Bottom up Approach: Urbanization in the Perception of the Local Communities of Balik Pulau, Penang Island, Malaysia

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Authors' contributions

This work was carried out in collaboration between all authors. Author KSM designed the study, performed the statistical analysis, wrote the protocol, and wrote the first draft of the manuscript and managed literature searches. Authors KSM, NS, YAEE managed the analyses of the study and literature searches. All authors read and approved the final manuscript.

Original Research Article

ABSTRACT

Currently, Malaysia like other Asian countries has experienced rapid expansion of urbanization. This expansion is at the expense of agriculture land at the fringe and rural areas, thus affecting the likelihood and culture of the rural communities. In order to achieve sustainable development, an understanding of public attitudes towards

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environmental/developmental issues is essential. Residents "perceptions towards urban development is relatively under researched as there is a wide gaps between the need of the planners and the desire of local communities particularly in the developing countries. Therefore, the aim of this paper is to investigate how residents of Balik Pulau perceive the pressure of urban development going on around them. A questionnaire was designed to request opinions from 320 respondents randomly chosen from residents living in Balik Pulau of Malaysia. The findings showed that local community feel that the expansion of urban development obliterate agricultural activities, food security, and natural environment existence. More than 50% of the respondents have showed negative attitude towards urbanization with some felt that urbanization caused environmental problem and led to social illness. The local community is willing to participate in achieving sustainable development but, they are lacking information to understand environmental/development issues. Consequently, for the onus is on the planners and policy makers to incorporate the desires of the local inhabitants while drafting urbanization planning in Balik Pulau area which would be helpful in formulating sustainable development projects. It will ultimately help in preservation, conservation and development of Balik Pulau area.

1. INTRODUCTION

The implications of urbanization on landscape and ecosystem function in cities and surrounding areas are quite clear. According to [1] urban areas are expanding into the countryside, changing the rural landscape and lifestyle of rural communities, and forming an urban-rural interface at these peri-urban areas. Since 1950, urbanization has become a worldwide phenomenon where the changes varied considerably between countries and regions. Almost every country of the developing world is experiencing rapid urban growth [2,3]. Several factors have been accused behind the rapid expansion of urbanization and development in the developing countries. These include but not limited economic growth, increase of population and internal and external migration. In Malaysia the shift from a mainly agriculture to an industry and even service-based economy has increased the process of urbanization [1]. In addition, there are many theories of social changes that throw light on the impact of urban development on suburban society. For example, Geographical determinism theory showed a relationship in the nature of weather in which they live between the human and social character. In addition, social theorists have been affected by this belief which tried to distinguish similarities and differences among humans, and the result was a comprehensive theory of geographic determinism.

Suburban areas in the rapidly growing cities are under great pressure due to the demands of land for urban development activation which led to the loss of arable land, environmental degradation and social exclusion of village communities [4]. The bulk of this growth occurs in less developed countries which represent a formidable challenge for planners and managers [5]. Urban development in the East and Southeast Asia in many cases was faster than that of the governmental and urban planners could manage. Thus, the developments in the outskirts of the city are difficult to control, leading to the chaos of land use patterns [6]. Malaysia is one of the developing countries that has experienced rapid urbanization due to industrialization and residential growth. Urbanization has increased from 27.6% in 1970 to 65.4% in 2000 and it is projected to reach 75.0% in 2020 [7]. In the last two decades, physical expansion of major cities pushed urban land uses to a large extent and produced a

continuous urban landscape which spreads into the surrounding agricultural areas. The rural, social and cultural mosaics are also rapidly changing where new structure of residential areas altered the guide demography and socio-cultural set-up in the rural areas [8]. Growth of urban areas tends to be characterized by sprawling the development encroached on agriculture and open spaces between urban and rural areas [9]. Urbanization particularly in the developing countries is guided by the top down approach and local communities have seldom been consulted. Therefore, it is important to view perception of the affected rural communities in order to properly plan and devise policy so that the negative impacts could be avoided [10] Local community perception is recommended as an effective way to solve negative development issues and to achieve sustainability [11].

