

* 1 : Ampang Jaya

* 2 : Kajang

Source: Review of Local Plan of Kajang 2035 (Rancangan Tempatan MPKJ 2035)

4.2 The Level of Resilience

The previous section has provided a glimpse of the two case study areas on the existing situation, which indicate they fall within the category of average in terms of the disaster risk level. Based on the outcome of the CDRI assessment, the strength and weakness of the cities understudy are revealed. Overall, the two case study cities showed a similar pattern with the highest score to be reported for the physical component, and the least score was recorded for economy component with 3.12 (Kajang) and 3.17 (Ampang) accordingly.

City	Physical	Social	Economy	Institutional	Natural
Kajang	4.23	3.78	3.12	3.41	3.84
Ampang	4.04	3.52	3.17	3.55	3.61

Table 2: Overall CDRI Analysis. Source: Research fieldwork - CDRI Survey, 2017

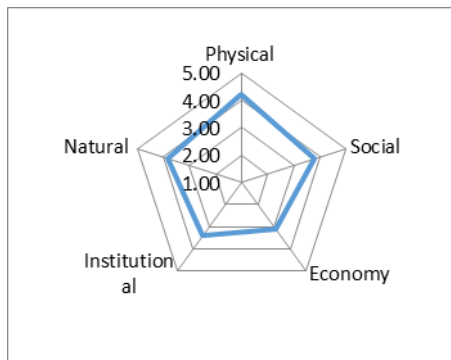


Figure 1: CDRI Analysis (Kajang)

Source: Research fieldwork - CDRI Survey, 2017

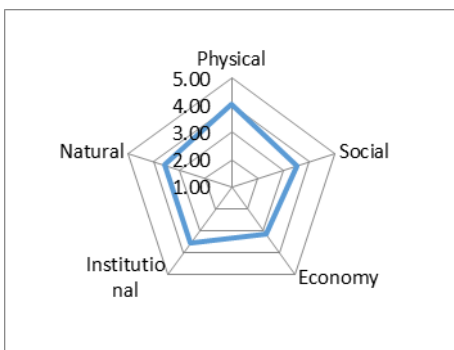


Figure 2: CDRI Analysis (Ampang Jaya)

Source: Research fieldwork - CDRI Survey, 2017

4.2.1 Physical

The CDRI assessment on the physical component revealed a moderately high score for both Kajang and Ampang with an average score of 4.13. The electricity and water were recorded to have higher resilience scores because of the continuous supply even during the flooding events (Field Survey, 2017). On the other hand housing and land use were reported to score lower due to the high density and compactness of the Kajang

town that have led to other problems such as overcrowding and traffic congestion within the city.

Parameters	Kajang	Ampang
Electricity	4.58	4.71
Water	4.73	4.35
Sanitation and solid waste disposal	3.72	3.94
Accessibility of roads	4.32	3.96
Housing and land use	3.80	3.27

Table 3: Assessment of Physical Component . Source: Research fieldwork - CDRI Survey, 2017

4.2.2 Social

For social component, the assessment involved parameters such as population, health, education and awareness, social capital and community preparedness during a disaster (Shaw et al., 2010). Based on the assessment performed in both cities, education and awareness were reported to have the highest score with 4.13 (Kajang) and 3.96 (Ampang). Lowest rating was reported from the aspect of population. In terms of population, Kajang and Ampang are known to be among the areas of high population density within the Greater Kuala Lumpur vicinity. Aspects of health and the preparedness of the community also revealed to be moderate for both cities.

Parameters	Kajang	Ampang
Population	3.40	3.06
Health	3.77	3.44
Education and awareness	4.13	3.96
Social capital	3.87	3.60
Community preparedness during a disaster	3.73	3.53

Table 4: Assessment of Social Component. Source: Research fieldwork - CDRI Survey, 2017

4.2.3 Economic

Overall, the economic resilience of Kajang and Ampang Jaya were reported to be on average. However, in comparison to other components, the economic component reported the lowest rating. For Kajang, higher scores are on three main components; income, employment and household asset ownership. These three components reported to achieve satisfactory rating. This indicates that the city's economy able to recover after facing a flood disaster. Meanwhile, Ampang Jaya is known to be one of the rapidly growing region with various economic activities also reveal to achieve satisfactory score on the three main economic subcomponent. However, two other sub-components; finance and savings and budget and subsidy achieved a relatively low score for both cities. The assessment conducted in 2010 for Kuala Lumpur also indicated the same pattern. The lack of credit facility and disaster risk financing are among the reasons that have contributed to the low scores (Field Survey, 2017). Hence, it is highly suggested that the local government and related stakeholders to play a greater role particularly in allocating certain amount of fund and provide assistance to local economy for business continuity after disaster.

