INDICATORS OF URBAN COMMUNITY RESILIENCE IN PUTRAJAYA, MALAYSIA

Norhidayah Mohamad, Hamzah Jusoh* & Habibah Ahmad

ABSTRACT

This study examines the resilience level of the urban community in Precinct 18, Putrajaya, Malaysia. The low level of social participation among neighbourhood in Putrajaya reflects the reality of the urban community who are not ready to adapt the pressures challenges and changes of global trends. Adapting the resilience concept into community development viewed able to build a resilient community to these modern challenges. A total of 225 respondents living in Precinct 18, Putrajaya participated in this study. This study is based on survey research and the data collection was conducted by using a questionnaire. The assessment of the current level of urban community resilience is based on the localized and comprehensive indicators that have been built. Based on the mean analysis conducted, the level of resilience of the urban community in Precinct 18, Putrajaya was moderate and had a mean score (m=2.64, s.d=0.630). This study also shows the urban community resilience level is based on the localized indicators which comprise indicators from economic, social and environmental. The findings of this study are intended to guide -the planning and development of the concept of community resilience as well as being the latest benchmark to the urban community resilience in the well-planned city of Putrajaya, Malaysia.

Keywords Urban community, resilient community, resilience level, community development, Putrajaya community development, well-planned city

INTRODUCTION

As Malaysia moves towards becoming a developed nation, the resilience community concept should be incorporated into community planning and development in line with the latest development strategies. To foster a resilient city, community resilience has to be taken into consideration. The interconnectness of community resilience is linked to increase the city's resilience. Aziz et al. (2014) also stated the same view that the resilience concept not only covers the political, military, policy and so on but more importantly the community resilience. Changes in world trends such as the third globalization, the fourth industrial revolution and urbanization have made a significant impact on the lives of present society and are particularly challenging for urban communities. Every citizen in the society received the effect and benefit globalization but it differs between locality, time and approach (Mackinnon et al. 2011). The fourth industrial revolution showed various new technologies that combine the physical, digital and biological worlds impacted all disciplines including society and raised questions of how people react and adapt to the upcoming transition (Schwab 2016). The fourth industrial revolution era will lead to a widening income gap across the continent, class, gender and occupation. According to Jumain et al. (2017) in the industrial revolution era, it includes aspects of materialism and the erosion of human values and justice. Urbanization is also one of the mega challenges that have increased the rate of urbanization led by integrating the urban and suburban areas which have resulted in expanding urban boundaries and greatly impacting

mobility, work-life and society in the future (Efrat 2014). The resilience community concept needs to be adapted, nurtured and enhanced by each community to enable them to play a role with the more progressive, dynamic and competitive way in responding to the changing of global trends. The development of a community based on the resilience community concept is a positive shift in society as well as towards the nation in addressing the challenges and changes.

Issues such as neglect of social responsibility, no initiative in social involvement and practice of good values indicate that community resilience is at the unfavorable level. It is proven by the research conducted by Rahman et al. (2016), the social involvement among the neighbourhood of Putrajaya is at the low level. The low resilience in the community as has become a critical issue in contemporary urban planning and development. Besides, high level of dependence on government assistance and low level of social engagement are the common phenomenon that reflects the resilience of communities is also low. The question is whether this phenomenon is a reality, especially among those urban communities living in the well-planned city, Putrajaya, Malaysia. The resilience concept is also part of the Sustainable Development Goals (SDGs) by United Nation which is stated in Goal 11: Make cities inclusive, safe, resilient and sustainable. This reflects the need for assessing the resilience level of the urban community. Incorporating the characteristics of a resilient into community development and planning is a good approach to build a resilient community as a driven for national transformation. Therefore, the study aimed to measure urban community resilience level using localized and comprehensive resilience indicators.

CHARACTERISTICS OF A RESILIENT COMMUNITY

Resilience indirectly forms a resilient society. Community resilience is defined as the ability of a society to accept changes as a priority in improving the standard of living as a whole (Frankenberger et al. 2013; Callaghan & Colton 2008).The characteristics of a resilient community–provide the basis for research undertaken as well as provide a guidance in the diversity of the wider resilience context. According to the ARUP (2011) there are six characteristics of safe and resilient communities that have been summarized such as knowledge and healthy, well-organized, interconnected, infrastructure and services, economic opportunities and natural resources. There are similarities in some of the themes derived from various existing conceptual models, definitions and indicators. Table 1 shows a summary of the characteristics of a safe and resilient community.