The literature on the perception of local communities towards land use and land change is quite amble. But most of it is centered around tourism and environment rather than in that of industrial, economic and social development [12]. Several scholars for instance [13,14,15] investigated perceptions of rural residents and detected negative impacts of these changes on communities and environmental system. Also [16,17] identified the attitudes of residents towards tourism development and evaluated that their perceptions are associated with essential variables [18]. Identified and assessed the perception of residents towards environmental and social impacts caused by rapid urbanization. Moreover, [10] studied the rapid urbanization processes and its occupation to rooftop spaces in cities [19]. Evaluated the perception of communities towards urban forestry [20]. Assessed the perception of communities towards fast growth of dairy industry in rural areas [21]. Combined remote sensing and survey data to study land-use/land cover change as an important means for examining the viability of community-based programs for forest conservation. Due to these developmental problems, many studies, for example [22,23,24], focused on sustainable development and land use planning to reduce and solve some of these problems for better future by using public participation as an effective way to solve environmental and developmental issues, and to achieve sustainable development. From what we have been said it seems that there is few studies touch the perception of local communities towards urbanization and development particularly in the developing countries like Malaysia. The paper aims for bridging this gaps and open door for further discussion. Therefore this paper looks into the perception of local communities towards development in Balik Pulau at Penang Island of Malaysia. The objectives in this study are as follows:

1. To know the extent of awareness, feeling and behavior regarding land use-land cover changes due to urban development of Baik Pulau community in Penang Island and
2. To evaluate their future plans regarding environment, culture, life style and food supply.
3. To establish how local community prefers the development of their districts to proceed,
4. To create a vision of what the community wants to become in the future.

By addressing the above objectives, the paper aims to provide an information that will be helpful for governmental agencies and developmental organizations to plan feasible rural areas/sustainable development programs for study area.

2. RESEARCH METHODOLOGY

2.1 Data Collection

This paper is based on fieldwork questionnaire, where 320 respondents were chosen from the people living in Balik Pulau locality through the adoption of stratified random sampling technique. Three age groups have been interviewed: a 21-37 years old (124 respondents), a 38-53 years old (146 respondents), and a 54-70 years old (50 respondents). The philosophy behind such selection is to see how diffident aged groups perceived changes going on in the study area. Moreover, this division will help planners and decision makers in formulating developmental policies that satisfying the need of each group. The questionnaire included 6 sections (Table 1), Section a: respondent profile; Section b: housing conditions; Section c: urban development and resident perception; Section d: urban growth and its impact on the environmental situation in Balik Pulau; Section e: urban development and transportation and section f: urban development and residents future plans. Most of these sections included close-ended questions aimed at determining how the interviewees considered each specific cause to be responsible for the changes they had perceived in the area, and open-ended questions giving people the opportunity to state what they have perceived as change. The survey was conducted in 15 sub-districts (Mukim) as shown in (Fig. 1). Descriptive statistical analysis and logistic regression were used to analyze the questionnaire and present the findings. The analysis was undertaken using SPSS version 18 software.
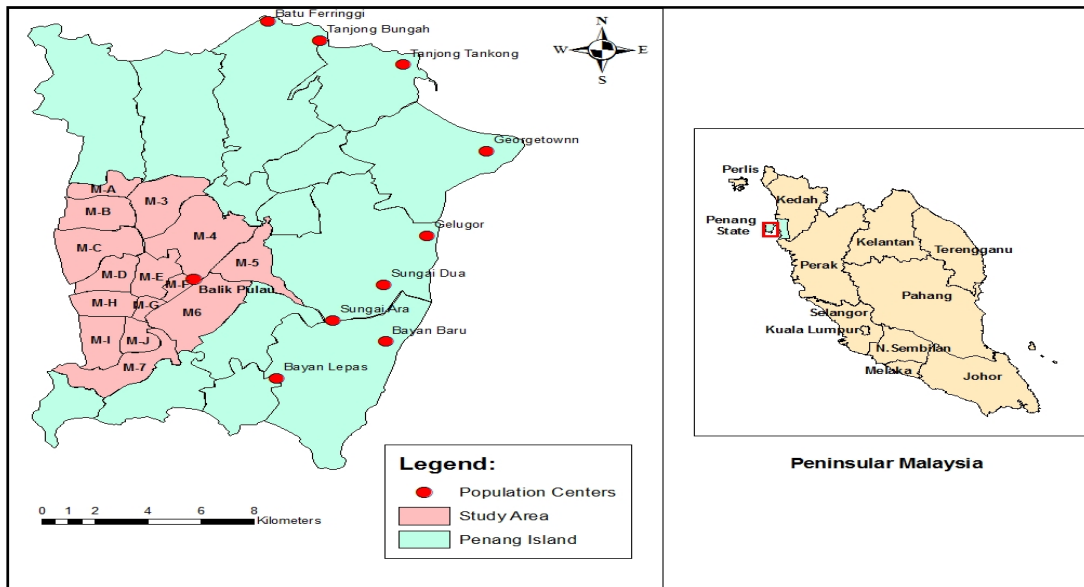
Fig. 1. Location of study area: Southwest of Penang Island

2.2 Study Area

Balik Pulau is one of the thirteen parliamentary constituencies in Penang state, the largest in land size, stretching about half of Penang Island, from Batu Feringhi (famous for modern resorts and beaches) in the north to Teluk Kumbar in the south. Recently, Teluk Kumbar which is traditionally functioned as a fishing village has become a town due its vicinity to

Bayan Lepas city. Geographically, Balik Pulau is located between 5º24' 27" and 5º18' 46" N and 100º11' 35" and 100º14' 21" E at the Southwest district of Penang Island as shown in (Fig. 1). It covers an area of 86km^2, accounting to 28% of the total land area in Penang island.

