PLANNING MALAYSIA:
Journal of the Malaysian Institute of Planners
VOLUME 16 ISSUE 3 (2018) Page 97 – 108

GAHAI AGROPOLITAN PROJECT IN ERADICATING POVERTY: MULTIDIMENSIONAL POVERTY INDEX

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Abstract

The planning and development of Agropolitan Project in Malaysia began in 2007 and was aimed at eradicating extreme poverty in Malaysia. This study aims to discuss the design and construction of Agropolitan Project in eradicating extreme poverty among its participants. This study uses the Multidimensional Poverty Index (MPI) found in the 11th Malaysian Plan, which includes the dimension of education, health, living standards, and earning. In addition, this study utilizes a survey involving 45 participants of an agropolitan project from Gahai, Lipis, Pahang. The result shows that only 5 of the respondents fall into the multi-dimensional poverty category, which involves 11.9 percent of the household members. The result of this study shows that the planning and development of Gahai Agropolitan Project, Lipis has succeeded in eradicating extreme poverty among the project participants. Deprivation faced by the respondents based on the MPI analysis can help policy makers in the design and construction of future agropolitan projects.

***Keywords*:** agropolitan, poverty, multidimensional poverty index

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INTRODUCTION

Malaysia's success in eradicating poverty is indeed an amazing feat. However, the phenomenon of poverty is still ascociated with the issue of imbalanced development between the urban and rural areas. At the national level, poverty rate in rural areas is higher than in urban areas, which causes the rural poor to lag far behind in aspects of education, technology, living standard, and social and economic opportunities (Asan, 2008). Therefore, the government has designed and implemented various programs to alleviate rural poverty, including the Rural Mega Leap Program (*Program Lonjakan Mega Luar Bandar* - PLMLB) aimed at eliminating rural poverty by improving income and quality of life and accelerating development in isolated and abandoned rural areas (KKLW, 2012).

The enforcement of PLMLB covers the agropolitan project implemented by the Ministry of Rural and Regional Development (MRRD). To date, in Malaysia, there are 11 agropolitan projects developed since 2007. The implementation of this program enables project participants to earn around RM900 – RM1,800 monthly, thus escaping poverty. Since agropolitan project is a comprehensive development project, it cannot be measured solely based on the Poverty Line Index. Therefore, this paper discusses the planning and the role that the agropolitan project plays in eradicating poverty and measures the poverty of project participants using the Multi-Dimensional Poverty Index (MPI).

LITERATURE REVIEW

The Basic Concept of Agropolitan Planning and Development

The weaknesses in conventional rural development model has led to the development of an alternative rural development program (Buang, Habibah; Hamzah, & Ratnawati, 2011). In 1974, economist John Friedman introduced the concept of agropolitan, which prioritizes developmental planning from the lowest tier which aims to improve the socio-economical status of the rural community. Aside from that, agropolitan also prioritizes the developmental network between urban and rural areas at the community level (Friedmann & Douglass, 1978; Friedman & Weaver, 1979; Douglass, 1981; Hardoy & Satterwait, 1986). Theoretically, agropolitan is a development program aimed at addressing the weaknesses of the conventional development program based on the "*Growth Pole Approach*". This is beacause the conventional development method is mainly a "top-down" approach that prioritizes competition in development rather than cooperation for development (Murdoch, 2000; Akkoyunlu, 2015).

The key features of agropolitan are the intergrated developmental planning which involves a complete physical infrastructure and institution, aside from an optimal resource utilization (Buang et al., 2011). Economic activity around the agropolitan area will contribute to the regional development. This includes access to off-farm, non-farm, and commercial employment opportunities

in the agropolitan area. According to Zulfa, Syamsul, Endang, Tajuddin and Aris (2009), agropolitan is an attempt to establish a developmental model based on "decolonisation", "democratisation", "self-empowerment", and "reaching out". Friedman and Weaver (1978), on the other hand, stated that agropolitan is a paradigm shift that emphasizes the relocation of natural resources production and manufacturing. Now, as an alternative developmental model, agropolitan has become the choice for several developing countries in their rural development plan such as Indonesia, Nepal, and Malaysia (Bishna 1995; Zulfa et al., 2009; Hayroll, Ahmad, Khairuddin, Jegak, & Jeffrey, 2010).