Table 1: Characteristics of a Safe and Resilient Communities

No.	Characteristics	Explanation
1	Knowledge and Healthy	Communities have the ability to assess, manage and monitor risks. They have the initiative to learn new skills and develop themselves from experience.
2	Well-organized	Communities have the ability to identify problems, set priorities and action.
3	Interconnected	Communities have a relationship with external actors who give greater support as the supply of goods and services when needed.

4	Infrastructure and Services	Communities have infrastructure and services such as housing, transportation, water and sanitation systems. They have the ability to maintain, repair and renovate.
5	Economic Opportunities	Communities have a variety of job opportunities, income and financial services. They are flexible, rational and have the ability to accept uncertainty and proactively respond to change.
6	Natural Resources	Communities that are capable of managing and valuing natural assets. They are able to protect, enhance and sustain it.

(Sources: ARUP 2011)

The importance of reviewing the current literature is seen as a method to identify the characteristics of a resilient community because these characteristics change with current developments. The characteristics of a resilient community also help in the well-being of the community as well as recognize their capacity and ability to respond and ready when the changes and stress come to life. Fox (2012) stated that the characteristics of resilience building are the communities who have the ability to respond positively to change, maintain or improve the functions that includes monitoring and expectations, managing risks and vulnerabilities to shock and stress and dealing with uncertainty in the future. Fox also believed that the characteristics of resilience described are important in building resilience. After reviewing the characteristics of a resilient community, the features of the resilience formation also support in the building of community capacity in facing uncertainty in the future. Table 2 shows the process to build a resilience community.

Table 2: Characteristics of Resilience Building

No.	Characteristics	Explanation
1	Capacity to monitor, expect, respond and manage risks	The ability of individuals, communities or systems (services, institutions, ecosystems) to change how they work and operate in response to shock and stress and to ensure their well-being, functions and services are maintained and achieved.
2	Good governance is based on rights and collective decision making	Based on rights, rule of law, access to laws and policies that are fair and just. An inclusive government, a responsible representative of the people who responds to the needs and priorities of the people. Transparent and equitable management is relevant to developing resilience.
3	Build trust through sharing and collective action	Building resilience requires the cooperation of many parties with different social and economic backgrounds to achieve a fair and sustainable solution in building resilience.
4	It integrates local traditional knowledge with science and technology to enable learning and innovation	Creating a culture of learning from experience and rebuilding better while supporting local capacity. Innovation in the knowledge and practice as well as supporting the ability to take advantage of emerging opportunities in building resilience.
5	Working holistically across a scale with a specific focus on sociological system	Ensures strategies work from the individual, local to national and international levels. Ensuring communities have equitable access and decision-making powers in the management and

use of resources. Recognize the importance of individual resilience as supporting social and psychological well-being.

(Sources: Fox 2012)

URBAN COMMUNITY RESILIENCE INDICATORS

Urban community resilience indicators have been used as a guide after the narrative analysis of interview data with 3 experts and 3 key informants. Before the interview performed, the Conceptual Model: Community Capacity by Wilson (2012), the Urban Resilience Indicators by The Rockefeller Foundation & ARUP (2015), and the Community Resilience Indicators by Longstaff et al.(2010)) have been recognized as related sources in assisting the researchers to strengthen the research concept based on resilience perspective. The adoption from these scholars assists the researcher to build comprehensive indicators for measuring the urban resilience community in Putrajaya (Mohamad et al. 2019). Therefore, the localized and comprehensive indicators comprise 17 urban community resilience indicators that are relevant including 8 economic indicators, 5 social indicators and 4 environmental indicators. Table 3 shows the urban community resilience indicators for measuring the resilience level of the urban community in the well-planned city of Putrajaya.

Table 3: Urban Community Resilience Indicators

Dimension	Themes	Localized Indicators
Community Capacity (Wilson, 2012)	Economic Capital	Income level
		Business opportunity
		Generating side income
		Employment status
		Rising cost of living
		Ringgit's devaluation
		Education level
		Political change
	Social Capital	Support of local community in activities
		Networking community through associations
		Active involvement of the community
		Urban community resident associations
		Community social support
	Environmental Capital	Governance of urban resident associations
		Networking with the government
		Initiatives to protect the environment
		Initiatives in utilizing natural resources

Sources: Mohamad et al. (2019)