Topographically, the study area is almost flat with some interior hills which its highest ranges between 300m and 800m [25]. Most of the flat area is occupied by built up areas and some agricultural activities such as rice fields and fruit orchards as well as coastal areas.

2.3 Data Analysis

The data obtained from the questionnaire were processed by Statistical Package for Social Science (SPSS) version 18 to analyze the data. Descriptive statistics is used to explain the essential features of the data in a study. It presents simple summaries about the sample and the measures. It forms the basis of every quantitative analysis of data with simple graphic analysis. Descriptive statistics helps us to simply analyze large amounts of data in a sensible way; so each descriptive statistic decreases loads of data into a simpler summary [26].

2.3.1 Evaluation of respondents' perception and future plans

Total score of respondents' perception and future plans were counted depending on the evaluation of their answers by using Likert Scale. First, total score of respondents' perception and future plans were divided by the expected maximum score of the answers to calculate the respondent's score per answer. Second, the median of respondents' score per answer was calculated to get the cutoff point of the perception and to categorize the total score into poor and good respondents' perception and future plans [27]. The poor perception was ranged (0.25–0.42), while for the good perception was (0.43–0.71). Moreover, the poor future plan of respondents was ranged (0.0–0.56), while the range for good future plan was (0.57 to 1.00).

2.3.2 Statistical tests

First, univariate analysis was conducted to find the association between the significant variables that affect the respondents' perception and future plan towards urban development pressure. In this analysis, chi-square test was used for categorical variables. Second, the model consisted of these significant factors which were predicted by using Multinomial Logistic Regression (MLR) (backward stepwise method) in order to show the result of the significant factors.

3. DEMOGRAPHIC AND SOCIO-ECONOMIC CHARACTERISTICS OF THE RESPONDENTS

More than two-third of the respondents or 69.1%, or 221 respondents were married while 24.4% or 78 respondents were single. 3.8% or 12 respondents were widowed, and 2.8% or 9 respondents were divorced. The proportion of males was higher than females. In other words, 51.6% or 165 respondents were male and 48.4% or 155 respondents were female. Regarding education levels, the survey has shown that 15% or 48 respondents have been graduated, 11.6% or 37 respondents had higher secondary education, 59.7%, or 191 respondents having secondary level, 10.6% or 34 respondents had primary education and only 3.1% or 10 respondents did not have formal education. This paper hypothsies that level

of education will influence the perception of the people towrds urbnization. The income level is divided into four categories according to the Poverty Line Income (PLI) in Malaysia. Whereby, about 40.3% (or 129 respondents) have monthly income less than RM 763, followed by people with RM 763-2000 (35%, or 112 respondents), RM 2000-3000 (18.4%, or 59 respondents), and more than RM 3000 (4.4%, or 20 respondent).

4. DYNAMIC CHANGES IN BALIK PULAU FROM 1992 To 2010

The land use conversion matrix in (Table 1), shows that the area undergone changes during the period 1992-2002. In 1992 the agricultural lands was represented 6171, 32ha from the total of the Balik Pulau area by the ratio of 53.79%, but this number has decreased to 4727, 83ha by the ratio of 42.08%, in 2002. This is in line with the study of [27] who made statistical analysis of LULC changes in Penang Island from 1999 to 2007. Their findings obviously demonstrate that there had been a drastic change in urban areas (highly built-up areas), which increased 109.03% over the 8-year period; the urban area increased from 31.23 to 65.28km^2 that was due to the rapid urbanization processes. In this study, the agricultural lands are lost approximately 1443, 49 ha in 10 years between 1992 and 2002. Currently, in 2010 the analysis of satellite image has proven the continuation of urbanization at the expense of agricultural lands. Meanwhile, the total changes of these 18 years that is mostly in the agricultural lands, decreased by the ratio 37% with 2288ha. Also, urban uses increased by the ratio of 123.7% with 2193ha as shown in (Table 1).

Table 1. Repartition of agricultural lands and built-up areas in Balik Pulau of years 1992, 2002 and 2010

Class	Surfaces 1992		Surfaces 2002		Surfaces 2010		Total percentage of changes among 18 years	
	ha	%	ha	%	ha	%	ha	%
Agricultural lands	6171.3	53.8	4727.83	42.1	3883	35.8	- 2288	37.0
Built-up areas	1793.2	15.6	3235.4	28.2	3987.8	34.9	+2193	123.7

5. URBAN DEVELOPMENT AND ITS IMPACT ON THE LOCAL COMMUNITY

This section focuses on the urban development in Balik Pulau and how local people perceived its socio-economic and environmental impact.