The Role of Agropolitan in Eradicating Extreme Poverty in Malaysia

The planning and development of agropolitan projects in Malaysia focus on the eradication of extreme poverty in rural areas rather than the establishment of an agricultural town as proposed by Friedman (Buang et al., 2011). According to Hayroll et al. (2010), agropolitan aims to eradicate extreme poverty in Malaysia's rural areas. Under the supervision of the Prime Minister's Department, four ministries, including the Ministry of Rural and Regional Development (MRRD), have been tasked to assist the government in eradicating poverty. Out of the 10,000 households categorized as extremely poor, 5,600 have been entrusted to the KKLW while the rest are managed through the economic corridor development projects (Hayroll et al., 2010). To date, there are 11 agropolitan projects developed in five states namely Sarawak, Sabah, Pahang, Kedah, and Perak, known for states having high rates of extreme poverty.

According to MRRD, the Malaysian government has allocated RM960 million for the development of agropolitan projects. The development of these agropolitan projects are managed by various government agencies such as the Federal Land Consolidation and Rehabilitation Authority (FELCRA), Kedah Regional Development Authority (KEDA), South Kelantan Development Authority (KESEDAR), Rubber Industry Smallholders Development Authority (RISDA) and others. In addition, the agropolitan project also focuses on the development of three key components namely physical, economy, and human capital (Table 1). The physical component refers to the provision of basic infrastructure and amenities such as houses, public halls, kindergartens, mosques, business premises, electricity and water supply, etc. The economic component, on the other hand, involves the development of "*Ladang Sejahtera*" with either rubber or oil palm as its commodity crop. The third component is the development of human resources, i.e. the provision of courses and training programs for participants to improve their knowledge and skills.

Table 1: Components of Agropolitan Project Development

Physical	Economy	Human Resource
House	*Ladang Sejahtera*	Religious program
Mosque	Commercial Farm	Family oriented program
Multi-purpose hall		Leadership program
Hall		Entrepreneurship program
Daycare/kindergarted/PPAK		Skills training program
Playground		Educational program
Water supply		
Electricity		
Roads		
Drainage system		

Source: KKLW, 2012

In terms of participant selection, those who are eligible to participate in the Agropolitan Project are households whose earnings fall under the current Poverty Income Line (PLI) and are registered under the hardcore poor (*e-Kasih)* database. Additionally, there are also those who were selected from the state's poverty eradication focus groups. In order to participate in the project, prospective participants must go through three steps, namely the initial name list proposal, the interview process, and the state level focus group consideration before being subsequently accepted as Agropolitan Project participants.

RESEARCH METHODOLOGY

Research Area

This research was conducted in Gahai, Lipis, Pahang, Malaysia. The development of the Gahai Agropolitan Project began in 2007 and ended in 2012. It covered an area of 238.76 hectares, involving 50 participants within the settlements. This project was supervised by an executing agency appointed by the MRRD, namely RISDA. The selection of Gahai Agropolitan Project for this research was based on two criteria. Firstly, because of the poverty issue – the Gahai Agropolitan Project was a poverty eradication project of the state of Pahang, one of Malaysia's state with the highest poverty rate (Economic Planning Unit, 2015). Secondly, the selection was based on projects with a duration of over 5 years that were capable of showing project impacts. The Agropolitan Project was implemented in 2007 and completed in 2012 (KKLW, 2012). Due to the development of over five years, research could be conducted in this area to study the impact of the agropolitan project in eradicating poverty among its participants.

