Meanwhile more wetland areas within town areas have been filled up and converted for construction, housing, markets, resorts and entertainment areas, and manufacturing areas.

Some private developers often ignore regulation (both construction and land filling) while other are attempting to establish green belt to balance development and wetland recreation in place.

Scoring essential 8	A	B	C	D	F	G	Means
29. How well integrated are the DRR policies, strategies and implementation plans of local government into existing environmental development and natural resource management plans?	4	3	3	3	3	4	3.33
30. To what degree does the local government support the restoration, protection and sustainable management of ecosystems services?	3	4	2	4	4	3	3.33
31. To what degree do civil society organizations and citizens participate in the restoration, protection and sustainable management of ecosystems services?	3	2	3	4	4	5	3.50
32. To what degree does the private sector participate in the implementation of environmental and ecosystems management plans in your local authority?	3	3	2	3	3	3	2.83

Essential 9: Install early warning systems and emergency management capacity

Early warning system and capacity in place has often been fragmented. Mobilization often taken place once there is serious natural disaster take place. Form of warning system within urban territory include using mobile telephone, social media, radio and local authority. Recovery fund is often flexible. For instance, the flood in 2013 resulted with around 80% of the provincial investment fund allocated to recover the infrastructure impacted by floods. Meanwhile, there were more NGOs working on the sectors were also active in supporting affected populations. However, there was no report of evacuation event but there is foods, shelters, and medicine are form of quick response in place.

Scoring essential 9	A	B	C	D	F	G	Means
33. To what degree do local institutions have access to financial reserves to support effective disaster response and early recovery?	4	2	2	3	3	3	2.83
34. To what extent are early warning centres established, adequately staffed (or on-call personnel) and well resourced (power backups, equipment redundancy etc) at all times?	4	4	2	2	2	4	3.00
35. How much do warning systems allow for adequate community participation?	4	5	2	2	4	3	3.33
36. To what extent does the local government have an emergency operations centre (EOC) and/or an emergency communication system?	4	2	3	2	4	2	2.83
37. How regularly are training drills and rehearsals	4	4	3	3	4	4	3.67

carried out with the participation of relevant government, non-governmental, local leaders and volunteers?							
38. How available are key resources for effective response, such as emergency supplies, emergency shelters, identified evacuation routes and contingency plans at all times?	3	3	2	3	2	3	2.67

Essential 10: Ensure the needs and participation of the affected populations are at the center of reconstruction

There is a mental health and meditation center called “Vipaksana center), a typical of Buddhism education center, mostly for women with mental health run by a local NGOs called “Buddhist for Development”. However, there is no clear evident that municipal authority is having access to financial support to assist those victims affected by natural disaster. It is mostly done through Red-cross Cambodia, humanitarian, and business elites within the province.

Municipality authority often depend on the 3 or 5 year rolling investment plan of which unclear budget are allocated for mental health care for affected people. In plan, there is a list of shopping list of projects of which some have been funded by NGOs whose mandate working on the sector.