RESEARCH METHODOLOGY

This research is a descriptive study and used a survey research method. Survey research is defined as a method of research that involves collecting data from a population to understand the current situation concerning population and one or more variables (Idris 2013). By using
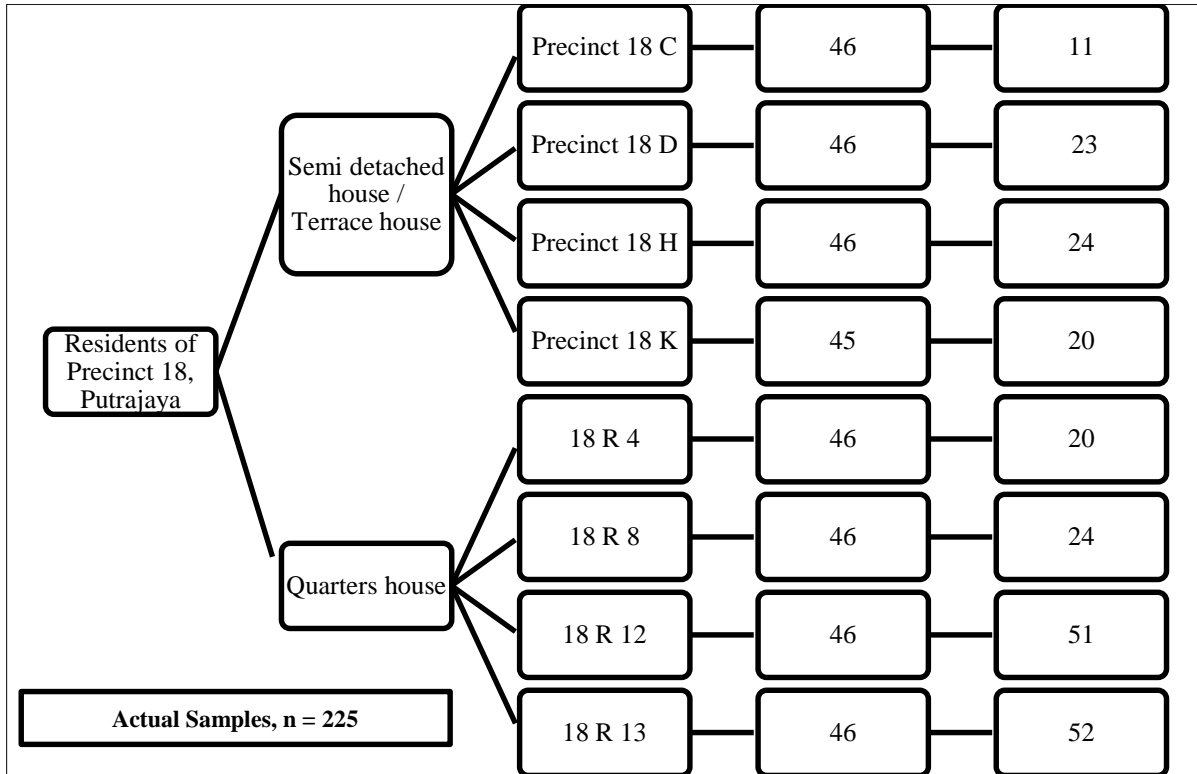
survey research methods, researchers are able to study the social phenomena that occur in the community such as community resilience to current issues and global trends of social change in the country. Samples for quantitative data are selected using probability sampling, which is cluster random sampling. This method has been chosen because the researcher believed that this sampling method is compatible with the study conducted. Before sampling this type of procedure, researchers need to identify the size of the population and obtain a list of subjects in the population.