Sampling and Data Collection

This study involves Gahai Agropolitan Project participants. The rational of this selection is that they were involved directly with the project, as hardcore poor

selected to participate in the early stage of the project development. This study uses purposive sampling; this sampling method is able to reach a targeted sample quickly, and proportionality is not the main concern. A total of 45 Agropolitan Project participants consisting of 252 household members were chosen as the sample for this study. The determination of the number of respondents, or sample for this study was based on the number of samples as proposed by Krejcie and Morgan (1970). The data collection was done via in-depth interviews and a questionaire survey which includes the respondent's profile and other questions related to the Multidimension Poverty Index (MPI) such as education, health, living standards, and income. The questions consist of open- and close-ended questions, where all questions have been adjusted to meet the needs of the data form used to calculate the Multidimensional Poverty Index (MPI).

The Application and Measurement of MPI

This study applied the MPI found in the 11th Malaysian Plan (MP-11) (Economic Planning Unit, 2015). Table 2 shows the list of dimensions and indicators stated in the research's MPI. The weight of each indicator is determined based on the number of dimensions and indicators in the MPI. The total weighted amount for the four dimension is 1. Each dimension has a weighted value of 1/4 and this value will be further divided according to the number of indicators. For example, since the education dimension has two indicators, 1/4 will be divided by two, hence each indicator for the education dimension will have a value of 1/8. The weight determination for each indicator is done by assuming that each dimension is equally important in measuring individual poverty. After determining the form and portion of the MPI, the calculation of MPI for each individual is done based on the amount of deprivation of each indicator.

The calculation of MPI for this study is based on Alkire and Foster (2011), and Norzita and Siti Hadijah (2014). These studies outlined the 12 key steps in calculating MPI. The MPI value is the product of two measures: (1) the multidimensional headcount ratio (H), and (2) the intensity of poverty (A). The headcount ratio, H, is the proportion of the population that is multidimensionally poor ($H = q/n$), where q is the number of people who are multidimensionally poor and n is the total population.

$$A = \frac{\sum_1^q c}{qd} \qquad (1)$$

Second, the intensity of poverty, A. The intensity of poverty reflects the proportion of the weighted component indicators, d, in which, on average, poor people are deprived. The deprivation scores for only poor households are summed and divided by the total number of indicators and by the total number of poor persons (Equation 1); where c is the total number of weighted deprivations the poor experience and d is the total number of component indicators considered.

Table 2: Summary of dimensions, indicators, and cut-off line used

Dimension	Indicator	Poverty line Cut-off	Weight
Education	Number of years of schooling	All household members aged 17-60 years old have less than 11 years	1/8
	School attendance	Children between the 6-16 years of age who do not attend school	1/8
Health	Facilities	Distance between home and healthcare facilities exceeding 3 km and no mobile clinics available	1/8
	Clean water supply	In addition to in-house treated water supply and public water pipes/ standpipe	1/8
Living standard	House condition	Old and decrepit	1/24
	Bedroom	More than 2 household member per room	1/24
	Toilet	Other than flush toilet	1/24
	Garbage collection	No amenities	1/24
	Transportation	All household members neither use private transport nor public	1/24
	Basic communication	Do not own a landline or a mobile phone	1/24
Income	Income	Average mothly income of less than PLI*	1/4

*****This study uses Malaysia's 2014 rural PLI = RM840
Source: Eleventh Malaysia Plan (2015)

RESULTS

This section discusses the respondents' profile and the calculation of poverty using MPI. Based on Table 3, the majority of the participants (82.2 percent) were male and the remaining 17.8 percent were female. The breakdown by age of the respondents shows that participants' age between 46-50 years old made up the majority of the respondents with 28.9 percent, followed by participants between 36-40 and 41-45 years old with 22.2 percent each. This is then followed by participants who were 56 years and above with a small percentage of 11.1 percent. The smallest percentage is for participants below 35 years of age, making up a mere 2.2 percent.