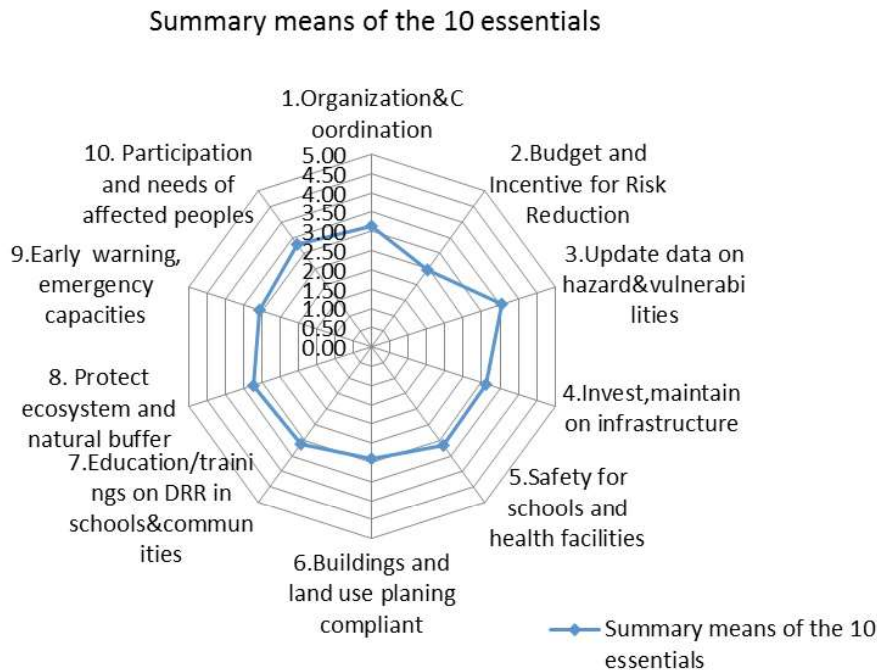
Scoring essential 10	A	B	C	D	F	G	Means
39. How much access does the local government have to resources and expertise to assist victims of psycho-social (psychological, emotional) impacts of disasters?	3	4	2	3	4	4	3.33
40. How well disaster risk reduction measures are integrated into post-disaster recovery and rehabilitation activities (i.e. build back better, livelihoods rehabilitation)?	4	4	3	3	4	3	3.50
41. To what degree does the Contingency Plan (or similar plan) include an outline strategy for post-disaster recovery and reconstruction, including needs assessments and livelihoods rehabilitation?	4	2	3	3	3	3	3.00

4. Discussion and conclusion

Discussion on key findings

The outcome of LGSAT provides ground attention to key institutional and policy gaps that would need to be addressed in order for the cities to be in a position to start developing appropriate urban climate resilience strategies, and action. The overall result shows that most of the essential ranks average except financial allocation and incentive for risk reduction preparedness and infrastructure construction. This means, city level intervention need further support for the sector. Figure below summaries scoring result from each key essential.

Figure 3: Overall mean of the scoring result for each key essential



1. Organization and coordination: the institutional landscape and operational interventions in place are inadequate in term of supporting urban dwellers' local risk reduction and adaptation efforts. The Provincial Committee for Disaster Management chaired by provincial, district governor and commune chief is set up mainly to respond to disasters as they occur. There is no clear technical working group for proactive adaptation planning and review. It is important that municipal authority, planners and other urban actors are aware of their role and responsibilities in disaster risk reduction and adaptation. Institution mandates and staff contract might be revised to explicitly reflect their responsibility.
2. Budget and investment: owing to legal investment it may be impossible to finance adequate adaptation and risk reduction recovery work. During the validation workshop, the result was fully agreed from the participants but acknowledge that the country does have the natural disaster law in which many key government institutions do have package of budget in dealing with the disaster and emergency relief.
3. Updating data on hazard and vulnerabilities: Collect and share data across institution, in particular (provincial department of water resources and meteorology, provincial unit of water supply, department of agriculture, forestry, fishery and environment). Urban planning play major role in reducing and adapting to increased risk and disasters. Identification and analysis of concrete actions is very challenging in implementation (national strategies for risk reduction and adaptation, in most case, have not been

translated into planning practice. In this regards, the city-level dialogues around the LGSAT ground attention to key institutional and policy gaps that would need to be addressed in order for the cities to be in a position to start developing appropriate urban climate resilience strategies, and action.

4. Invest and maintenance infrastructure against risk reduction. Green and blue infrastructure approach to improve cities' water management often goes hand in hand with the 'Re-naturalization' of ecosystems. It underlies the increasingly promoted ecosystem-based adaptation measure, thus addressing the link between the urban fabric and the urban ecosystem. Examples are planning residential and commercial areas to also include open space, preservation of wetland to prevent flooding, the use of vegetation to reduce water run-off and absorb heats, the re-naturalization of river, and maintenance of green areas, open space and regulated city parks.
5. Safety for all schools and health facilities: many schools and health facilities remain high risk with flood zone as the result of urban expansion and built environment expanded.
6. Enforce regulation on land use planning and buildings: land registration remain strong degree while construction enforcement remain weak. Political and power relations among elite and urban actors are highly involved with this process.
7. Education and trainings on DRR to schools and communities. Build public awareness and engagement in climate resilience building effort with stakeholders.
8. Protecting ecosystem, wetland and natural buffers: city authority and other urban actors and line ministries should have revisit their planning and re-inventory of wetland lakes and ponds to be protected and preserved for both flood retention and general natural habitats.
9. Early warning system: long term experiences with community-based locally early warning system. This system allow Responses to flooding from the local authority have included developing warning systems and disaster preparedness programs from provincial government such as financial support, materials and military forces to evacuate people during flash flooding.
10. Participation: There is no information on how local communities organize themselves in response to extreme events. But there has been NGO supporting local communities, mostly during the severe flood in late 2013. City dwellers versus city authorities approaches show the lack of synergy. Reflecting this news understanding, city level interventions show the need for further support for participatory process.