Based on the list of available subjects, the researcher will select respondents based on the cluster random sampling to distribute questionnaires in field studies. The sample size for quantitative data is determined based on the latest data obtained from the Perbadanan Putrajaya (PPj), and the population or number of households that have been surveyed in Precinct 18, Putrajaya was a total of 7469 people. According to the sampling table Krejcie & Morgan (1970), a total of 367 are estimated as samples by the researcher. Figure 1 shows the actual samples collected based on cluster random sampling. Hence, the researchers used the cluster as a sampling unit rather than an individual as this study involved a large population. A total of 225 respondents have been given their cooperation for this study.
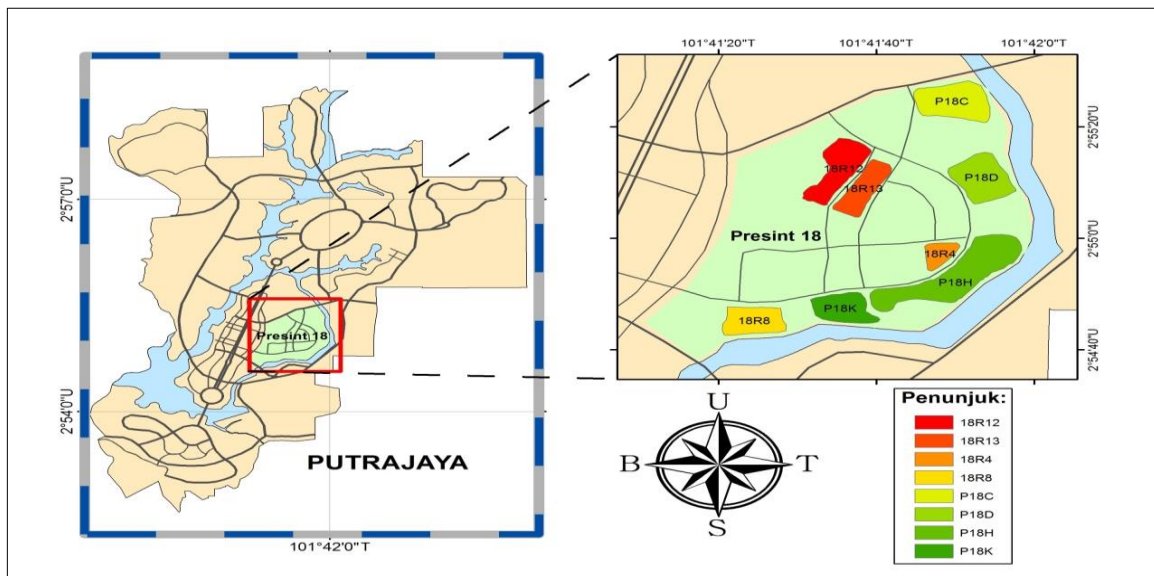
LOCATION OF DATA COLLECTION

To study the resilience of the urban community, this study used a case study in Precinct 18, Putrajaya. Diversity characteristics in this precinct made this precinct as a precinct that suits to reflect the population as a whole in Putrajaya. The respondents to the survey are those residents living in the neighbourhood of Precinct 18, Putrajaya. The distribution of questionnaires in the neighbourhood Precinct 18, Putrajaya, is based on the types of residential houses located at P18C, P18D, P18H, P18K, 18R4, 18R8, 18R12 and 18R13. Figure 2 shows the location of data collection in Precinct 18, Putrajaya.

Figure 1: Actual Samples Collected in Precinct 18, Putrajaya

(Sources: Author's study (2019)

Figure 2: Location of Data Collection in Precinct 18, Putrajaya

Sources: Author's study (2019)

RESILIENCE LEVEL OF URBAN COMMUNITY IN PRECINCT 18, PUTRAJAYA

The mean analysis is used to assess the resilience level of the urban community in Precinct 18, Putrajaya. This test includes an assessment of the economic capital, social capital and environmental capital. A total 45 sub-indicators has been used in this study that comprised of economic (13 sub-indicators), social (18 sub-indicators) and environmental (14 sub-indicators). Table 4 shows the overall mean score and standard deviation for the urban community resilience level of 225 respondents.

Table 4: Resilience Level of Urban Community in Precinct 18, Putrajaya

Resilience Level	Mean Score	Standard Deviation	Mean Score Interpretation
Economic	2.74	0.711	Moderate
Social	2.59	0.726	Moderate
Environmental	2.60	0.767	Moderate
Total	2.64	0.630	Moderate

Source: Author's study (2019)

Based on these results, the overall resilience level of the urban community in Precinct 18, Putrajaya is moderate and recorded a mean score (m=2.64, s.d=0.630). Level of economic resilience (m=2.74, s.d=0.711), environmental resilience (m=2.60, s.d=0.726) and social resilience (m=2.59, s.d=0.767) recorded a moderate mean score respectively. The findings showed that there are significant mean score differences between each theme as shown in Table 4.

From the analysis of this study, it shows that the current level of resilience of the urban community in Precinct 18, Putrajaya is moderate. This indicates that there is an imbalance within the community.. Referring to Wilson (2012), maximizing community resilience requires a balance between the community and the scale of interaction with the stakeholders involved. This finding clearly illustrates that the urban communities in Putrajaya are in the phase of adapting and developing resilience. One of the expert in this study agreed that the resilience concept is refered to community involvement in adaptation and recovery when he saw the urban community in Putrajaya has been involved in the process of building awareness and sense of belonging to their community.