The analysis on education level shows that the majority of the Gahai Agropolitan Project particpants have completed their secondary education with 51.1 percent of them having Sijil Pelajaran Malaysia (SPM) while 17.8 percent of them only have a lower secondary level of education (PMR/SRP). Of the total number of respondents, 26.7 percent of them only have primary school education, i.e., the sixth grade. Although this number is quite high, most of them were 50 years old and above. For the number of dependents, the data shows that most of

the respondents have more than four dependents or household members with the highest number of household memberd recorded at 5-6 people per household. Meanwhile, data for respondents with 1-2 household member and 3-4 household member shows values of 11.1 percent and 26.7 percent, respectively.

Table 3: Respondent's profile

Item	n = 45	
	Percentage (%)	Mean
Gender		
Male	82.2	
Female	17.8	
Age		
Below 35	2.2	
36 – 40	22.2	
41 – 45	22.2	(46.22)
46 – 50	28.9	
51 – 55	11.1	
56 and above	13.3	
Education		
Primary school/ UPSR	26.7	
Lower Secondary school/PMR/SRP	17.8	
Secondary school/ SPM	51.1	
Higher secondary: STPM/certificate	2.2	
Number of household members		
1 – 2	11.1	
3 – 4	26.7	
5 – 6	44.4	(5.60)
7 – 8	13.3	
More than 9	4.4	

Source: Field Study, 2017

Table 4 shows the percentage of respondents and the degree of deprivation they faced. The dimension and indicator for Income shows that 4.4 percent of the respondents faced deprivation as their income was below the Poverty Line Income (PLI). On the other hand, the dimension of education shows that there were respondents who were deprived in terms of the number of years of education and school attendance. For the household education indicator, 48.9 percent of the respondents were deprived. Besides, 17.8 percent of the respondents were also deprived in terms of school attendance for household members aged 6-17 years old. These numbers indicate that there were respondents whose household members did not complete the basic number of years of schooling required.

Table 4: Deprivation faced by the household of the participants of the Gahai Agropolitan Project by indicators

Deprivation faced	Number of respondents	Percentage (%)
Income	2	4.4
Family members, Years of schooling	22	48.9
School attendance	8	17.8
Healthcare facilities	0	0
Clean water supply	0	0
House condition	0	0
Number of bedrooms	16	36.6
Toilet	0	0
Garbage disposal	45	100
Basic communication	0	0
Transportation	0	0

Source: Field Study, 2017

For the dimension of living standard, the analysis shows that there were respondents who were deprived in two of the indicators, namely the number of bedrooms and garbage collection service. The result shows that all respondents faced the problem of garbage disposal service indicator. Aside from that, 36.6 percent of the participants were also deprived in the number of bedrooms indicator. For the health dimension, there was no reported deprivation in terms of health facilities and clean water supply.

Table 4 shows the percentage of respondents and the deficiency they faced in the multi dimensions stated, while Table 5 shows the number of deprivation faced by the respondents. To be considered poor in terms of MPI, the maximum number of indicators deprivation faced by the respondents is four. Respondents who experienced deprivation in one or two indicators were the highest percentage at 33.3 percent for both. Meanwhile, deprivation in three or four indicators were at 22.2 percent and 11.1 percent, respectively.

Table 5: Percentage of Gahai Agropolitan Project Household that faced deprivation based on the number of indicators

Number of deprived indicator	Number of respondent	Percentage (%)
1	15	33.3
2	15	33.3
3	10	22.2
4	5	11.1

Source: Field Study, 2017

According to Alkire and Foster (2011), individuals can be classified as multidimensionally poor if they experienced deprivation in more than 1/3 of the total number of indicators found in the MPI. For the purpose of this study, a

respondent is said to be poor when he/she experienced deprivation in four indicators (k=4) or more. Based on Table 5, there were five respondents who fall into the multidimension poor category for experiencing deprivation in four indicators. MPI not only takes into account the number of respondents but also the number of household members. If five respondents were deprived on four indicators, the family members for each respondent were also included in calculating the headcount ratio (H) according to the MPI method. Based on Table 6, 30 out of the 252 household members of the Gahai Agropolitan Project participants were poor with a headcount ratio (H) of 0.119, or 11.9 percent who remained poor after 5 years of the Agropolitan Project implementation.