Signification of the findings and recommendations

It was acknowledged that responses to flooding (in 2013) from the local authority have included developing warning systems and disaster preparedness programs from provincial government such as financial support, materials and military forces to evacuate people during flash flooding. The action reflect the nature of disaster resilient in which city authority and other urban actors work together in improving capacities for reducing current and future hazard and location-specific vulnerabilities and the ability to response to recovery mechanisms and structure as well as an attempt to mainstream risk reduction and adaptation at institutional and inter-institutional level.

It is important that municipal authority, planners and other urban actors are aware of their role and responsibilities in disaster risk reduction and adaptation. Institution mandates and staff mandate and roles might be revised to explicitly reflect their responsibility. ICEM (2015) shows that the adaptive capacity of the town remains weak in terms of infrastructure, institutional arrangements, community involvement, and needed technical and financial capacity. This finding also reflects well from the global perspective in three pillars: the need for better urban planning, urban legislation and municipal finance which link to urban resilience and transformation (UN-Habitat 2016).

In principle, land use master plan of the town remains of the best in the country with technical support from GIZ, but there is lack of synergy between plan and practice. Based on FDG with municipal team, the master plan developed from 2004-2009 for action plan 2008-2022 but six year later the plan has approved for 2015-2030 (Battambang municipality master plan team 2009). The plan tries to balance and harmonize land allocation between the need of private interest such as investors, entrepreneurs, stakeholders, house owners and public interests such as the need for community, local people, and environmental issues. However, when putting into practice, this plan encounters with more problematic such as law enforcement, implementation and participation from the publics and local residents.

A similar study which adopted similar tool with more regional perspectives, showed that the creation of institution and structure is needed to ensure that the adequate consideration of risk reduction and adaptation at local program level becomes a standards procedure in urban planning practice and to create local and institutional capacity assessment to achieve sustainable disaster city resilience and urban transformation (Wamsler 2014).

In addition, many plans often fall short toward infrastructure development and the need to establish institution and people in place which also often missing the link between policy and implementation like above land use plan. Study conducted by Friend and Moench (2013) and Friend et al (2014) suggested local participants, voice and access right while dealing with climate change adaptation.

The report is expected to build as co-learning with local practitioners with those stakeholders in Battambang municipality where they can use it as their checklists or indicators for city resilience development and monitoring to improve disaster risk reduction within city. The plan to continue to monitor will be the next step once we all agreed with action plan.

The suggestion made from local government who participated in the validation workshop also suggested that the overall key finding is acceptable and fit well with what they have been observed. Based on result, the town planners and officials know where are the weak points in term city resilience aspects.

The validation workshop has also captured the town vision in dealing with climate change and disaster risk reduction in which urban system theory such as water, food and energy nexus will be included in visioning the town while facing with regional integration such as ASEA economic community integration and the issue of climate change impact.

5. References

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- Annex: The outcome from validation workshop on 26 March 2018**
- Annex 1: Agenda**
- Validation workshop on assessment tool “Making Cities Resilient: My City is Getting Ready”
Battambang municipality, March 26, 2018

Time	Activities	Who/responsible person
7:30-8:00	Registration	Mr. Soueng Bora
8:00-8:15	Introduction to agenda and participants	Mr. Soueng Bora
8:15-8:30	Welcome remark	Mr. Thuon Try
8:30-8:45	Open remark	Deputy municipal governor
8:45-9:00	Break	Mr. Soeung Bora
9:00-10:00	Presenting the assessment result on city resilience by using Local Government Self-Assessment Tool	Mr. Thuon Try, PhD Student
10:00-10:30	Question and answer	All
10:30-12:00	Final remark and conclusion	Deputy municipal governor

Annex 2: List of Photo activities