> *"The problem with the people of Putrajaya is that they feel property here is not theirs and in terms of care and preservation is less. But lately, things have only gotten better as awareness has arisen."* (PR05 / 5: 1)

This finding is in line with Magis's finding (2010) in which , resilience is related to the ability of the system to sustain itself through the process of adaptation and rebuild back. This system is clearly characterized by Fox (2012) whereby the ability is positively respond to the changes, maintain or improve functions including monitoring and anticipation, managing of risks and vulnerabilities to shocks and pressures, as well as dealing with existing and future uncertainties. Based on the findings above, the urban community in Precinct 18, Putrajaya has been seen as part of the resilience system which they have the awareness and ability to cope

with changes but the most of the community here prefers to stay in comfort zone. This finding also seen in line with the views of the key informant, and the urban community in Putrajaya feels comfortable under the organized city administration and well-planned city.

> *"So far, urban community in Putrajaya are under a form of government that is more contented because there are many facilities that already exist, in contrast to the community in the village".* (IU06/7:1)

According to a study conducted by Rahman et al. (2016), the level of social participation among residents in Putrajaya is low. They found that most of the residents in the neighbourhood had less time for social activities. Nevertheless, the findings of this study showed that the level of social resilience of urban communities in Precinct 18, Putrajaya is at a moderate level. This has been encouraged by the support of the community in their activities and social supports as the key indicator of social resilience in the urban community. These two indicators obtained moderate mean values indicated that the community here has begun to be aware of their social responsibility towards the local community. Community concerns and improved cooperation indirectly build a resilient community. Refer to the expert who worked as one of the administrators at the Perbadanan Putrajaya (PPj), states that the urban community in Putrajaya also provides social support for the well-being and safety of the local community. Based on the observation, the expert found that,

> *"The latest involvement of the community is voluntary care of the neighbourhood through a group under the Kejiranan Rukun Tetangga (KRT) that provide cooperation to awake at night in order to prevent cases of theft no longer depend entirely on the authorities".* (PR05/5:25)

The importance of social support community is viewed in line with social support indicators in the social/ cultural component developed by Chong et al. (2018) in a study of resilience in Malaysia to build a resilient community against disasters. The world's changing trends such as globalization, urbanization and the industrial revolution give a major impact on urban communities. The challenges and pressures that arise from the changing trend have indirectly changed the lives of urban communities to be more resilient. The awareness and cooperation of urban communities in social support prove that urban communities have been implemented and maintained the resilient characteristics. In following the passage of time, the urban communities adapt in order to get a better life. This proves that urban communities in Precinct 18, Putrajaya is a resilient community at a moderate level.

INDICATORS OF URBAN COMMUNITY RESILIENCE

i) Economic Capital

Based on Table 5 and Figure 3, each indicator for economic capital recorded a moderate mean score. The side income indicator is the main factor in the economic resilience among local communities in Precinct 18, Putrajaya with the highest mean scores (m=3.02, s.d=0.979) compared to the other 3 indicators in economic capital. Most of the community living in the Precinct agrees with the importance of side income as it helps them to have a more comfortable

life while fulfilling their needs. The urban community also agrees that the extra incomes will help them in the payment of bills or loans and debts. Jabeen et al. (2018) mentioned in their study that busy life due to economic pressure is one of the factors that give effect to the low level of community involvement.

Urban communities have to do two jobs to support their families because their fixed income is sometimes not enough. This indicates that the current fixed income is indeed insufficient in the current economic situation, especially for the communities living in urban areas. In order to survive and thrive, communities need to change and follow the transition because the *Status Quo* does not exist in their economic and social surroundings (Steiner & Markantoni 2014). This is followed by employment status indicator with a mean score (m=2.84, s.d=0.906) and business opportunities indicator with a mean score (m=2.61, s.d=0.967).