Table 6: Multidimensional Poverty Index

MPI calculation component	k = 4
Headcount ratio, H (30/252)	0.119
Poverty average (A)	0.333
Adjusted headcount ratio, Mo	0.0396

Source: Field Study, 2017

Another benefit of the MPI measurement is that it not only calculates the poverty rate of the respondents, but also the severity of the situation faced by the household members. To take into account the severity of poverty faced by its household members, the adjusted headcount ratio (M_O) needs to be counted. The adjusted headcount ratio (M_O) represents the share of the population that is multidimensionally poor, adjusted by the intensity of the deprivations suffered. At k= 4, the adjusted headcount ratio (M_o) was 0.0396. Aside from that, at K= 4, the poverty average was 0.333, which means that on average, they experienced a deficiency of 33.3 percent of the overall dimensions and indicators involved.

GAHAI AGROPOLITAN PROJECT IN ELIMINATING POVERTY AMONG ITS PARTICIPANTS

The Gahai Agropolitan Project is capable of eliminating poverty among its participants by improving their income and livelihood. Participation in the Gahai Agropolitan Project has provided them with employment opportunities, i.e. active involvement in *Ladang Sejahtera* (wellbeing farm) and in helping them to generate income. The results of this study show that there were only two or 4.4 percent of the respondents whose earnings fell below the Poverty Line Income (PLI) which is RM840, while the rest earned above the PLI. However, based on the MPI, 11.1 percent of the participants remained poor after 5 years of the Agropolitan Project implementation. They were deprived in several indicators, such as education (in terms of years of schooling of family members, schooling attendence), living conditions (number of bedrooms), amenities (garbage collection), as well as income.

Gahai Agropolitan Project has enhanced the development of the rural hardcore poor community by improving their livelihood. Project participants has enjoyed a much better life since they now own better homes along with complete basic amenities. Human capital development also helped to improve their skills, which makes it useful in their everyday lives. For example, their involvement in entrepreneurship, leadership and skills courses can benefit them in the long run, in terms of widening employment opportunities and access to information and knowledge. Therefore, this project should be continued to remove poverty in total specifically for the Gahai Agropolitan Project.

The success of the Gahai Agropolitan Project in eliminating poverty should be expanded to rural areas particularly in states that show high poverty rate such as Sabah, Terengganu, Pahang and Kelantan. In addition, the selection of project participants should be reassessed whereby participants should not be limited to the extreme poor category alone but also all the households that are categorized as poor. This need is in line with the efforts of the government in eliminating poverty holistically.

CONCLUSION

Since its inception in 2007, participants of the Gahai Agropolitan Project, Lipis have enjoyed a fairly comfortable life through the provision of basic amenities and support in their daily lives. Participants have also earned higher revenue through active participation in the Agropolitan Project. The results of this study show that 11.1 percent of the participants of the Gahai Agropolitan Project experienced multidimensional poverty or only 11.9 percent of the household members remained poor after 5 years of the Agropolitan Project implementation. This clearly indicates that the Gahai Agropolitan Project has been able to eradicate poverty among its participants.

The application of the MPI has been able to provide a more accurate measurement of the participants poverty since it takes into account financial and non-financial aspects, while providing information on the deprivation that the project participants have experienced from the aspects of dimensions and indicators. The deprivation data from the dimensions and indicators are vital to policy makers in their decision making especially in planning and developing future agropolitan and rural development projects in Malaysia.