5.1 Residents' Perception of the Implication of Urban Development

The survey has shown that local communities are aware about rapid urban development in Balik Pulau. The specific changes that are most frequently cited by the interviewees were changes in the size and form of the agricultural land and cultural lifestyle. Most of the respondents agreed on that urban development is taking up agricultural lands. Almost 86.9% of the respondents agreed that urban development is encroaching on agricultural lands where 38% or 121 respondents strongly agree and 49% or 157 respondents agree. While, 45% or 143 respondents strongly agree and 49.1% or 157 respondents agree on the direct impact of urban development on agricultural lands. The results of the questionnaire revealed that around 48.8% of Balik Pulau communities did not like to see more development on their lands. The result showed that 34.7% did not agree while 14.4% strongly disagree to see more urbanization phenomenon in the area.

By identifying the proportion of respondents who disagreed with the increase in urban development phenomenon, a number of reasons such as environmental degradation, food insecurity, change of lifestyle, disturbing rural culture, negative impacts on the biodiversity, and etc were inferred through the questionnaire. Most of the respondents refused more urbanization in Balik Pulau for several reasons. For example, 10.1% of respondents chose the negative impact on biodiversity, and 15.2% of the respondents focused on keeping rural culture. In addition, food supply was selected by 8.8% of the respondents as one of very important issues to protect agricultural land. In addition, the study by [28,24] on the development in Small Island and Holbox Island, respectively found reduction in seafood due to development which polluted coastal water and was considered as the main impact of development. In this study, 13.2% of the respondents selected environmental degradation (Table 2) which it is in line with [11,24] who found coastal pollution, coastal erosion and garbage dumping were major environmental concerns caused by development. This study had acquired a good level of awareness about the causes and consequences of these issues in which 6.3% of respondents refused more development in order to keep the rural lifestyle. Similarly, [16] mentioned that longstanding residents often perceive new development as a threat to their lifestyle.

Table 2. Respondents' reasons for no more development in study area

Reasons	Frequency	Percent %
More than one reason	73	46.2
Keeping our culture	24	15.2
Environmental degradation	21	13.2
Negative impacts on the biodiversity	16	10.1
Pressured food supply	14	8.8
Do not like to change the lifestyle	10	6.3
Total	158	100.0

On the contrary, the study also investigated the perception of communities who agreed to see more development in Balik Pulau. 51% or 162 respondents agreed to have more development in the study area. This is due to various reasons for example, 3.7% like to change their lifestyle, and 19.1% like to have more employment opportunities. 6.3% of the respondents believed that development will reduce poverty. 6.2% like more development phenomena (6.2%). Finally 59.2% of the respondents chose more than one of the above-mentioned reasons for more development as shown in (Table 3). Similarly, the study by [29] highlighted the positive effect of tourism development toward increasing the employment opportunities, and [30] stated that landscape change in a rural British Columbia community provided employment opportunity and, recreation for contemporary people.

Table 3. Respondents' reasons for having more development in the study area

Reasons	Frequency	Percent (%)
More than one reason	96	59.2
Increasing the employment opportunities	31	19.1
Reducing the poverty	20	12.3
More developments phenomena	10	6.2
Changing the lifestyle	6	3.7
Total	162	100.0

The findings showed that most of respondents perceived that Balik Pulau will be developed and become like Bayan Baru area in the next 10 years in which 26% or 83 respondents strongly agree, and 58% or 186 respondents agree with more changes of land uses. In term of the origin of the respondents, the result showed that most of the respondents migrated to Balik Pulau after 1970. Where only 31% or 98 of respondents were original residents but 69% or 222 respondents migrated to Balik Pulau after 1970. 13.4% or 43 respondents migrated between 1971 and 1980. 14.4% or 46 respondents migrated between 1981 and 1990. 18.4% or 59 between 1991 and 2000, and 29% or 76 respondents migrated between 2000 and 2011. The study investigated the reasons of migration towards Balik Pulau and found various reasons such as (31.3% or 100 respondents) for works, (20.6% or 66 respondents) following spouse after marriage, (5.6% or 18 respondents) because of low living cost, and (8.8% or 28 respondents) migrated because of other reasons. Some of the respondents migrated to get work and follow spouse after marriage (3.8% or 12 respondents). These results indicated that the urbanization or urban development continues to increase towards rural area of Balik Pulau.