Figure 3: Urban Community Resilience Mean Score Based on Indicators
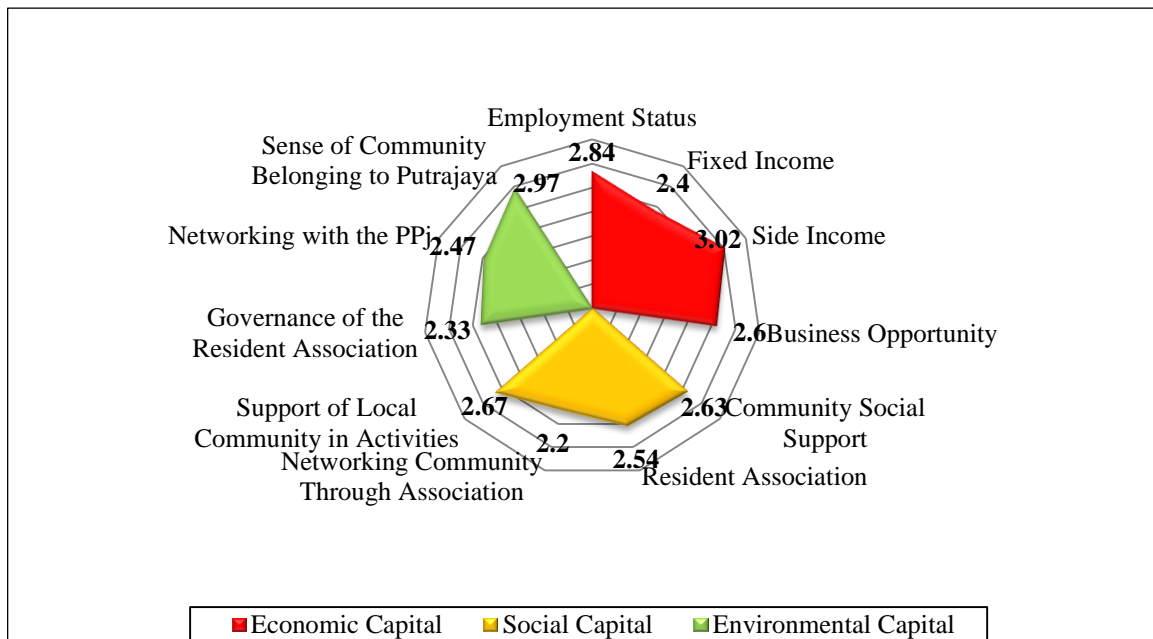Source: Author's study (2019)

Table 5: Urban Community Resilience Based on Indicators in Precinct 18, Putrajaya

Economic			
Indicators	**Mean Score**	**Standard Deviation**	**Mean Score Interpretation**
Employment Status	2.84	0.906	Moderate
Fixed Income	2.40	0.876	Moderate
Side Income	3.02	0.979	Moderate
Business Opportunity	2.61	0.967	Moderate
Social			
Community Social Support	2.63	0.787	Moderate

Resident Association	2.54	1.114	Moderate
Networking Community Through Association	2.21	1.007	Low
Support of Local Community in Activity	2.67	0.854	Moderate
Environmental			
Governance of Resident Association	2.34	1.005	Low
Networking with PPj	2.47	0.880	Moderate
Sense of Community Belonging to Putrajaya	2.97	0.884	Moderate

Source: Author's study (2019)

The study revealed that potential business opportunities exist in the local community including online business and product market as well as business offering services are able to help the family economy and business community are more aware of the challenges. As in Putrajaya, PPj provides business opportunities to the local community where residents are allowed to market their product in a number of a designated areas. The community who are actively involved in business are good at seizing opportunities and building their self-potential in the situation where the country is facing significant economic (global) challenges. Meanwhile, the lowest mean score was fixed income indicator (m=2.40, s.d=0.876). Barrett, Horne and Fien (2016) stated that past researchers have found that the introduction of basic income able to reduce poverty and also alleviates social problems. The situation in the well-planned city, Putrajaya is different as their poverty problems are not severe compared to other urban areas due to the city is mostly occupied by civil servants with fixed incomes.

ii) Social Capital

For social capital shown in Table 5 and Figure 3, the community networking through association indicator recorded low mean scores while community social support indicator, urban community resident association indicator and support of the local community in activities indicator recorded moderate mean scores. Networking community through association indicator seen less contribute to the social resilience with the lowest mean score (m=2.21, s.d=1.007). This is because most urban communities meet their resident association members only during certain events such as banquets and annual meeting of residents' associations. The study shows that the community in the well-planned city is not interested in engaging in association activities due to various factors such as busy with work, weekend family time and more comfortable living at home without knowing the neighbours. The findings also supported by Anshori et al. (2017) that the community leaders are not able to coordinate all residents owing to several factors namely a) insufficient information, b) misunderstanding, c) less involvement due to the busyness of the community with income-generating activities. Nonetheless, support of the local community in activities indicator recorded the highest mean scores compared to other indicators (m=2.67, s.d=0.854). This is followed by community social support indicator with a mean score (m=2.63, s.d=0.787) and urban community resident association indicator with mean scores (m=2.54, s.d=1.114). Urban communities in Precinct 18 are seen to be less involved in the community associations, but they continued to provide supports as the majority of residents participated in several activities when they have free time during the event. According to Dridea and Sztruten (2013), the selection of leisure activities is based on serious interrelated reasons that are influenced by several factors such as a) individual factors: personality, ability, level of life, interests, b)