Parameters	Kajang	Ampang
Income	3.52	3.19
Employment	3.83	3.69
Household assets	3.47	3.46
Finance and savings	2.55	2.68
Budget and subsidy	2.29	2.82

Table 5: Assessment of Economic Component. Source: Research fieldwork - CDRI Survey, 2017

4.2.4 Institutional

The institutional component is assessed in more detail with assessment on the sub-components such as mainstreaming DRR and CCA in the development plans, the city's effectiveness in managing the crisis and respond to disaster. For Kajang, the highest score was reported for the institution's effectiveness in responding to disasters. The scores implies the need to focus on the governance in managing future disasters. Nonetheless, presently, the local authority has taken great initiatives in dealing with the frequent flashflood. Measures such as early-warning system, infrastructural intervention and awareness have been in place, which contributed to the high rating. On the other hand, for Ampang Jaya, institutional collaboration with other organisations and stakeholders ranked highest with score 3.86. The high-profile landslide involving the collapse of apartment building in year 1993 has gained a lot of attention throughout the nation. This gave the opportunity for collaboration with various agencies in dealing with issues of the landslide risk within area. Low ratings for both cities were reported for the effort to mainstream and implement DRR and CCA in the development plans. In addition, the two cities lack on the early warning systems and the implementation of disaster drills (Field Survey, 2017).

Parameters	Kajang	Ampang
Mainstreaming of DRR and CCA	2.83	3.14
Effectiveness of city's crisis management framework	3.83	3.85
Effectiveness of city's institutions to respond to a disaster	3.87	3.76
Institutional collaboration with other organisations and stakeholders	3.82	3.86
Good governance	2.72	3.15

Table 6: Assessment of Institutional Component. Source: Research fieldwork - CDRI Survey, 2017

4.2.5 Natural

The assessment on the natural component includes measures of intensity, severity and frequency of hazard, ecosystems services, land-use in natural terms and the environmental policy in place. Findings indicate that both cities are resilience in terms of intensity and frequency of hazard. The disasters that have struck in both cities are more of man-induced disasters. The flooding events in Kajang are caused by the rapid urbanization coupled with the factor of its floodplain location and poor stormwater management. Whereas, the occurrence of landslide Ampang Jaya is also due to the development of residential buildings on hilly slope that have altered the natural feature of the environment. This situation is reflected in the moderately low rating on the sub-component of land use with the mean score of 2.76. However, the moderate rating of environmental

policy and food security seems to have no correlation with other sub-components.

Parameters	Kajang	Ampang
Intensity of hazard	4.55	4.49
Frequency of hazard	4.60	4.52
Ecosystems services	3.15	2.77
Land-use in natural terms	2.98	2.76
Environmental policy and food security	3.93	3.49

Table 6: Assessment of Natural Component. Source: Research fieldwork - CDRI Survey, 2017

5. SUMMARY & CONCLUSION

Based on the findings of the CDRI assessment performed on the two case study cities of Kajang and Ampang Jaya revealed that the resilience level of these cities are at average. Actions need to be taken to improve the resilience and prepare these cities to face the future risks. In the meantime, several key strategies can be recommended as the basis to formulate an action plan. Ultimately, towards achieving climate and disaster resilience it is important to ensure the incorporation of disaster risk and climate risk assessments into the planning and management, revision of existing development policies to include measures of DRR, continuously monitor and assess developments in high-risk areas and finally to ensure successful collaboration of various stakeholders involved. The information obtained through the CDRI assessment is to act as a baseline. In addition, the CDRI assessment is recommended to be reviewed within an interval of every 2 to 5 years to monitor the progress and success of actions and strategies formulated with reference to the initial CDRI assessment conducted. Hence, technical agencies with the primary role of capturing data and information related to the elements at risk need to assist local governments to ensure that any developments especially within high-risk areas are reviewed and planned with measures of DRR and CCA and up-to-date risk information. This approach was adopted by the UNISDR where the team reviewed the CDRI exercise after three years. Among the twelve cities assessed, Makati, Thailand reported to progress well as compared to other cities.

In terms of financial support, the lack of credit facility and disaster risk financing for the two case study cities indicate that credit facilities need to be improved to allow local community within disaster prone areas to have options in the preparation to face with any future disasters. Also, an educated population with high awareness on disaster and climate resilience is essential to enable a more holistic approach to build a culture of safety and resilience at all levels within the city. Subsequently, the efforts shall also focus on to strengthen the institutional capacity in ensuring policies and strategies are implemented efficiently.

Lastly, with the resilience mapping it is hoped that the local authority to develop Urban Resilience Action Plan as applied by other cities that have established similar resilience mapping. In general, the aim of such Urban Resilience Action Plan is to improve disaster risk management and the city's resilience.

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