In responding to the question of the negative impact of urban development. Their perceptions are centered around three major factors: environmental, social and economic as organized in (Table 4). Table shows that 81% of the respondents felt that Penang would lose most of its forests areas in 2030. While, 86.9% expected great lost in agricultural lands in the near future. Moreover, 73.7% of the respondents believed in degradation of the agricultural lands due to development activities in this area. 73.7% of the respondents indicated that urban development in Balik Pulau constitutes a threat to the ecosystem. Other reasons included 55.9% and 63.7% of respondents selected "increase of solid wastes" and "pollution of water, soil and air" respectively as a part of environmental problems. Similarly, the study by [14] showed that significant impacts on local environmental quality have been posed by the human-induced pollutants, such as wastewater, heavy metals, and solid wastes.

In term of social impact of urban development, the survey has shown that urban development increased social problems due to the transition in the rural lifestyle in Balik Pulau. Negative social impacts discussed as a second part in the (Table 4) show that, for example, 64.7% of respondents stated that the development raised the crime levels and 63.8% of the respondents believed that development has increased the number of smokers, sex before marriage, vandalism, and bullying. In addition, 60.4% of respondents believed that drug addiction, abuse and loafing among the youth of Balik Pulau have increased.

The negative impact of development on the economic life as shown in the (Table 4) indicated that 65.3% of Balik Pulau residents were worried that Balik Pulau would not be able to feed itself in the coming two decades. Moreover, 81.3% expected that urban development threatens local economies because of the conversion of agricultural land, and 88.1% of respondents said that this conversion generated public sector costs (Table 4). Furthermore, 91% of the respondents believed that urban development increased the lands and houses value in Balik Pulau after the year 2000. Thus, this is one of the factors encouraging the farmers to sell agricultural lands to government or private agency and outside investors. Rapid urbanization increased land price in Penang Island. The value of land is varied depending on the site or neighborhoods of development where city centers, industrial, commercial and residential zones have the higher value especially in the south east part of Penang Island. Therefore, the big differences in land prices between Balik Pulau and other parts in the Penang Island has motivated planners, local and outside investors for more development in the study area. Furthermore, the results obtained from respondents proved that this motivation is one of the reasons that increased urban development in Balik

Pulau. The results indicate that 52% or 167 respondents agree, and 44% or 130 respondents strongly agree with this idea. In other words, as an overall trend, more than 95% of respondents agree with land value as one of driving forces of Balik Pulau development. Thus, the respondents believe that Balik Pulau would become a center of tourism and industrial activities in the near future.

Table 4. Importance negative development issues presented in the questionnaire

Negative impacts of urban development	Mean	S.D	Agreed percentage
Negative environmental impacts			
Loss of most of forests areas in 2030	2.10	1.17	80.9%
Losing more agricultural lands in the future	1.84	0.79	86.9%
Constituting a threat in future ecosystem of Balik Pulau area	2.32	1.08	73.7%
Declining and degrading the agricultural lands in the area	2.23	1.29	73.5%
Increasing pollution of water, soil and air	2.05	1.02	63.7%
Increasing solid waste	1.99	0.88	55.9%
Negative social impacts			
Increasing level of social problems	1.73	1.38	90.3%
Raising crime levels in Balik Pulau	2.22	1.05	64.7%
Increasing smoking, sex before marriage, vandalism, bullying and other negative actions	2.33	1.10	63.8%
Increasing drug addiction abuse and loafing among the youth of Balik Pulau	2.38	0.98	60.4%
Negative economic impacts			
Increasing the land and houses value after 2000	1.61	0.70	91%
Conversion of agricultural land generates public sector costs	1.11	0.32	88.1%
Conversion of agricultural land hurts local economies	1.95	0.76	81.3%
Preventing Balik Pulau from feeding itself in the future	2.37	1.10	65.3%
Sold part of land	2.24	1.17	47.9%

Urban development has not always negative, several scholars have mentioned its positive impact on socio-economic life of the local communities [31]. Found that residents tended to favor urban development if generated jobs have the most significant economic impact. In Balik Pulau 82.2% of respondents agreed that urban development has generated job opportunities and increased monthly income of the villagers. Therefore, 85% believed that employment opportunities increases welfare for residents. Around 36.3% of respondents noted the vital role of urban development in reducing the poverty level among the rural community. 31% of the respondents felt urban development had improved their incomes when they changed their agricultural lifestyle to other sectors. About 51% and 50.7% of respondents believed this development increases the information technology level and also provides variety of services to study area (refer to Table 5).