circumstances and situations in which individuals are: social class, employment, income, leisure time, c) opportunities and support services available to individuals: their facilities, resources, programs and management. Besides, the urban community is wise to provide support by assessing the benefits and advantages of the activities themselves and their families. Interesting activities are among the key factors for the urban community to provide support in the activities.

iii) Environmental Capital

The environmental capital in Table 5 and Figure. 3 that shows the sense of community belonging to Putrajaya is a major factor in environmental resilience with the highest mean score (m=2.97, s.d=0.884). The findings of this study show that the sense of community belonging towards Putrajaya is evident that most urban communities in Precinct 18, Putrajaya decided to settle in Putrajaya if they have the opportunity to continue living there. Urban communities also appreciated the green environment and have chosen to make the green area as a place to gather with family and neighbours. They also believed that the city of Putrajaya is a safe city for them to live in. The networking with the PPj indicator is ranked second with a mean score (m=2.47, s.d=0.880). Meanwhile, the governance of the resident association indicator recorded the lowest mean score (m=2.34, s.d=1.005). Hur and Bollinger (2015) stated that communities form associations due to various factors including building a sense of community through involvement, serving as a social network, maintaining the physical quality of the neighbourhood collectively, helping to protect residential values, addressing external problems such as land development or redevelopment projects and facilitating municipal services. Referring to the governance of the resident association, there are active resident associations as well as inactive resident associations. The resident associations also depend on the leader of the resident associations. Some residents said that the leader of the resident associations is not responsible. The governance of the resident association under inconsistent condition has indirectly created an unfriendly atmosphere of the neighbourhood. Therefore, the reality of governance and the activities of the urban community residents association here are seen as not in line with the concept of resilience introduced by Folke et al. (2005). The concept of governance based on resilience is the division of management rights and power-sharing that encourages participation. Figure 3 shows the urban community resilience mean score based on indicators in Precinct 18, Putrajaya.

CONCLUSION

This study showed that the implementation of urban community resilience indicators in assessing the urban community resilience in Precinct 18, Putrajaya. The moderate level of urban community resilience in Precinct 18, Putrajaya shows that there is a great improvement among well-planned communities here. This shows that the community has been affected by the changing trends of the world such as globalization, urbanization and the industrial revolution. The challenges and pressures that arise from these changing trends gives a major impact and have indirectly changed the lives of urban communities to be more resilient. The awareness and cooperation of urban communities in social support prove that urban communities have implemented and maintained the resilient characteristics in their life. This study provided a recent level of urban community resilient that can be used as a benchmark for

further research in resilience studies especially for developing resilient communities.

ACKNOWLEDGMENTS

REFERENCES

Anshori Wahdy, A., Maksum, I. R., & Darmajanti, L. (2017). The Challenges of enhancing participation in urban community empowerment (The case of community empowerment program for villages (PPMK) implementation in 4 villages in Jakarta). Jurnal Kebijakan dan Administrasi Publik, 21(2), 99–116.

ARUP. (2011). Characteristics of a safe and resilient community community based disaster risk reduction study. In ARUP International Development. https://doi.org/1224200 E

Aziz, A. R. A., Sabri, A. Z. S. A., & Nordin, M. N. A. (2014). Isu-isu Ketahanan Nasional Malaysia. Kuala Lumpur, Institut Terjemahan & Buku Malaysia (ITBM).

Barrett, B. F. D., Horne, R., & Fien, J. (2016). The ethical city: A rationale for an urgent new urban agenda. Sustainability, *8*(11). https://doi.org/10.3390/su8111197

Callaghan, E. G., & Colton, Æ. J. (2008). Building sustainable and resilient communities: balancing of community capital. Environment, Development and Sustainability, 10(6) 931–942.