Additionally, the findings of this study show that future planning and development of the agropolitan project should focus on the dimensions and indicators with the highest degree of deprivation among its participants and their household members, such as garbage disposal facilities, housing, and education. As for garbage collection, since the Gahai Agropolitan Project was located in the rural area, it did not fall under the jurisdication of any urban agencies, and thus such facilities could not be provided to its participants. However, this facilities need to be provided since it is one of the crucial indicators in the Multidimension

Poverty Index as found in the Eleventh Malaysian Plan. Therefore, the proposal for these facilities can be forwarded to the responsible party. Similarly, for other indicators, the necessary step to overcome any shortcomings can be taken since all aspects of deprivation have now been made aware to the policy makers and implementors.

ACKNOWLEDGEMENT

The authors would like to thank the Universiti Kebangsaan Malaysia Mainstream Research Grant (UKM-AP-2014-17) and the Universiti Kebangsaan Malaysia Research University Grant (UKM-GUP-2015-050) for funding the fieldwork and other research activites related to this project.

REFERENCES

Akkoyunlu, S. (2015). The potential of rural-urban linkages for sustainable development and trade. *International Journal of Sustainable Development & World Policy*, *4*(2), 20.

Alkire, S. & Foster, J. (2011). Counting and multidimensional poverty measures. *Journal of Public Economics*, *95*(7–8), 476-487.

Asan A. G. H. (2008). *Pembangunan wilayah dan alam sekitar: Cabaran dalam merealisasikan Rancangan Malaysia Kesembilan*. Sintok: Penerbit UUM.

Bhisna, N. B. (1995). Promoting small towns for rural development: A view from Nepal, *Asia Pacific Population Journal, 10*(2), 27-50.

Buang, A., Habibah, A., Hamzah, J., & Ratnawati, Y. S. (2011). The agropolitan way of re-empowering the rural poor. *World Applied Sciences Journal, 13,* 1-6.

Douglas, M. (1981). Thailand: Territorial dissolution and alternative regional development for the central plains. In W. Stohr & D.R.F. Taylors (Eds), *Planning from above or below?* (pp. 183-208). Chichester: John Wiley.

Economic Planning Unit (2015). *Eleventh Malaysia plan, 2016-2020: Anchoring growth on people*. Putrajaya: Prime Minister's Department.

Friedmann, J., & Douglass, M. (1978). Agropolitan development: towards a new strategy for regional planning in Asia. In F. Lo & K. Salih (Eds), *Growth pole strategy for regional development policy* (pp. 163-192). Oxford: Pergamon Press.

Friedmann, J., & Weaver, C. (1979). *Territory and function*. London: Edward Arnold.

Hardoy, J. E., & Satterthwaite, D. (1986). Shelter, infrastructure and services in Third World cities. *Habitat international*, *10*(3), 245-284.

Hayroll, A. M. S., Ahmad, F. A. N., Khairuddin, I., Jegak, U., & Jeffrey L. D. (2010). Agriculture project as an economic development tool to boost socio-economic level of poor community: The case of agropolitan project in Malaysia. *African Journal of Business Management, 4*(11), 2354-2361.

Kementerian Luar Bandar dan Wilayah (KKLW) (2012). *Garis panduan pengurusan ladang sejahtera projek agropolitan di bawah Program Lonjakan Mega Luar Bandar (PLMLB)*. Putrajaya: Author.

Krejcie, R. V., & Morgan, D. W. (1970). Determining sample size for research activities. *Educational and Psychological Measurement*, *30*(3), 607-610.

Murdoch, J. (2000). Networks - A new paradigm of rural development? *Journal of Rural Studies*, *16*(4), 407-419.

Norzita, J., & Siti Hadijah, C. M. (2014). Realiti kemiskinan: Satu kajian teoritikal. *Jurnal Ekonomi Malaysia, 48*(1), 167-177.

Zulfa, F. I., Syamsul, M., Endang, G. S., Tajuddin, B., & Aris, M. (2009). Agroindustry based agropolitan institutional design with analytical network process. *Jurnal Teknologi Pertanian, 19*(3), 130-137.