Table 5. Importance positive development issues presented in the questionnaire

Positive impacts of urban development on the social, and economic	Mean	S.D	Agreement percentage
Increase the welfare	1.99	0.94	85%
Provide employment opportunity	2.04	0.88	82.2%
Establish information technology	5.45	1.79	51%
Variety of services	2.96	1.38	50.7%
Reduce the poverty	2. 62	1.44	36.3%
Get non -agricultural jobs	2.00	0.90	31%

Based on appraisals of the urban development pressure, the respondents were able to describe at length the factors that influenced the development of their areas. In general, the respondents were able to determine the major driving forces behind the rapid expansion of urban development in Balik Pulau. 35% or 106 of the respondents mentioned governmental policies, 25% or 75 selected population growth, 21% or 65 the respondents agreed on economic growth, 9% or 26 r chosen land value, only 6% or 19 indicated the physical characteristic of Balik Pulau. While, 9.1% or 29 the respondents felt that mixed factors have influenced the urbanization activities in study area (see Table 6 below).

Table 6. Perceptions of driving forces of urban development in study area

Driving forces	Frequency	Percent (%)
Government policy	106	33.1
Population growth	75	23.4
Economic growth	65	20.3
More than one reason	29	9.1
Land value	26	8.1
Physical characteristic	19	5.9
Total	320	100.0

5.1.1 Urban growth and environmental issues in Balik Pulau

The development in main urban centers increased environmental degradation and depletion of resources in rural areas. These issues pose a number of direct challenges for policy makers and urban planners who aimed to provide sound development strategies for sustainable resource management [32,33]. In Penang, the population had increased from 778,899 in 1987 to 1,561,383 in 2011, An increase of 782,484 people showed the population on the island has grown more than doubled. This high increase in population leads to 100% increase in urbanization in the island at the expense of agricultural land, forest and grassland which are the cause of many negative impacts on the environment. The finding from the survey indicates that 74% or 238 respondents are aware of some of the environmental hazards caused by urban development in the region. Most of this environmental problems affected agricultural sector which contributed to decline to 3.3% in terms of land use in Penang Island. The economic growth in Penang, since 1970, based on the development of the manufacturing program for export leads to the abandonment of agricultural lands where 20% of agricultural land was converted for industrial and residential sectors [34].

Respondents' answers varied on the type of environmental problems, which had occurred near their homes. The type of environmental problems cited by the respondents included: (1)

water pollution noted by 12.8% or 41 respondents (2), Air pollution noted by 5.9% or 19 of respondents, (3) Soil pollution noted by 8.1% or 26 of respondents (4) Solid waste and sewage noted by 3.8% or 12 of respondents (5) Noise pollution noted by 4.7% or 15 respondents (6) Traffic congestion noted by 8.8% or 28 respondents. Furthermore, 31.9% or 102 respondents noted more than one case of environmental problems in their areas, and 23.8% or 76 respondents did not notice any problems, for further understanding (see Table 7).

Table 7. Respondents' awareness of the environmental hazards in study area

Issues	Frequency	Percent (%)
Notice more than one case	102	31.9
Water pollution	41	12.8
Traffic congestion	28	8.8
Soil pollution	26	8.1
Air pollution	19	5.9
Noise pollution	15	4.7
Solid waste management and sewage	12	3.8
Did not notice	76	23.8
Total	320	100.0

Proportion of people's satisfaction with: (1) environmental quality, (2) public hygiene and (3) health care at their community indicated that 15% or 48 respondents feel very satisfied. 29% or 92 respondents are slightly satisfied. 45% or 145 respondents are neutral. 10% or 31 respondents are unsatisfied and 1% or 4 respondents are strongly unsatisfied. This result provides important guidelines for decision makers and urban planners to control or mange urban development toward sustainable development. Based on the present trends, urban development will continue to occur in Balik Pulau. Thus, the community should be informed and have strategies to face this development. Therefore the following section discusses the future plans of the affected community.

5.1.2 Rapid urban growth and community future plans

Top down approach is not always suitable for improving the well-being and eliminating poverty of the rural community. Therefore, planners are in need to hear the voices of the rural people to understand their problems and respond soundly to their needs. This section focuses on the use of residents' views toward urban development which is encroaching on their areas. Responses varied among residents in different Mukims.

The respondents were having different opinions towards changing their lifestyle in the future in which 60% or 192 respondents (the greater percentage) intend to change their lifestyle in the next years and aspire to that. Other respondents (40% or 128) have embraced the rural lifestyle and even refused to change altogether. Thus, those who are responsible for the development of rural areas must consider the desires of the community for future plans to reduce social injustice through the involvement of people's opinions in order to achieve sustainable development.