Chong, N. O., Kamarudin, K. H., & Abd Wahid, S. N. (2018). Framework considerations for community resilient towards disaster in Malaysia. Procedia Engineering, *212*, 165–172.

Dridea, C., & Sztruten, G. (2013). Free Time - The Major factor of influence for leisure. Romanian Economic and Business Review, 5(1), 208–213.

Efrat, Z. (2014). World's Top Global Mega Trends To 2020 and Implications to Business, Society and Cultures Executive Summary Definition of a Mega Trend.

Folke, C., Hahn, T., Olsson, P., & Norberg, J. (2005). Adaptive governance of social-ecological systems. Annual Review of Environment and Resources, *30*(1), 441–473.

Fox, R. (2012). *The Characteristics of Resilience Building*. (April), 12.

Frankenberger, T., Mueller, M., Spangler, T., & Alexander, S. (2013). Community Resilience: Conceptual Framework and Measurement. *Rockville, M*D: Westat., (October), 49. Retrieved from https://agrilinks.org/library/community-resilience-conceptual-framework-and-measurement-feed-future-learning-agenda

Hur, M., & Bollinger, A. G. (2015). Neighborhood associations and their strategic actions to enhance residents' neighborhood satisfaction. Nonprofit and Voluntary Sector Quarterly, *44*(6), 1152–1172.

Idris, N. (2013). Penyelidikan Dalam Pendidikan (Edisi Kedu). McGraw-Hill Education Malaysia.

Jabeen, S., Nisar, M., Haq, U., & Hussain, I. (2018). Community Participation in Socio-Economic Development through Secondary Education in one of the Remotest Regions of Pakistan. *7*(4), 663–680.

Jumain, F., Ashaha, R., & Firdaus, J. (2017). Revolusi Perindustrian 4.0: Bersediakah kita? Sinar Online. Retrieved from http://www.sinarharian.com.my/nasional/revolusi-perindustrian-4-0-bersediakah-kita-1.687864.

Krejcie, R. V, & Morgan, D. W. (1970). Determining *sample size for research activities* Educational and Psychological Measurement, *38*(1), 607–610.

Longstaff, P. H., Armstrong, N., Perrin, K., Parker, W. M., & Hidek, M. a. (2010). Building Resilient communities: a preliminary framework for assessment. Homeland Security Affairs, 4(3), 1–23.

Mackinnon, D., Cumbers, A., Featherstone, D., Ince, A., & Strauss, K. (2011). Globalisation, Labour Markets and Communities in contemporary Britain. https://core.ac.uk/download/pdf/42530265.pdf.

Magis, K. (2010). Community resilience: An indicator of social sustainability. Society and Natural Resources, 23(5), 401–416.

Mohamad, N., Jusoh, H., & Kassim, Z. (2019). Localizing of community resilience indicators for assessing the urban community resilience in Putrajaya, Malaysia. International Journal of Engineering and Advanced Technology, 8(5), 359–365.

Rahman, A. A., Ahmad, A. R., Malek, J. A., Awang, M. M., & Mahzan, M. (2016). Social participation and values culturalisation through non-formal learning among urban residents of Putrajaya. Kajian Malaysia, 34(2), 75–100.

Schwab, K. (2016). The Fourth Industrial Revolution. World Economic Forum, 199. https://doi.org/10.1017/CBO9781107415324.004.

Steiner, A., & Markantoni, M. (2014). Unpacking community resilience through capacity for change. Community Development Journal, 49(3), 407–425.

The Rockefeller Foundation, & ARUP. (2015). City Resilience Index. (December), 16. https://doi.org/London, United Kingdom.

Wilson, G. A. (2012). Community resilience, globalization, and transitional pathways of decision-making. Geoforum, 43(6), 1218–1231.

ABOUT THE AUTHORS

NORHIDAYAH MOHAMAD
Faculty of Social Sciences and Humanities,
Universiti Kebangsaan Malaysia,
43600 Bangi Selangor, Malaysia
norhidayahmohamad15@gmail.com

HAMZAH JUSOH* (Corresponding Author)
Development Science,
Centre Research of Social, Development & Environment (SEEDS),
Faculty Social Science & Humanties,
Universiti Kebangsaan Malaysia, Bangi Selangor
hj@ukm.edu.my.

HABIBAH AHMAD
Development Science,
Centre Research of Social, Development & Environment (SEEDS),
Faculty Social Science & Humanties,
Universiti Kebangsaan Malaysia, Bangi Selangor
ha@ukm.edu.my.