The result also indicated that most of respondents do not plan to move or shift to other areas. Indeed, 70% or 224 respondents are planning to stay in Balik Pulau in future, and 30% or 76 respondents like to get away from Balik Pulau to other areas because of some reasons for example, work place (see Table 8). Therefore, the result indicated Balik Pulau

residents like to attach to their lands and do not want to abandon their lands, and wish to develop Balik Pulau according to everyone's interest. 42% or 146 of the respondents in the study area declined to sell part or all their lands in the future. In addition, the result showed that many families like to improve their houses where 53.8% or 172 of the respondents like to improve or renew their houses, however 46.3% 148 respondents do not like to develop their houses. Besides, 47.2% or 151 respondents do not have any plan to leave agricultural sector in the future. Based on this information, the government needs to concern about the residents' desires in Balik Pulau for future development.

Table 8. Urban development and socio-economic planning of residents

Issues	Yes	Percentage	No	Percentage
Social planning				
Planning to move to another area	96	30%	224	70%
Planning to leave agricultural sector in the future	169	52.8%	151	47.2%
Thinking to improve your house	172	53.8%	148	46.3%
Like to change your life style in the future	192	60%	128	40%
Economic planning				
Selling part or all your land in the future	36	11.3%	248	88.8%
Planning to increase your monthly income in the future	184	57.5%	136	42.5%
like to support sustainable development in future	191	59.7%	129	40.3%
Planning to participates for development in Balik Pulau	229	71.6%	91	28.4%
Increasing investment projects in Balik Pulau in the future	241	75.3%	91	28.4%

The investigation found many reasons why many rural people do not like the development in their areas. The most important reasons are: the standard of living, the nature of work and skills, and low level of education among many rural households. It seems that they are afraid of manifestations of the rapid development however, some of them believed that they are crushed in the era of globalization which is not in favor with the rural life. Therefore, the decision-makers and planners have to consider such opinion and find ways to increase the awareness about the positive impact of development among rural communities. As (60% or 191 respondents) like to take effective measures and support sustainable development in the future. Based on general overview of community perceptions and future plans in facing urban development pressure, this study categorized perception as good and poor which will be discussed in the next section.

5.2 Predictors of Good Respondents' Perception

The concept of good perception is the one that the respondents agree or strongly agree and give effective participation in their feedback of all the items related to the developmental issues in the questionnaire, or those people who have a good level of awareness about the causes and consequences of these issues [29,11]. On the other hand, poor perception is the one that respondents disagree or strongly disagree and do not give effective participation in their feedback in the most of items in the questionnaire that are related to the developmental issues. Poor perception is also related to those people who have a poor level of awareness

about the causes and consequences of these issues [11,24]. In this study good perception was ranged between 0.43–0.71, while the poor perception was ranged between 0.25–0.42.

Among Mukims, respondents in Mukim J had got the highest significant good perception (OR=13.231 CI: 2.837-61.715, p=0.001), followed by those in Mukim 7 (OR=6.289, CI: 1.567-25.238, p =0.009), Mukim H (OR=5.643, CI: 1.290–24.685, p=0.022), and Mukim C (OR=3.126, CI: 1.018-9.606, p=0.047) than those in Mukim 6. Respondents worked in different places had got significantly highest perception than those in small town (OR = 4.678, CI: 2.029-10.787, p<0.001). Respondents worked in places with distances more than 12km had got higher perception by 3.424 times (OR=0.292, CI: 0.103–0.833, p= 0.021) than those with 2-4 km distances as shown in (Table 9).

Table 9. Predictors of good respondents' perception

Good perception		OR	95% CI		p value
			Lower bound	Upper bound	
Mukim[a]	MK.A	.821	.301	2.241	.700
	MK.B	.396	.110	1.422	.155
	MK.C	.828	.051	13.353	.894
	MK.D	1.618	.591	4.435	.349
	MK.E	5.643	1.290	24.685	.022
	MK.F	9.415	4.233	44.721	.001
	MK.G	2.620	.859	7.991	.091
	MK.H	1.559	.562	4.325	.394
	MK.I	2.865	.767	10.703	.117
	MK.J	13.231	2.837	61.715	.001
	MK.3	2.854	.960	8.487	.059
	MK.4	6.127	3.537	27.220	.008
	MK.5	3.126	1.018	9.606	.047
	MK.7	6.289	1.567	25.238	.009
	MK.6 (ref)	.	.	.	.
Place of work[b]	Town centre	2.128	.971	4.662	.059
	Village	1.189	.591	2.391	.627
	Others	4.678	2.029	10.787	<.001
	Small town	.	.	.	.
Distance to work place (km)[c]	1-2km	.752	.298	1.897	.546
	2-4km	.292	.103	.833	.021
	4-8km	1.637	.675	3.974	.276
	8-12km	1.367	.592	3.160	.464
	More than 12km	.	.	.	.

The reference category is poor perception; Multiple logistic regression (backward stepwise): likelihood ratio; (chi-square=61.784, df = 22, p<0.001); a; chi-square=37.650, df=14, p value=0.001. b; chi-square=15.601, df = 3, p=0.001. c; chi-square=12.921, df=5, p value=0.024

Future planning based on people's views is an important component suggested by this paper. This allows both local communities and official planners to achieve sustainable development. It can be use as a guide for sound urban development in Malaysia as well as in developing countries.

5.3 Predictors of Good Respondents' Future Plans

The concept of good future plans is the one that the respondents answer Yes and give effective participation by their feedback of all the items related with future planning in the questionnaire, or those people who have a good level of planning related with development process [29,11]. Moreover, poor future plans is the one that the respondents answer No and do not give effective participation in their feedback in the most of items related with future planning items in the questionnaire, or those people who have a poor level of future planning toward urban development pressure. The range for good future plan was 0.57 to 1.00 while, the poor future plan of respondents was ranged 0.0 – 0.56.

Among job categories, respondents who worked as operators, transportation and general workers had got the highest future plan (OR=4.484, CI: 1.572-12.791, p=0.005), followed by those in sales and marketing (OR=4.376, CI: 1.620-11.820, p=0.004), housewives and others (OR=3.690, CI: 1.260-10.811, p=0.017), and in agricultural, forestry, finishing and hunter (OR=3.129, CI: 1.192–8.211, p=0.021) than those who worked in services. The respondents aged younger than 37 years old had got the highest future plan by 6.211 times (OR=0.161, CI: 0.057-0.454, p=0.001) and 1.996 times (OR=0.501, CI: 0.274-0.917, p=0.025) than those aged 54-70 and 38-53 years, respectively. Single people had got higher future plan (OR=2.978, CI: 1.465-6.052, p=0.003) than married respondents as shown in (Table 10). The result of these three factors significantly affected future plans and showed that the single people normally have more flexibility in thinking toward future plans than married people. Furthermore, the people working in business sector such as: sales and marketing and general workers have more planning and like more development investment than others. Normally, the younger people show more future planning than others, since they usually aspire to achieve financial stability to fulfill their coming dreams.

Table 10. Predictors of good future plans

Good future plan		OR	95% CI		p value
			Lower bound	Upper bound	
Marital status [a]	Single	2.978	1.465	6.052	.003
	Others	1.269	.401	4.016	.685
	Married	.	.	.	.
Job category [b]	Administration and management	.257	.047	1.395	.115
	Professional, technical and related	1.032	.393	2.711	.948
	Clerical and related jobs	1.106	.286	4.276	.884
	Agricultural, forestry, fishing and hunter	3.129	1.192	8.211	.021
	Housewives and others	3.690	1.260	10.811	.017
	Sales and marketing	4.376	1.620	11.820	.004
	Operators, transportation and general workers	4.484	1.572	12.791	.005
	services (ref)	.	.	.	.
Age (41.14±11.12 years) [c]	54-70 years	.161	.057	.454	.001
	38-53 years	.501	.274	.917	.025
	21-37 years (ref)	.	.	.	.

The reference category is poor; Multiple logistic regression (backward stepwise): likelihood ratio; (chi-square=76.976, df=20, p<0.001).; a; chi-square=9.315, df=2, p value=0.009. b; chi-square=26.341, df=7, p value<0.001. c; chi-square=14.901, df=2, p value=.001

These results will be considered effectively if the lower and upper bounds were in same value style, i.e. if the lower and upper bounds were negative then it will be accepted to reject the null hypothesis however, it will not be used in comparison. In addition, it is recommended that all results have odd ratio higher or lower but not equal to 1 to reject the null hypothesis because in this case there is not significant effect of the factor compared to the standard. All factors with reasonable confidence interval and accepted odd ratio will be in comparison to determine the highest contributing factor [35,36].

6. CONCLUSION

Top down approach adopted by planners is not always suitable to achieve sustainable development. Therefore, imposing urban development in Malaysia has led to some socio-economic and severe environmental problems at rural and prei-urban areas. To have sound and sustainable development residents' perception should not be ignored in planning. This paper developed a simple model that will help planners and decision makers to understand the current trend of urban development and enhanced their capacity to formulate sound policies. The model showed the significant factors affecting the perception and future plans of Balik Pulau communities. These include place of work, and distance to the work place. While, the association factors that affected community future plans are martial statues, job category and age. Nevertheless, the majority of the respondents have poor future plans toward urban development pressure. The model managed to provide different sceneries and options for the planners to select the good perception. The paper confirms that sustainable development should reflect the needs and the desires of the local community. Therefore, planners should find scientific ways to incorporate and consider the needs of rural communities in implementing any developmental project.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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